



**Forest Carbon Partnership Facility (FCPF)
Carbon Fund**

Emission Reduction Program Idea Note (ER-PIN)

Country: Chile

Entity: National Forest Corporation (CONAF)

ER Program Name: Emissions Reduction focused on Temperate Forest Degradation in Chile.

Date of Submission or Revision: March 7, 2014

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1. Entity responsible for the management of the proposed ER Program

1.1 Entity responsible for the management of the proposed ER Program	
Name of managing entity	National Forest Corporation (CONAF) of the Ministry of Agriculture of Chile.
Type and description of organization	Chilean forest service: the Climate Change Unit, which coordinates all forest and climate change issues at the national level, was established as part of its forest governance
Main contact person	Angelo Francesco Sartori Ruilova
Title	Chief of the Climate Change Unit and UNFCCC REDD+ National Focal Point
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1.2 List of existing partner agencies and organizations involved in the proposed ER Program		
Name of partner	Contact name, telephone and email	Core capacity and role in the proposed ER Program
Santiago Climate Exchange (SCX)	Aldo Cerda	Member of the Technical Group of Experts of the Forest and Climate Change Board.
Ministry of the Environment	Fernando Farias	Member of the Technical Group of Experts of the Forest and Climate Change Board and Head of the Climate Change Office of the Ministry of the Environment.
LessCarbon	Andrés Morales	Member of the Technical Group of Experts of the Forest and Climate Change Board.
Agrarian Innovation Foundation (FIA)	Aguiles Neueschwander	Agency reporting to the Ministry of Agriculture, responsible for promoting entrepreneurship in the agriculture, livestock and forestry sector. The Foundation has contributed to the National Forest and Climate Change Strategy (FCCNS) by funding the construction of four allometric functions of native Chilean forest species of the Sclerophyllous type.
Forestry Institute (INFOR)	Hans Grosse	Member of the Forest and Climate Change Board, which is responsible for forestry research and statistics in Chile. Executive Director of INFOR, responsible for the jurisdiction of the semi-arid zone of Chile.
POCH Ambiental environmental consultants	Luis Costa	Member of the Technical Group of Experts of the Forest and Climate Change Board. Consultancy firm specializing in climate change issues. Sustainability Manager of the firm.
Office for Agricultural Research and Policy (ODEPA)	José Antonio Prado	Member of the Forest and Climate Change Board, responsible for analyzing and formulating public policies in the forestry/agriculture/livestock sector. In charge of negotiations on forestry/agriculture/livestock issues in UNFCCC
Verified Carbon Standard (VCS)	David Antonioli	Jurisdictional and Nested REDD+ (JNR), used as a basis for the ER Program and this proposal, because it is the only standard with a jurisdictional framework compatible with

		the Carbon Fund Methodological Framework. CEO of VCS.
Universidad de Concepción	Eduardo Navarrete.	Support for jurisdiction development. Technical counterpart of the CONAF Climate Change Unit.
Universidad Austral de Chile	Jorge Gayoso	Support for the construction of allometric functions of species of Chilean temperate forests. Technical counterpart of the CONAF Climate Change Unit.
Mapuche Community of Quín-Quen	Joaquín Meliñir	Leader of the Mapuche –Pehuenche Quín-Quen Indigenous Community
Environment Directorate of the Ministry of Foreign Affairs	Waldemar Coutts	Director of the Environment and Maritime Affairs Directorate of the Ministry of Foreign Affairs. UNFCC Focal Point for Chile.
Ministry of Energy	Juan Pedro Searle	Coordinator of the Partnership for Market Readiness (PMR)
Patagonia Sur	Matías Rivera	Member of the Technical Group of Experts of the Forest and Climate Change Board. Proposer of the REDD+ project validated by VCS.
Embassy of New Zealand in Chile	John Capper	Support for coordination of technical cooperation with the New Zealand Ministry of the Environment and CONAF. Ambassador of New Zealand to Chile.
Universidad Mayor	Pablo Honeyman	Support for jurisdiction development. Technical counterpart of the CONAF Climate Change Unit.
NGO Ingenieros Forestales del Bosque Nativo	Rodrigo Pedraza	Support for revision of the R-PP and attendance at meetings of the Forest Carbon Partnership Facility (FCPF), representing Chilean civil society.
National Firewood Certification System	Vicente Rodríguez	Support for dissemination of the FCCNS, with focus on topics relating to sustainable use of firewood.
The Climate, Community and Biodiversity Alliance (CCBA)	Víctor Arrington and Joanna Durbin	International NGO promoting activities for accreditation involving greenhouse gas mitigation, with local community participation. A CONAF partner, working specifically with its Climate Change Unit, for the promotion of social and environmental safeguards.
The Gold Standard Foundation (GSF)	Adrian Rimmer	Certification scheme for carbon projects, with which CONAF has a formal cooperation agreement for strict implementation of the market component of the FCCNS. CEO of GSF.
Government of Switzerland – Swiss Agency for Development and Cooperation (SDC)	Jürgen Blasser	Technical counterpart of the Forestry NAMA (Nationally Appropriate Mitigation Actions)

2. Authorization by the National REDD+ focal point

Name of entity	National Forest Corporation (CONAF) of the Chilean Ministry of Agriculture
Main contact person	Angelo Francesco Sartori Ruilova
Title	Chief, Climate Change Unit
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2.1. Endorsement of the proposed ER Program by the national government.

Chile ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 and became a party to the Kyoto Protocol in order to join in and support world-wide initiatives to tackle the phenomenon of climate change and its environmental consequences, in particular for vulnerable countries such as Chile.

Because of the need for domestic efforts to be coordinated with the country's foreign policy in this area, the Government adopted Supreme Decree 466 of 1996 establishing the lead body dealing with climate change: the **National Advisory Team for Global Change**¹, which is operational and ongoing. **CONAMA** (the National Environmental Commission) was appointed at that time to chair the team and has now been superseded by the Ministry of the Environment (see Figure 2.2-1), as the coordinating body developing the country's environmental governance and helping to enforce the constitutional right of all its citizens to live in a pollution-free environment.

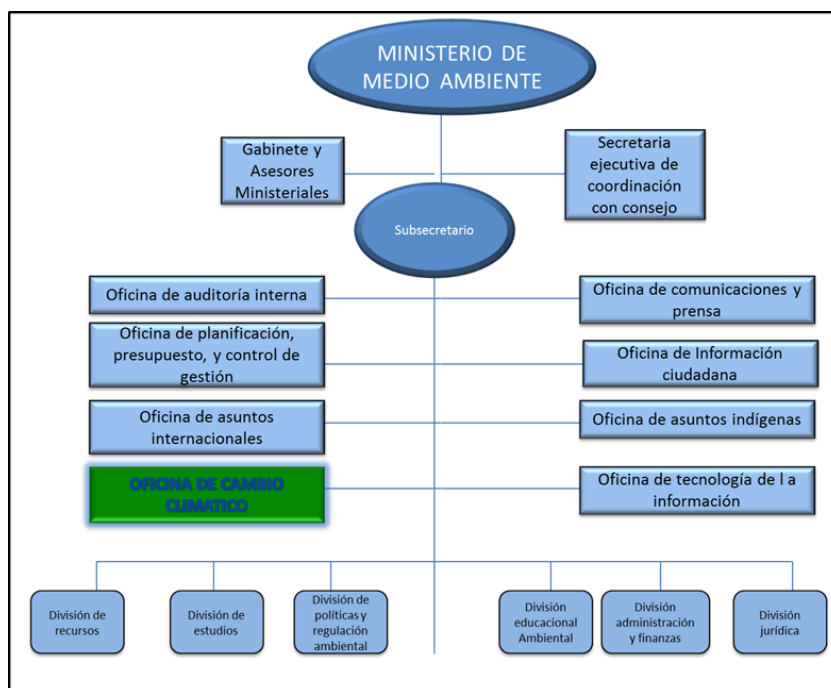


Figure 2.2-1. Current structure of the Ministry of the Environment

In 2006, the Team played an important role in the preparation of the National Climate Change Strategy², with the following three pillars:

- Adaptation to the effects of climate change.
- Mitigation of greenhouse gas emissions (GGE).
- Climate change capacity-building.

In 2009, in order to enhance inter-agency work, particularly in connection with international negotiations on climate change, the Interministerial Committee on Climate Change³ was created by Presidential Instruction. The Ministries of the Environment, Foreign Affairs, Agriculture, Transport and Telecommunications, Energy, Economy, Finance, Mining and Public Works are active participants. The task of this Committee is to formulate a joint and coordinated position of Chile in international climate change negotiations; it has a Technical Group which meets more frequently to discuss technical issues and provide advice at the ministerial level.

The **Ministry of Agriculture** is the government institution responsible for promoting, guiding and coordinating forest and agricultural activity in Chile. Under Decree-Law 294 of 1960, "its activities will be basically designed to increase national production, to protect and increase renewable natural resources and to improve public nutrition".

¹Decree 466 of the Ministry of Foreign Affairs, May 29, 1996, creating the National Committee on Global Change. <http://www.mma.gob.cl/transparencia/mma/vinculos.html>.

² National Climate Change Strategy, http://www.bcn.cl/carpeta_temas_profundidad/temas_profundidad.2007-04-11.5841476988/Estrategia%20nacional%20_2006.pdf

³<http://www.gobiernodechile.cl/media/2010/05/MEDIOAMBIENTE.pdf>

In order efficiently to promote development of the sector, the Ministry of Agriculture is active in the areas of research and transfer of technology and services, working with the following institutions closely involved in sector activities:

- Office for Agricultural Research and Policy (ODEPA).
- National Agricultural Development Institute (INDAP).
- National Forest Corporation (CONAF), responsible for “promoting the development of the country by means of sustainable management of forest ecosystems and mitigation of the effects of climate change, through the development and oversight of forest/environment legislation; protection of vegetation resources; and administration of the State’s Protected Forest Areas for present and future generations”, with specific reference to the topic of climate change. For both national and international purposes, CONAF is the forestry service of Chile.
- Foundation for Agricultural Innovation (FIA).
- Agrarian Research Institute (INIA).
- Forestry Institute (INFOR)
- Natural Resource Information Center (CIREN).

In May 2008, the Ministry of Agriculture established the Climate Change and Agriculture Council, chaired by its highest ministerial authority and consisting of representatives of the production, public and academic sectors. Its main function was to create a common approach among all Ministry staff towards the impacts of climate change on various forest, agriculture and livestock activities, and to identify the main actions required.

This Council helps the Ministry to identify the main aspects and priorities to be considered in a program of adaptation to climate change in the forest/agriculture/livestock sectors and to define the principal mitigation measures to be taken in these areas.

The Forest and Climate Change Board is the principal executing agency for REDD+ and, in general, for the supporting National Forest and Climate Change Strategy (FCCNS). The Board’s tasks include coordination of sector activities and decisions on reduction of emissions caused by deforestation and degradation, providing political guidance for the Initiative.

Following the REDD+ decision adopted at CoP19 in Warsaw, inviting countries to designate national focal points or national designated authorities for REDD+, Chile has already prepared the formal request in an Official Letter from the Minister of Agriculture, Mr. Luis Mayor, addressed to his counterpart in the Ministry of Foreign Affairs, Mr. Alfredo Moreno (Official Letter No. 99 of February 19, 2014).

The institutional arrangements for implementation of the FCCNS, whereby the REDD+ mechanism is managed at the national level, are thus administered by the Ministry of Agriculture and, under it, by the National Advisory Team on Climate Change and the Forest and Climate Change Board, in which CONAF is responsible for the Technical Secretariat and specifically for its Forestry Governance Climate Change Unit.⁴

The existing institutions and structures working in the FCCNS, including the REDD+ strategy and the ER program, are currently defined and channeled through the CONAF Climate Change Unit.

Technical coordination of the Emissions Reduction Program will be the responsibility of CONAF, in its capacity as technical secretariat of the Forest and Climate Change Board and as REDD+ national focal point for liaison with UNFCCC, as confirmed by the official reply from the Secretariat dated February 28, 2014.

The policy approvals required for the Emissions Reduction Program will be provided by the Forest and Climate Change Board, for which CONAF provides the technical secretariat, and as regards the purely technical issues each proposal and measure will be approved in the National Technical Group of Experts on Climate Change (GTNE) and participatory bodies involved in this area.

2.2 Political commitment

A. - National Climate Change Action Plan

In 2008, CONAMA introduced the National Climate Change Action Plan 2008-2012 as a short-term response to the components and objectives of the National Climate Change Strategy.

This Plan lays out a set of policy guidelines for the public agencies responsible for matters relating to climate change. It is also intended to be a tool to guide the production and academic sectors and nongovernmental organizations, as

⁴ Changes to the structure of Forestry Governance and creation of the Climate Change Unit by Resolution 278 of August 14, 2013 of the CONAF Executive Directorate.

it identifies issues that, in the State's view, must be tackled by the whole of society in order to address the effects of climate change.

The Plan's duration was limited to five years with a view to generating within a short time the information needed to develop longer-term national and sectoral plans for adaptation and mitigation.

The Action Plan proposes the following strategic perspectives for addressing the challenges posed by climate change in our society:

- Climate change as a key issue in Chile's public policies and national regulations
- Adaptation as crucial to Chile's future development and to an early response to climate change.
- Mitigation as a way to enhance the quality of growth, reduce overall GHG emissions and decrease the cost of adaptation
- Innovation in Chile's financial and business sectors as a means of increasing opportunities for investment in climate change mitigation and adaptation projects
- Assessment of future climate change commitments and their likely effects on international trade and macroeconomic balance as a long-term strategic approach
- Development of a knowledge base to support decision-making through integrated climate research and systematic climate observation and through citizen education, training, and awareness-raising

A second phase of the National Climate Change Action Plan for 2012 to 2014 is now under way. During this phase the focus will be on the following:

A.1.1. – Greenhouse gas (GHG) inventory and measurement:

- Design, implementation and coordination of the National Inventory System (SNI).
- Updating of the national inventory of greenhouse gases at least up to 2010.
- Carbon management program.

A.1.2. - Mitigation and low- carbon strategy:

- Mitigation Action Plans and Scenarios (MAPS - Chile) project
- Identification, design and implementation of nationally appropriate mitigation actions (NAMAs)
- Development of a national registry system for mitigation actions

A.1.3. - Vulnerability and adaptation:

- National adaptation plans for the forestry/agriculture/livestock, fishing and aquaculture and biodiversity sectors
- Vulnerability analysis of the water resources, health and infrastructure sectors

A.1.4. - Capacity-building and development:

- On-line course using the Climate Change Guide for school teachers
- Carbon footprint calculator for the public
- Yearly carbon footprint calculation by the Ministry of the Environment

A.1.5. - Negotiation and participation in international bodies:

- Technical coordination of participation by the Chilean delegation in UNFCCC negotiations
- Participation in the Organisation for Economic Co-operation and Development (OECD) Climate Change Expert Group
- Meetings of the Intergovernmental Panel on Climate Change (IPCC), the Ibero-American Network of Climate Change Offices (RIOCC), the joint European Union-Latin America environmental program (EUROCLIMA) and the Consultative Group of Experts (CGE)

Chile submitted its first national communication on climate change to the secretariat of the Convention in 2000 and its second national communication in 2011⁵. The second communication described the sweeping changes made to address national commitments in relation to climate change, including institutional and budgetary restructuring. In addition, a more in-depth diagnosis has been undertaken of the country's vulnerability to climate change and its opportunities for adaptation; information has been updated on the implications of actions to mitigate GHG emissions, resulting in breakthroughs reconciling economic development with low emissions. A voluntary pledge has been made, in the form of a multi-sectoral policy, to achieve a 20 percent reduction in projected emissions by 2020, taking 2007 as the base year.

⁵Second national communication of Chile on climate change. http://www.mma.gob.cl/1304/articles-50880_documentoCambioClimatico.pdf

On November 20, 2012, Chile registered with the Convention secretariat a Forestry NAMA receiving financial and technical support from the Government of Switzerland, which is an integral part of the country's FCCNS and provides the technical, legal, administrative and financial basis for REDD+ and for any initiative relating to the role of forests in efforts to combat climate change. The NAMA was a joint effort involving CONAF, the Climate Change Office of the Ministry of the Environment and the Directorate for the Environment and Maritime Affairs (DIMA) of the Ministry of Foreign Affairs. See official register at http://unfccc.int/cooperation_support/nama/items/6982.php

B. - Political commitment to REDD+

As outlined above, the institution selected to develop the REDD+ mechanism in Chile is the Ministry of Agriculture, which is structured to deal with issues of various kinds, so as to promote and contribute to the prevention, management and resolution of conflicts arising at the local, regional and national levels, and has the essential technical and administrative components to enable the State to implement international agreements on the subject of forests and climate change. Specific details of participation and collaboration are dealt with by the following bodies:

- Forest and Climate Change Board (MBCC)
- National Technical Expert Group (GTNE)
- CONAF Group on Forests and Climate Change (GBCC)

These three bodies focus specifically on cross-cutting issues relating to forests and climate change. Other specific structures are already working on forest-related issues and will be used, directly or indirectly, for this purpose because they possess practical experience with processes of dialogue and consensus-building on forest and environmental issues among key stakeholders.

It should be noted that the designation of CONAF as the national REDD+ focal point for liaison with UNFCCC, which was endorsed at the political level by the Ministries of Agriculture, Foreign Affairs and the Environment, also promotes implementation of the Emission Reduction Program connected with the Carbon Fund. This Program has been part of the FCCNS, which since its inception in 2010 has been considering carbon market mechanisms and payment schemes for emission reduction/capture. This led to the creation of the **Platform for the Generation and Trading of Forest Carbon Credits in Chile (PBCCh)**, as will be explained in greater detail later in this document.

B.1.1. - Platform for the Generation and Trading of Forest Carbon Credits in Chile (PBCCh)

The FCCNS has a specific component relating to results-based payment for emission reduction/capture and carbon markets, which also covers REDD+ and which is called the Platform for the Generation and Trading of Forest Carbon Credits in Chile (PBCCh). The Platform is a technical, institutional and commercial forum bringing these potential financial benefits to the attention of the owners of forests and/or forestable land in Chile.

Additional details of governance and institutional arrangements are given in question 7.1 of this document.

3. STRATEGIC CONTEXT AND RATIONALE FOR THE ER PROGRAM

3.1 Brief summary of major achievements of readiness activities in country thus far.

The summary table below shows the major achievements of readiness activities in Chile. Greater detail is given in Annex IV of this document.

Table 3.1-1 Summary of the current status and/or major achievements of activities described in the R-PP

Topic within the R-PP (preparation phase)	Action, achievements or current status
Institutional arrangements	MBCC defined and being established
	GTNE defined and established
	GBCC defined and established
	PBCCh currently undergoing implementation, validation and pilot testing at the international level
Consultation and participation process	Process defined and being executed
	Uses Strategic Environmental and Social Assessment (SESA) and REDD+ Social and Environmental Standards (SES)
	Capacity-building program

	Gender mainstreaming and cross-cutting cultural relevance
	Stakeholder diversity (stakeholder mapping)
	Territorial approach incorporated
	Results are being input into the Environmental and Social Management Framework (ESMF)
Plan for Dissemination and Communication (PDC)	Adjusted in SESA process
	Headed by the National Communications Secretariat (SECOM) and regional communications secretariats
	Supported regionally by GBCC
Alignment with market standards	Collaboration agreements have been concluded for the main standards
	Compliance and inter-relationship with voluntary standard is sought
	The SESA process has been connected with REDD+SES
	Undergoing revision, JNR standards of VCS and GSF
Reference emission levels and Monitoring, Reporting and Verification System (MRV)	Updated to include 2013 data
	Increase in the net area of native forest
	Land use changes have been redefined
Definitions	The legal definition of "forest" remains
	There is still no legal definition of "degradation" but progress is being made in the light of useful proposals based on international carbon market standards, research and national expertise
Major legal provisions	Decree-Law 701 and amendments, currently awaiting approval of the incentives component. The regulatory section remains in force.
	Law 20.283 on recovery of native forest and forest development
FCCNS Strategy	Focus on solution of operational and information problems
	Focus on voluntary markets and national commitments initially
	Focus on small and medium-size landholders and indigenous landholders
	Increase in the number of forestry extension workers
	Enhancement of the Forest Management Plan
	PBCCh as a technical, institutional and commercial mechanism
	Jurisdictional and nested approach (JNR of VCS)
	Launch of specific studies on the Jurisdictions
	Study on carbon permits in Chile completed
	Study under way for a system of registration, deposit, trading and withdrawal of forest carbon credits
	Design and implementation of a profit-sharing system

3.2 Current status of the Readiness Package and estimated date of submission to the FCPF Participants Committee (including the REL/FRL, REDD+ Strategy, national REDD+ monitoring system and ESMF).

It is expected that the mid-term report will be submitted in the second half of 2014 and that the updated package, describing all the items in detail (Reference Emission Level (REL)/Forest Reference Level (FRL), REDD+ strategy, MRV and ESMF), will be finalized at the end of 2015.

A. Development of reference levels (RL)

Chile has decided that the FCCNS output, prepared with FCPF support, will be part of this national initiative, especially as regards enhancement of social safeguards through dissemination, participation and public consultation, definition of reference emission levels (REL) (or reference lines), Monitoring, Reporting and Verification Systems (MRV), as well as other elements requiring work to be determined following decisions of UNFCCC and similar voluntary agencies.

The RL and the projected mitigation scenarios are initially being defined nation-wide, using data from, for example, the Ongoing National Inventory of Forest Ecosystems compiled by INFOR since 2001 (emission factors and capture), information from soil use and soil use change maps updated by CONAF since 1996-1997 in the context of the

Cadastre of Native Vegetation Resources in Chile and other available inputs useful for such purposes. The data are channeled through the Mitigation Action Plans and Scenarios (MAPS)⁶ administered by the Climate Change Office of the Ministry of the Environment and CONAF is an active participant in the Executive Committee of the initiative.

In order to supplement the initial estimate of reference emission levels (REL) being provided by MAPS, more detailed work was commenced at the end of 2012 on jurisdictions and linked baseline studies. By using a common methodology to aggregate the specific REL for different parts of the country, this subnational approach will give more accurate estimates. It should be explained that MAPS serves a different purpose from REL, which are prepared using the methodological framework of the Carbon Fund and the VCS JNR. The purpose was not to develop a system of results-based payment but to muster the strongest possible arguments for Chile's future policy decisions on emission reduction commitments, indicating which sectors or subsectors of the economy are potentially most important for emission capture and/or reduction.

The construction of REL based on historical averages requires reliable data on forest cover and forest carbon stocks. Although Chile has a considerable amount of information on forest resources, there is a need for more detailed analysis and specific work on the use of such records to construct REL. Sources include:

- The Cadastre of Native Vegetation Resources in Chile, with records going back to 1997 and updated annually by region or groups of regions. Administered since 1993 as a national database, the Cadastre currently has a budget of about US\$3 million. It is based on cartographic data on vegetation in Chile and underpins all activity concerning reference levels and MRV. Ongoing National Inventory of Forest Ecosystems, compiled by INFOR since 2001.
- The Forest Carbon and Wood Energy Monitoring System in the Regions from Atacama to Magallanes, in existence since 2011. Permanent sampling plots are created for monitoring on an ongoing basis with new measurements every five years in principle, providing data on volume, growth, biomass and carbon.
- Extensive National Forest Inventory – 1996-1997⁷.
- The Allometric Functions and Biomass Initiative administered by CONAF since 2012 (involving processing of functions already available and generation of missing functions for aerial and underground biomass). Support has so far been provided by the Universidad Austral de Chile, the Universidad Mayor and the Foundation for Agrarian Innovation (FIA).
- The MAPS Chile project.
- Demographic, economic and social statistics.
- Sector statistics administered by CONAF, INFOR, the Chilean Timber Corporation (CORMA) and other key stakeholders.

B. Design of national forest monitoring and safeguard information systems

A Monitoring, Reporting and Verification (MRV) system is required both by the REDD+ mechanism and by the validation standards for projects concerning regulated and voluntary carbon markets. Such a system allows updating of information on carbon emissions and captures and other key elements in the context of the social and environmental implications of initiatives of this type. The FCCNS formulation requires one MRV system to be designed and implemented for the whole country and to include all information which, for instance, the State, international institutions, standards agencies, certifiers and bodies concerned with carbon trading need in order to hold efficient meetings.

In this connection, arrangements are being made to transform earlier forest monitoring data into a National Forest Monitoring System (SMFN) containing the MRV of the ER Program for the Carbon Fund and other similar parallel bodies that may be established in the future, in order to avoid duplication and parallel systems that are difficult to reconcile.

SMFN data will be derived from the following sources:

- The Cadastre of Native Vegetation Resources in Chile
- The Forest Carbon and Wood Energy Monitoring System: Incorporation of indicators of environmental and social safeguards, which are being developed through the Strategic Environmental and Social Assessment (SESA) and the work in this area being coordinated by CONAF.
- The Allometric and Biomass Functions Initiative led by CONAF.

⁶Additional information can be found at www.mapschile.cl/

⁷CONAF-UACH, 1999. Extensive National Forest Inventory. Cadastre of Native Vegetation Resources in Chile. CONAF-CONAMA-IBRD project. 12 pages. Internal unpublished document.

- The sector statistics of several institutions associated with the Ministry of Agriculture.

Other sources can provide confirmation, advice or support to the system, including:

- The CONAF Forest Development Program (Forest Extension Workers)⁸.
- The Territorial Information System SIT-CONAF⁹, which is a web platform giving open access to all CONAF cartographic data.
- The system for registration and evaluation of forest fires nation-wide,¹⁰ to become interoperable with SIT-CONAF in November 2014.
- The system for registration of monitoring activities, divided into oversight of execution of management plans and illegal felling at the national level¹¹, to become interoperable with SIT-CONAF in April 2014.
- System of cartographic and alphanumeric registration of management plans at the national level (administration of forestry legislation)¹², to become interoperable with SIT-CONAF in August 2014.
- Process for standardization and enhancement of management of the national and regional forest/agriculture/livestock sector using a Spatial Data Infrastructure (SDI) of the Ministry of Agriculture¹³, currently with active interoperability and operational for monthly forest reclamation certificates, with automatic on-line synchronization between the Aerial Photogrammetric Service (SAF), the Territorial Information System (SIT) and the Ministry of Agriculture IDE located on servers of the Natural Resource Information Center (CIREN).

Bids have been requested and a contract awarded for preparation of a conceptual model for Chile's SMFN, reflecting all inputs needed for the System to meet national and international requirements of transparency, effectiveness and reliability. Based on complete information about existing inputs, as well as the reference level construction features and the necessary inputs, a suitable conceptual model will need to be designed and, of course, put to use, in order to provide ongoing monitoring of the REDD+ activities specified in the FCCNS.

C. Work plan for SESA processes and for preparation of the Environmental and Social Management Framework (ESMF)

The Environmental and Social Management Framework is an instrument used by the FCCNS and its components, such as the ER Program, to address social and environmental issues in the manner agreed during the process of Strategic Environmental and Social Assessment. It will thus be necessary:

- To identify, with the assistance of the public, the main environmental and social impacts, as well as the legal and public policy implications for the REDD+ mechanism.
- To conduct studies on possible impacts/issues identified by stakeholder groups.
- To obtain feedback from key stakeholders on research findings and safeguard instruments.
- To obtain recommendations for improving the FCCNS and the ER Program, based on the diagnostic analyses and views of stakeholder groups.
- To prepare any safeguard documents needed to support and guide FCCNS implementation, which should include mitigation measures designed to prevent any negative impacts perceived by the whole range of key stakeholders, with emphasis on local indigenous and non-indigenous communities.

D. Stakeholder mapping, participation analysis and capacity-building

At the implementation stage of the ER Program and of the ESMF, work will continue on national mapping of stakeholders, which was pre-defined in the SESA process and which may be expanded through participatory processes and the communication and ongoing dissemination to be organized by CONAF. The national map of stakeholders prepared during the development of the SESA process is given below.

⁸ <http://www.conaf.cl/nuestros-bosques/bosque-nativo/asistencia-profesional/>

⁹ <http://sit.conaf.cl/>

¹⁰ <http://www.conaf.cl/incendios-forestales/incendios-forestales-en-chile/estadisticas-historicas/>

¹¹ <http://fiscalizacionforestal.conaf.cl/>

¹² http://www.conaf.cl/cms/editorweb/transparencia/planes-LBN_historico.html

¹³ <http://ide.minagri.gob.cl/geoweb/>

Table 3.2-1. National stakeholder map, by region, for the National Strategy and the SESA

	Region	Número de organizaciones por sector de interés para la Estrategia Nacional, por Región.								Total Región	Representación sectorial total estimada* (N- de personas).	Distribución porcentual de la representación (%)
		Sector público institucional	Academia	Organizaciones no Gubernamentales / asociaciones gremiales/ turismo/ representación mujeres	Sector Privado	Comunidades Indígenas	Pequeños Propietarios	Medianos Propietarios	Medios de Comunicación			
Arica y Parinacota	XV	6	1	1	2	11	0	3	3	27	83	6,8
Tarapacá	I	9	0	0	4	10	0	0	14	37	164	13,3
Antofagasta	II	13	2	2	3	8	4	0	14	46	31	2,5
Atacama	III	5	1	1	1	3	2	1	6	20	38	3,1
Coquimbo	IV	30	2	11	2	0	7	0	6	58	118	9,6
Valparaíso	V	18	6	10	6	0	22	6	15	83	94	7,6
Metropolitana de Santiago	XIII	9	0	14	6	3	0	2	3	37	51	4,1
Libertador General Bernardo O'Higgins	VI	6	0	2	3	0	4	2	2	19	34	2,8
Maule	VII	12	2	3	2	0	2	2	1	24	44	3,6
Biobío	VIII	54	5	4	15	25	6	3	8	120	120	9,8
Araucanía	IX	7	2	13	1	14	16	3	4	56	89	7,2
Los Ríos	XIV	23	3	7	3	5	11	7	3	62	99	8,1
Los Lagos	X	9	1	4	6	12	10	1	7	50	138	11,2
Aysén del General Carlos Ibáñez del Campo	XI	6	0	5	0	0	5	3	2	21	42	3,4
Magallanes y de la Antártica Chilena	XII	23	2	7	9	4	5	22	7	79	84	6,8
Total por sector	N-	230	27	84	63	95	94	55	95	739	1229	100,0
Participación porcentual respecto del total	%	31,1	3,7	11,4	8,5	12,9	12,7	7,4	12,9	100		

* equivale a la representación de las organizaciones (número de personas), por cada sector, prevista a ser invitadas a participar en los talleres regionales SESA.

Capacity-building for stakeholders and priority groups will be provided through activities such as workshops, meetings, printed materials, messages over printed and broadcast media, as well as publication of background information on the FCCNS link on the CONAF web site (www.conaf.cl).

In addition, there will be a system for dealing with complaints, suggestions and grievances for all matters relating to the FCCNS, REDD+ activities and focus, and the ER Program.

The Carbon Fund's Disclosure Guidance (FMT Note CF-2013-Rev) will be followed.

3.3 Consistency with national REDD+ strategy and other relevant policies

1. The ER Program corresponds to a jurisdiction defined in the FCCNS. Consequently, the RL, the MRV, the SESA process and other local requirements voluntarily adopted under the FCCNS, as explained above, will depend on the general vision of the other jurisdictions. Deforestation, degradation and increases in carbon stocks are being studied throughout the country, subject of course to nuances dictated by the wide variations of climate and vegetation in Chile. In other words, the ER Program activities are a subnational component of the FCCNS activities, which cover the entire country.
2. The ER Program is to be implemented in one of the jurisdictions with the greatest potential for carbon capture¹⁴, and will produce non-carbon environmental and social benefits. It will consolidate policies, governance and actions to reduce degradation and net deforestation in Chile and promote stock increases while respecting environmental and social safeguards.
3. As mentioned above, the Program is a jurisdictional element of the FCCNS: one of its components is the option to implement REDD+ activities by including compliance with national laws and international guidelines accepted by Chile. It is planned to use all those legal instruments for national development to halt deforestation and degradation and increase forest carbon stocks in places which Chile has identified as development priorities for forest resources (see amendments to Decree-Law 701 and Law 20.283 on native forest recovery and forest development). The SESA process, for its part, will incorporate as safeguards the laws, guidelines and environmental and social considerations which affect or concern local indigenous and non-indigenous communities when ER Program activities are to be implemented.

¹⁴ The area involved in the Emission Reduction Program which Chile is implementing in association with the Carbon Fund represents 51 percent of the country's total native forests and has the best growth rates in the country. It also has the greatest average population density per hectare in Chile.

4. ER Program location and lifetime

4.1 Scale and location of the proposed ER Program

The scale of the ER Program is subnational (Temperate Forests Jurisdiction, generically referred to as the “temperate eco-region”) and corresponds specifically to the area encompassing Chile’s temperate rainforests, spread across the geopolitical regions of Maule, Biobío, Araucanía, Los Ríos, and Los Lagos, an area measuring 16,522,077 ha, with 8,439,338 ha¹⁵ of forest cover, or 51% of the national forests. Of the forested area, 2,700,759 ha correspond to plantations of exotic species (92% of the national total), mainly of the genres *Pinus* and *Eucalyptus*.

Although the forest plantations are included in the ER Program, they will not be offered to the Carbon Fund. Instead, other buyers will be sought.

Localización de la Jurisdicción de bosques templados

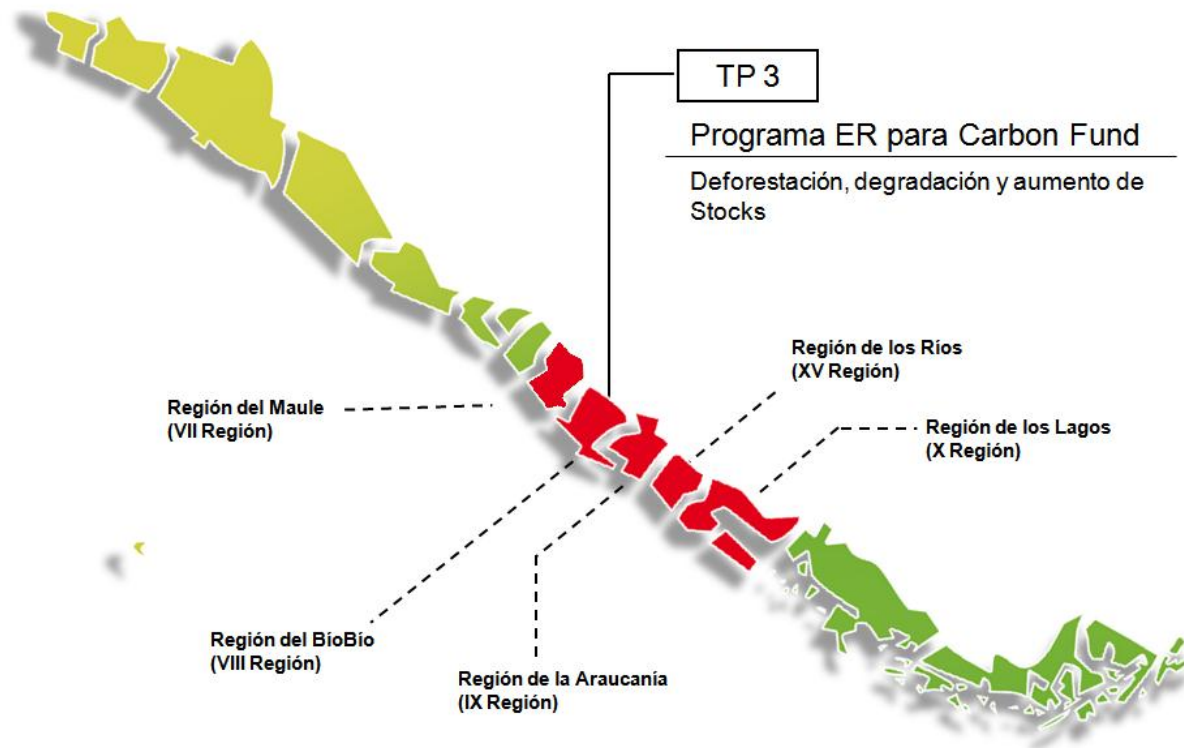


Figure 4.1-1. Geopolitical location of the area proposed for the ER program.

¹⁵ Cadastre of Native Vegetation Resources in Chile. Monitoring of changes and updates. 1997-2011. National Forest Corporation (CONAF), July 2011, 25 pp.

4.2 Expected lifetime of the proposed ER Program

- a) The ER Program will be implemented over a period of 14 months from the date of signature of the letter of intent between the World Bank and Chile.
- b) The start date of the ER Program will be 1 January 2015 and will have an expected lifetime of 100 years.

5. Description of activities and interventions planned under the proposed ER Program

5.1 Analysis of drivers and underlying causes of deforestation and forest degradation, and conservation or enhancement trends

A. Drivers, underlying causes, and agents of deforestation

The Cadastre of Chilean Vegetation is among the best inputs for configuring a historical record of information on the types of change that have occurred in land use and underuse.

First, a total of 17 drivers have been identified to account for these land use changes (Table 3.1-4). According to CONAF (2011), in the case of changes in native forest areas, the change driver “growth of natural masses” from underuse of scrubby undergrowth is the driver that best accounts for this variation.

Since 1997, based on the information provided in the cadastre, the main changes from forested to non-forested land in the temperate forest jurisdiction have been:

- Conversion to farmland and grassland and shrubland.
- Conversion to urban and industrial land (highways or other civil works).

A major agent of forest loss are forest fires, the vast majority of which in Chile are started intentionally or accidentally by humans. Between 1997 and 2010, 664,960 ha¹⁶ of land in the country burned, of which 168,067 ha were native forest.

B. Drivers, underlying causes, and agents of degradation

The country's main initiatives in the forestry sector include restoring native forest ecosystems, which in some cases have been subject to unsustainable practices, a situation that requires quantification and analysis to promote the best possible recovery options. In this framework, Chile's efforts are aimed at recovering degraded native forest, with special emphasis on ecosystems of great interest in terms of reducing emissions and preserving biological diversity, as well as on the benefits that could obtain to the communities that rely on these ecosystems.

In the Temperate Eco-Region Jurisdiction, an endemic forest ecosystem recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the main degradation driver is believed to be the indiscriminate extraction of firewood, one of the main sources of fuel in the southern part of the country. This practice affects nearly four million hectares of private and community property.

According to Leyton (2009),¹⁷ small properties in the native forest specialize in the production of firewood and, to a lesser extent, of non-wood forest products. This type of informal activity usually yields a subsistence income but fails to make a significant dent in poverty. Thus, for the evergreen forest in southern Chile, which is the country's most diverse forest, degradation is most intense in the coastal mountain range, and it is typically associated with small landholdings and indigenous communities. The felling of trees for firewood is fragmenting the forests, among other damaging effects, a situation that is made worse by cattle ranching. A similar phenomenon is occurring in the northern part of the country, in the Roble-Raulí-Coihue forests.

It is estimated that 20.2 million solid cubic meters of firewood and forest debris are consumed in Chile (75% of it firewood proper and 25% forest debris), and 84% of the firewood is consumed in the regions of Maule and Los Lagos. There is heavy industrial consumption of firewood in the regions of Maule and Biobío, as opposed to largely residential consumption in the regions of Araucanía, Los Ríos, and Los Lagos (Gómez-Lobo et al., 2006).¹⁸ According to the information available from the energy audit, firewood has become the second most widely used energy resource in Chile, with a sharp rise in use seen from 2011 to 2012 (BNE, 2012).¹⁹ Various sources estimate that

¹⁶ Historical Statistics on Forest Fires, CONAF-Empresas 1985-2012. In: <http://www.conaf.cl/incendios-forestales/incendios-forestales-en-chile/estadisticas-historicas/>.

¹⁷ Leyton, J. 2009. Tenencia Forestal en Chile. In: FAO. 2009. Tenencia forestal en América Latina. Estudios de Caso. Consulted in April 2012. Available at: <http://www.fao.org/forestry/54367/es/chl/>.

¹⁸ Gómez-Lobo, A., J. L. Lima, C. Hill, and M. Meneses. 2006. Diagnóstico del mercado de la leña en Chile. Informe Final. Departamento de Economía, Universidad de Chile. 157 pp.

¹⁹ <http://www.minenergia.cl/documentos/balance-energetico.html>

firewood provides over 90% of indoor heating in the southern part of the country and generates an estimated cash flow of CLP 115 billion each year, driving local and campesino economies (Burschelet et al., 2003).²⁰

Its informal extraction, not governed by management plans or concern for sustainability, has exerted pressure on the land and the quality of native forests, resulting in untold losses in terms of biodiversity, soil erosion, and deterioration of water resources (CNE, 2008).

Some estimates calculate that as much as 10 million cubic meters of firewood are extracted annually, equivalent to the production of nearly 77,000 ha/year without the benefit of management plans (Rojas et al., 2012).²¹ This situation is exacerbated by the introduction of cattle on felled land, which impedes natural forest regeneration, creating a vicious cycle for forest recovery. Still, more data of this kind are needed, with new studies and field research, in order to gain a clearer picture of the phenomenon, including the correlation between technical and environmental factors and social and economic conditions in the affected areas so the activities needed for effective control can be pursued in the framework of a national strategy to curtail the degradation of native Chilean forests, one of the main purposes of the ENBCC.

One of the challenges in regulating the consumption of firewood in the country is the absence of regulations on solid fuels. Three different laws have been proposed in past administrations to correct this deficiency, but none obtained presidential support. Paradoxically, firewood and the equipment and devices used to burn it can be certified and labeled as energy efficient and may even be subject to minimum efficiency requirements, but the fact remains that there is no regulation of the fuel and related equipment and devices, much less a system for monitoring emissions (CCTP, 2011).²² It was only in 2012 that Law 20,586 went into effect regulating the certification of equipment and devices for burning firewood and other wood-based biomass.²³

At present, the government is proposing to separate the legislative agenda on the subject of firewood into several proposed laws. First, the Superintendency of Electricity and Fuels (SEC) must be given the authority to certify and label equipment used for burning firewood, effectively associating such equipment to emission and air quality standards. Second, a law is needed to regulate the sale of firewood, stipulating a maximum percentage of humidity.

The government has assigned high priority to a proposed law that regulates the certification of equipment used for burning firewood and other wood-based biomass (*Boletín* 7141-08). The draft law was presented on 17 August 2010 for the purpose of ensuring that firewood equipment is certified and labeled for energy performance. Civil society organizations do not feel that the draft law is sufficient to bring about a gradual transition, which would be achieved by enacting the various draft laws that have been proposed in recent years, or failing that, creating a new institutional framework for this purpose (CCTP, 2011).

Another driver of forest degradation, albeit with a much smaller effect on emissions compared with firewood, is illegal logging in forests for the purpose of harvesting timber. In most cases, more timber is harvested than is sustainable for the forest, with the same area often logged repeatedly, clearly impairing the natural cycle of the ecosystem.

Native forest has been converted to plantations of exotic trees at a high rate in this jurisdiction, which is consistent with the assertions made by Donoso (2007) for these areas of the country. Meanwhile, Bergh and Promis (2011) cite Donoso and Lara (1995), who indicate that in parts of the Valdivia coastal range, several secondary forest stands of evergreen species and *Nothofagus obliqua* were classified as “shrub” and then replaced by commercial plantations, especially of *Pinus radiata*.

For purposes of this ER Program, this change in use is regarded as degradation, since forest is replaced with plantation, with very different implications in terms of emissions, as well as the fact that forests and plantations are recorded separately in Chile’s greenhouse gas emissions inventory.

²⁰ Burschel H., A. Hernández, and M. Lobos. 2003. *La Leña, Una Fuente de Energía Para Chile*. Editorial Universitaria: Santiago, Chile. 171 pp.

²¹ Rojas, Y., G. Loguercio, V. Nieto, and C. Bahamondez. 2012. *Análisis de la degradación forestal en el marco de REDD+*. Proyecto INFOR: Desarrollo Metodológico y de Herramientas para la REDD en Bosques de Tipo Templado. Instituto Forestal (INFOR, Chile), Centro de Investigación y Extensión Forestal Andino Patagónico (CIEFAP, Argentina), and Corporación Nacional de Investigación y Fomento Forestal (CONIF, Colombia). Funded by: MIA, Proyecto Cooperativo sobre Mitigación y Adaptación al Cambio Climático en la Gestión Forestal Sostenible en Iberoamérica. 152 pp.

²² CCTP. 2011. *Chile Necesita una Gran Reforma Energética. Propuestas de la Comisión Ciudadana Técnico-Parlamentaria para la Transición Hacia un Desarrollo Eléctrico Limpio, Seguro, Sustentable y Justo*. Comisión Ciudadana-Técnico-Parlamentaria para la Política y la Matriz Eléctrica (CCTP). Santiago, Chile: Comité Editorial Comisión Ciudadana-Técnico-Parlamentaria para la Política y la Matriz Eléctrica. 138 pp. Available at: http://www.energiaciudadana.cl/wp-content/uploads/2011/07/Chile_necesita_una_gran_reforma_energetica.pdf.

²³ <http://www.leychile.cl/N?i=1040103&f=2012-05-16&p=>.

Native forest is being replaced with plantations primarily due to proximity to major centers of consumption (pulp and saw mills), most of which are located within the Jurisdiction, such that external factors are not believed to be affecting this change driver.

There is a strong trend away from conversion to plantations as the three largest companies in the forestry industry (ARAUCO, CMPC, and MASISA) embark on certification processes such as the Forest Stewardship Council (FSC), which prohibits the replacement of forests and the purchase of holdings on which the previous owners have replaced native forest.

C. Drivers, underlying causes, and agents of stagnant carbon stocks

The main causes underlying non-afforestation or non-enrichment of forests are the limited technological capacity of small producers, and the corporate-industrial model of afforestation, which in certain cases is not aligned with the realities of producers with few resources. The drivers of non-afforestation and non-enrichment of forests are as follows:

- Lack of post-plantation support of State forestry operators.
- Limited technological improvement of afforestation activities.
- Lack of geographical targeting of afforestation/reforestation programs.
- Promotion of species associated with large forestry companies.
- Forestry production model out of step with household and campesino economies.

5.2 Assessment of the major barriers to REDD+

Change in use from forested land to unforested land: Although it is prohibited by law to replace forest for another use, there is evidence, nevertheless, of unlawful activities pursued in detriment to the national forests, mainly due to economic necessity by families, a failure to recognize the type of forest (native forest is confused with shrub or isolated trees), as well as generational division of land within families and the opportunity cost of the land, where other crops may be more profitable than forest. Thus, the barriers can be categorized as economic, technical, and cultural.

Extraction of firewood or timber using poor forestry practices: The heating needs and culture of families in the southern part of the country, or the harvesting of this type of product from the forest solely for economic subsistence purposes, at a market value that covers production costs only, with nothing left to reinvest in the forest, generate significant economic and technical barriers to change in this type of driver.

Increase in stocks through afforestation and enrichment: As in the aforementioned cases, pressing economic needs make it prohibitive to pursue activities that would have long-term benefits, such as increases in carbon stocks. Furthermore, small and medium-sized landowners do not have access to the technology used by large companies, placing them at a disadvantage and introducing a great deal of uncertainty into their operations.

5.3 Description and justification of planned and ongoing activities under the proposed ER Program

In order for REDD+ to succeed, it will have to meaningfully shape land use decisions that involve degradation problems or create opportunities to increase forest carbon stocks.

Based on a national definition of degradation to be determined, as well as the identification of the specific land use change drivers that are responsible for degradation, and the types of forest and landowner that these are affecting, the options for halting the degradation drivers will focus on improving forest resource management and on the cross-sector issues driving change in the areas of the country with the most natural forest cover.

Thus, using available data as well as information to be generated, action should be taken to quantify the proportion of firewood that is being harvested and sold illegally in Chile, understand the impact of this process on the affected forests, and decide on the most effective measures for reducing these activities through instruments that are currently available and others that may have to be implemented in order to achieve this objective. It will also be necessary to assess current logging practices by forest landowners and compare them against technologically appropriate practices that take forest growth rates into account, while also raising awareness and providing training on the importance of keeping cattle away from forests when the objective is to regenerate them.

CONAF will strengthen ties with strategic partners, landowners, producers, and other stakeholders in firewood consumption in Chile in order to make headway on the main problems and barriers now being observed, as the first steps in achieving rational use of the forest in this area.

Emphasis will be placed on partnerships such as those established by the National Timber Certification System (SNCL), an entity that has operated in the country since 2004 with an initial contribution from the European Union

and ongoing financial support from CONAF since 2012 to carry out actions on the ground such as the certification of firewood companies, formalization of companies, training in quality management, sustainable management of native forest, production chains (between sellers, producers, and consumers of firewood), and monitoring of the SNCL certification standard (audits), as well as outreach, education, and awareness activities on responsible firewood use in Chile, actions that, if expanded, would certainly result in the reduction of greenhouse gas emissions. The activities planned as part of the ER Program would include, for example, providing investment support to improve and/or set up bulking centers, known as *patios de energía*, for processing and storing firewood in the communities that produce and supply this fuel to large centers of consumption, such as the regional and provincial capitals in the south-central region of the country.

Support will be provided for related projects to replace equipment that burns firewood as a fuel source, and these initiatives could include the generation and transaction of carbon credits associated with energy efficiency projects and/or projects for the use of nonconventional renewable energies. These projects may be supplemented with funds from the regional governments in regions of firewood consumption that are experiencing negative externalities due to poor use of firewood, such as: heavy pollution, forest degradation, tax evasion, and high rates of respiratory disease among the most vulnerable groups. These are all problems that are already being addressed by the local governments.

A line of action will also be included to establish production chains (strengthening of supply-demand linkages) for those landowners who, due to technical, social, and logistical barriers, do not have access to the best market prices for firewood and are thus obligated in many cases to extract excessive quantities of biomass illegally from the forest, resulting in its degradation. An investment activity to reduce emissions in this area would be a CONAF/SNLC partnership to provide joint forestry extension services in targeted areas. Qualified field workers (forestry extension workers) would be enlisted to provide training to forest landowners in appropriate forestry techniques associated with firewood harvesting and on technical aspects of firewood production and marketing. At the same time, efforts would be made to strengthen the mechanisms already in place in this area, such as the SNLC,²⁴ which receives direct financial support from CONAF for a number of activities.

Existing management and awareness-raising models will be strengthened, working directly with firewood companies and/or producers and providing training in how to run their business. For example, the SNLC certifies products, contributing to the management plans approved and supervised by CONAF, and helping producers gain access to and participate in formal markets. This type of support has been identified as the highest priority by the key stakeholders, as well as support for finding certified firewood suppliers when they are scarce or remote.

More specifically, in the case of the degradation driver described generically as the unsustainable harvesting of high-value timber, it will be necessary to quantify the amount of high-value timber being harvested, by type of forest and landowner, set technically appropriate levels of timber harvesting (with the possibility of felling trees under a sustainable model, for example) based on the growth rates of the forest resource in question, assess current logging practices being followed by forest landowners, and based on Law 20,283, support forest landowners in preparing management plans to make better use of native forest resources.

In the case of indiscriminate extraction of firewood as a degradation driver, it will first be necessary to quantify the proportion of firewood being illegally cut and marketed in Chile, and then assess the impact of firewood extraction on forest ecology and the socioenvironmental value of the affected forests. The next step will be to evaluate the use of existing technical and legal instruments to limit the extraction of firewood, as well as to support the formalization of activities to generate high-quality firewood from Chile's native forests, as set out in the description of degradation drivers in question 5.2 of this document.

Another degradation driver is use of the forest as a refuge and grazing reserve for cattle. Here, it will be important to start by quantifying the pressure exerted on native forests by using them for this purpose, by type of forest and landowner. Next, demonstration parcels could be set up to show the theoretical effect of cattle on regeneration, modification of the native forest structure, and maintenance and improvement of biodiversity. Forestry extension workers could be enlisted to raise awareness and provide training on the importance of keeping cattle out of forests where the goal is to regenerate them and maintain biodiversity.

For a more detailed analysis, it will be important to bring together the different institutional systems involved in the administration and spatial representation of management plans in order to gain a more precise understanding of the relationship between the degradation drivers and the particular type of forest and administrative region of the country, thus making it possible to link the information to the main environmental, social, and economic characteristics of the geographic area in question. It is also important to identify and study the main factors influencing forest landholders, especially small and medium-sized owners, as they make the technical decisions that result in inappropriate use and management of the forests and ultimately lead to forest degradation.

²⁴ More information is available at <http://www.lena.cl/>.

The foregoing calls for a critical historical analysis of the contribution of sustainable forest management, including the positive and perverse incentives contained in both Decree-Law 701 and Law 20,283, as well as other development instruments (in the agriculture sector, for example) that could be affecting the sustainable use of forests. Such an analysis will make it possible to identify lessons learned, facilitate implementation of corrective measures to combat negative drivers, and help reinforce positive practices within the context of REDD+.

A priori, the positive actions to be reinforced include the forestry extension system created within CONAF as a result of the Native Forest Conservation and Sustainable Management Project (CONAF/DED/KfW/GTZ), carried out between 1997 and 2006. The extension system continues to be used as part of various programs working directly with small forest landowners.

Given the importance of this issue, and by way of example, the Association of Forest Engineers for the Native Forest (AIFBN), with financial support from the Native Forest Research Fund created by Law 20,283, is designing a national forestry extension program.

The forestry extension service that has been developed in the country considers, as part of its ongoing improvement process, the inclusion of cultural aspects, as well as incorporating active participation and consensus-based decisions in the planning of goals and activities for each plot of land, ensuring that a sufficient number of professionals are assigned to provide the most effective and continuous assistance possible.

In conclusion, as previously mentioned, the number of extension workers employed by CONAF will be increased, using funds for the preparation phase of the ENBCC, for the purpose of making sector development instruments available to small and medium-sized owners of forested land or land that could be forested.

Specifically, the plan is to pursue the following actions and activities to reduce the effect of the identified drivers.²⁵

Table 5.3-1. Drivers of forest degradation and main strategic options.

General drivers of degradation	Activities	Mitigation options (strategic measures)
Unsustainable harvesting of high-value timber	Quantify the amount of high-value harvested timber by type of forest and landowner.	<ol style="list-style-type: none"> 1. Reinforce the forestry extension program to improve the involvement of forest landowners in terms of forest promotion instruments in Chile. 2. Strengthening of productive forestry linkages. 3. Promotion, adaptation and updating of the forest inspection system developing an approach in terms of punitive and preventive programs. 4. Reinforcement of information channels regarding non-carbon benefits of forests, with emphasis on the value and protection of cultural spaces in cases related to indigenous people.
	Set technically suitable levels of timber harvesting (with logging possibilities) in accordance to the growth rates of the forest resource under consideration.	
	Assess current logging practices followed by forest landowners	
Indiscriminate extraction of firewood	Quantify the proportion of firewood being illegally cut and marketed in Chile.	<ol style="list-style-type: none"> 1. Support the systematization of high-quality firewood production obtained from Chilean native forests (for example, by means of forestry extension). 2. Promote different actions related to SNLC, such as <i>patios de energía</i> (firewood processing and storage centers), replacement of fuel burning equipment, and production chains. 3. Promotion, adaptation and updating of the forest inspection system developing an approach in terms of punitive and preventive programs. 4. Reinforcement of information channels regarding non-carbon benefits of forests, with emphasis on the value and protection of cultural spaces in cases related to indigenous people.
	Analyze the socio-economic causes moving forest landowners to perform an unsustainable use of firewood.	
Use of forests as refuge and grazing reserve for cattle	Quantify the pressure exerted on native forests in terms of their use as refuge and grazing reserve for cattle, by forest and landowner type.	<ol style="list-style-type: none"> 1. Forestry extension program and demonstration modules for promotion and training on alternatives for the coexistence of agricultural and forestry activities. 2. In collaboration with other services of the Agriculture Ministry (INDAP, INIA, INFOR, and ODEPA) develop programs to improve the productivity of current pasture lands and promote the management of cattle and importance of keeping cattle out of regeneration areas in forests.
	Establish in theory and practice (by means of demonstration plots) the effects of cattle in terms of regeneration and structural alteration of native forest, and on biodiversity maintenance and improvement.	

²⁵ It should be noted that deforestation, degradation, and “non-forestation” drivers, as well as the corresponding mitigation measures, among other elements, will be adjusted following the strategic environmental and social assessment (SESA) workshops, which will focus on surveying and validating these elements based on a participatory approach with a nationally representative group of key stakeholders.

Replacement of native forest by forest plantations	Analyze the historical occurrence of native forest replacement by forest plantations.	<ol style="list-style-type: none"> 1. Launch an information campaign on the socioenvironmental benefits and economic advantages of forestry activities associated with native forest compared to activities associated with forest plantations, targeting the areas of the country and the types of forest with the highest rates of replacement. 2. Strengthening activities of forestry extension associated to native forest law at those areas with the highest pressure of replacement from this resource to forest plantations, 3. Develop supplementary incentives in addition to current forest promotion instruments in Chile. For example, adding the benefits of payment schemes obtained from results in emission reductions of the Carbon Fund. 4. Develop environmental education programs at schools located in areas with tendency to be affected by replacement of native forests. 5. Reinforcement of information channels regarding non-carbon benefits of forests, with emphasis on the value and protection of cultural spaces in cases related to indigenous people.
	Determine the main causes of this replacement.	
	Assess the loss of environmental benefits and the social aspects related to the change from native forest to forest plantations.	
	Quantify the loss of forest carbon stock resulting from the change from native forest to forest plantations.	

Table 5.3-2. Drivers of deforestation and main strategic mitigation options.

General deforestation drivers	Activities	Mitigation options (strategic measures)
Conversion of forest to agriculture and cattle ranching	Identification of forest types being converted to agriculture and cattle ranching, by type of landowner.	<ol style="list-style-type: none"> 1. Launch an information campaign on the socioenvironmental benefits and economic advantages of forestry activities at those areas and forest types in Chile with the highest rates of conversion. 2. Establish a collaboration program with services of the Agriculture Ministry related to these subjects (for example SAG and INDAP) moving forward, along with CONAF, to a <i>landscape approach</i> including issues as land use planning. 3. Develop environmental education programs at schools located in areas with tendency to be affected by replacement of native forests.
	Asses the pressure exerted on native forests to convert them into agriculture and pasture lands, according to forest and landowner type.	
	Determine the land use opportunity cost to define the best forest use alternatives, including environmental services of forests.	
Urbanization and construction of highways	Analyze areas and forest types in the country incorporated in civil works management plans.	<ol style="list-style-type: none"> 1. Propose measures to minimize deforestation associated to road building and construction of residential areas including planned (legal) and unplanned (illegal) activities.
	Determine the underlying causes for urbanization and construction of highways by geographical area and forest type.	
	Determine the opportunity cost of forested land in terms of its potential for urbanization.	
	Identify the environmental services associated with forests by area and forest type in the country.	
Fires	Analyze the historical occurrence of fires based on CONAF statistics	<ol style="list-style-type: none"> 1. Target forest fires prevention campaigns on forest types with the highest fire-related deforestation rates. 2. Strengthening the program of forest fires monitoring and prevention in areas with the highest projections of future occurrence. 3. Start a forestation program in emblematic areas affected by fires. 4. Promote new agricultural and forestry practices to replace the use of fire as a tool for land preparation.
	Quantify the area affected by region and forest type in the country.	
	Determine causes of fires based on affected landowners and forest types.	

Table 5.3-3. Non-forestation drivers and main strategic mitigation options.

General non-forestation drivers	Activities	Mitigation options (strategic measures)
Limited technological improvement of afforestation activities.	Analyze the technical systems used by forestry companies in their afforestation plans and programs and the possibilities of adapting them to the context of small and medium-sized forest landowners	<ol style="list-style-type: none"> 1. Establish cooperation agreements with the main public and private technology centers related to afforestation activities carried out using native and exotic species.

	Improve the quality monitoring and control activities on afforestation performed by forest landowners advised by CONAF.	
Lack of geographical targeting of afforestation/ reforestation programs.	Identify areas of bare soils in Chile, able to be qualified as land preferentially suitable for forests (APF).	1. Based on jurisdictional frameworks promoted by the ENBCC prioritize those areas in to country that have had a low coverage of forest promotion instruments but are suitable for developing targeted pilot projects.
	Conduct an analysis of technical, economic, social, and environmental factors associated with lands and landowners with soils suitable for afforestation.	
	Generate indicators to allow the prioritization of areas in the country suitable for establishing afforestation programs.	
Forestry production model disassociated from household and rural economies.	Describe the production models of small-sized forest owners of lands with soils with high potential for afforestation.	1. Establish forestry production options compatible with each identified production model for small-sized forest owners of lands with soils preferentially suitable for forests (APF).
	Describe in technical, economic, and environmental terms the forestry production options compatible with other productive options of the rural sector: agroforestry, silvopastoral, etc.	2. By means of training and advertising, promote the diversification of land-based production models with emphasis on forestry components, based on afforestation pilot projects and considering the international implications to qualify it as an activity subjected to payment obtained from results of emissions capture GEI.

5.4 Risk/benefit analysis of the planned actions and interventions under the ER Program

First, actions will be taken that focus on obtaining better information, identifying, establishing, quantifying, and describing different realities to better apply actions in the field. This group of actions will be carried out by CONAF staff, and external studies will also be commissioned.

The risk associated with these actions is regarded as low, inasmuch as the ability to execute them depends on obtaining the respective funds and good management, with significant progress already having been made in this regard within the framework of the ENBCC. Efforts should also be made to manage the expectation that these activities alone will reduce emissions or increase carbon capture, an equally low probability given that these are participatory desk analyses that will not necessarily have the effect of actions in the field to mitigate the drivers of deforestation, degradation, and non-growth of carbon stocks. However, moving forward with this stage of preparation is key for strengthening and implementing actions to directly affect these drivers. One non-carbon benefit is the generation of primary information and the introduction of REDD+ issues in different circles of society.

The second level of priority action is focused on outreach, training, and recruitment of land and forest owners, especially small and medium-sized landholders and indigenous communities, to encourage them to change their activities in relation to the forest. To achieve this, it will be necessary to substantially increase the number of field workers, specifically by enlisting forestry extension workers, with acquired knowledge on all the actions to be pursued as part of the ER Program, thanks to the results of the first set of actions and others under the ER Program.

There is a medium level of risk associated with the effectiveness of the forestry extension service, inasmuch as it is hard to change the entrenched behavior of forest landowners. However, CONAF has been working with this mechanism for many years and is now redirecting its efforts towards REDD+ objectives. Accordingly, the learning curve is easier and a certain level of trust has already been established in the community, which will facilitate efforts to mitigate the drivers. There are myriad benefits to be reaped from these actions, which are designed to directly prevent deforestation and forest degradation and increase carbon stocks. When producers have access to important information on the way in which they produce, reducing their uncertainty and increasing their economic benefits, development synergies are generated within the community, which lead to improved and more sustainable use of resources, and this is undoubtedly one of the most important non-carbon benefits of the forestry extension and support services. Also in this group are staff and funding increases at CONAF for forest inspection and supervision.

The focus of the third group of actions is on the creation of instruments that are easily accessible to owners, such as management plans or rules and standards that can be formulated in this sector. The expectation is that this type of management tool would attract all types of landowner to payment models that are overly complicated at present but would be based on results in terms of emission reduction / carbon capture or carbon markets for their specific reality. The benefits are very important for reducing the underlying causes of the drivers and generating non-carbon benefits from a social and environmental perspective.

6. Stakeholder Information Sharing, Consultation, and Participation

6.1 Stakeholder engagement to date on the proposed ER Program

Since the inception of SESA, various groups and stakeholders have become involved and are integral to the process. As a result, a stakeholder map was developed with the participation of the Regional Coordinators of the Forests and Climate Change Group. The aim was to ensure that groups that depend on forests and/or are associated with forests in various ways should participate and have their views and interests represented. This led to the creation of a map of actors and stakeholders, which has a multi-stakeholder, multi-sectoral and multi-level approach and covers the entire national territory.

The stakeholder map was consolidated by the development of the SESA process as well as by the dissemination and communication of information by ENBCC, which made it possible for groups from the institutional and cultural spheres, academia, gender groups, owners and other targeted sectors to gain greater awareness of climate change and its implications for REDD+ activities.

In short, the actors, stakeholders and potential beneficiaries that will have access to the ER Program through REDD+ activities have already participated and been included in the SESA process. Moreover, the EMSF will ensure that information on all activities will be duly disseminated. Appropriate and necessary channels for participation will also be created, so that all may have a say in decisions to choose one or the other strategic option or decide on the relevant mitigation measures to be implemented to deal with potential risks.

Table 6.1-1. Systematized map of national and regional stakeholders for the National Strategy and for SESA.

	Region	Representation by Interest Groups for ENBCC–SESA, Temperate Rainforest Jurisdiction								Total Region	Total Estimated Sectoral Representation* (N. of persons).	Distribution of representation by percentage (%)
		Institutional Public Sector	Academia	Representation of Government/trade union/tourism sectors	Private Sector	Indigenous Communities	Small Landholders	Medium-sized Landholders	Media			
Maule	VII	12	2	3	2	0	2	2	1	24	44	3.6
Biobío	VIII	54	5	4	15	25	6	3	8	120	120	9.8
Araucanía	IX	7	2	13	1	14	16	3	4	56	89	7.2
Los Ríos	XIV	23	3	7	3	5	11	7	3	62	99	8.1
Los Lagos	X	9	1	4	6	12	10	1	7	50	138	11.2
Participation as a percentage of national total	%	31.1	3.7	11.4	8.5	12.9	12.7	7.4	12.9	100		

* is equivalent to representation from organizations (number of persons) for each sector, to be invited to participate in regional SESA workshops.

6.2 Planned outreach and consultation process

The same stakeholder map that was developed to allow for participation in the SESA process will be updated for the area where the ER Program is to be implemented, in line with the terms stipulated by the EMSF (Environmental and Social Management Framework). This implies in practice that the stakeholders will be fully involved and will participate in decisions on strategic options and REDD+ activities. Social and environmental matters will be duly addressed, to ensure that the ER Program will be sustainable over time.

During the phase of actor and stakeholder participation in ER Program implementation, information will be widely disseminated to secure the support of such priority groups as local communities and indigenous and non-indigenous forest-dependent groups.

In addition to reflecting the benefits that any ER Program will provide, the Environmental and Social Management Framework will constitute a platform for action to prevent, mitigate, monitor and report possible risks. Through the Framework, it will also be possible to make recommendations to enhance the benefits, positive impacts and possible opportunities for efficiently and effectively implementing forest carbon projects, including regulations and policies that may help to make the ENBCC (National Forest and Climate Change Strategy) more sustainable in the long term.

With the EMSF as a tool, the ER Program will respect the knowledge and rights of Indigenous Peoples and non-indigenous local communities, taking due account of the international obligations that pertain to national laws and circumstances. All of these activities will be monitored and assessed on an ongoing basis through the Monitoring, Reporting and Verification Mechanism (MRV). Under the MRV, the minimum elements to be monitored are compliance with the Operational Policies of the World Bank, the decisions of the Cancun and Durban Conferences of the Parties (in addition to any other CoPs that may take place in future), the criteria and indicators of the VCS (Verified Carbon Standard), REDD+ SESA and Gold Standard, as well as applicable national norms and standards.

The aims of ESMF are as follows:

- Anticipate and address risks and possible environmental impacts (negative or positive) associated with REDD+ activities.
- Establish principles, guidelines, procedures and measures to address, reduce, mitigate and/or counter the effects of potential adverse social and environmental risks, while maximizing any positive impacts generated.
- Propose actions to formulate, reconfigure and adjust policies and regulations necessary for satisfactory implementation of the ENBCC and the ER Program that may be developed as a result.
- Establish procedures to ensure that implementation of the Strategy and the ER Program will allow for: i) consultation with groups and stakeholders when necessary, ii) institutional strengthening of CONAF and the State in general, iii) the conducting of studies, assessment and monitoring of social and environmental impacts and, iv) the provision of responses to claims, complaints and suggestions that may arise concerning the Strategy, REDD+ activities and the ER Programs.

Regarding the indigenous people consultation, this process will be applied along the entire national territory and will take place at the year of 2015 once the “*R-Package*” document is finished, including a complete strategy with its corresponding ESMF. All the indigenous peoples will be included under this project and will be applied considering the requirements of ILO Convention 169 and the Decree N° 66 of the Ministry of Social Development that regulates the processes of consultations among indigenous people accomplished in Chile

7. Operational and financial planning

7.1 Institutional arrangements

The ER Program is being developed through the ENBCC, which in turn, is being implemented by MINAGRI as the political entity, CONAF as the responsible Public Service body, the Forest and Climate Change Board as the body for strategic planning (counterpart to the political directorate of ENBCC) and the CONAF Climate Change Forest Management Unit, which guides the process and oversees operational aspects. All jurisdictions, including the one linked to the Carbon Fund, are in every respect administered in accordance with the institutional arrangements that prevail throughout the country, with the obvious participation of local communities at multiple levels and in multiple sectors, as stipulated in the safeguards emanating from the UNFCCC.

CONAF acts as the technical secretariat of the Forest and Climate Change Board (see figure 7.1-1), and will be responsible for proposing and coordinating all activities required to ensure that Chile is fully compliant with ENBCC. CONAF will organize the meetings, produce meeting reports and disseminate the decisions taken.

In view of the fact that the issues are more specific to forestry and forest-related communities, CONAF will also be the entity responsible for informing the National Advisory Committee on Climate Change of all decisions taken by the Board. Once the Board has been consolidated, both entities will jointly consider whether it is appropriate to include representatives from other Ministries and even from the private sector. They could participate as permanent members or in special sessions, as deemed appropriate.

A. Composition of the Forest and Climate Change Board

The Forest and Climate Change Board will be chaired by the Director of the National Forest Corporation (CONAF) and include the following members:

- 1 member from the National Technical Expert Group (GTNE, described below).
- 1 member from the Office for Agricultural Research and Policy (ODEPA)
- 1 member from the Natural Resource Information Center (CIREN)
- 1 member from the National Agricultural Development Institute (INDAP)

- 1 member from the Forestry Institute (INFOR)
- 1 member from Agriculture and Livestock Service (SAG)
- 1 member from the National Indigenous Development Corporation (CONADI)
- 1 representative of the Indigenous Peoples.
- 1 representative of the academic sector.
- 1 representative of a national NGO.
- 1 representative of organizations of small landowners.
- 1 representative of organizations of large landowners.

The Board will be established on the basis of an agreement (or agreements, as deemed necessary) to be signed by all members.

It will be decentralized in scope, with strong links to Regional Governments, Regional Offices of the Ministry of Agriculture, the CONAF Group on Forests and Climate Change, together with the municipalities, which are part of local bodies (governments) that are in direct contact with forest-dependent communities.

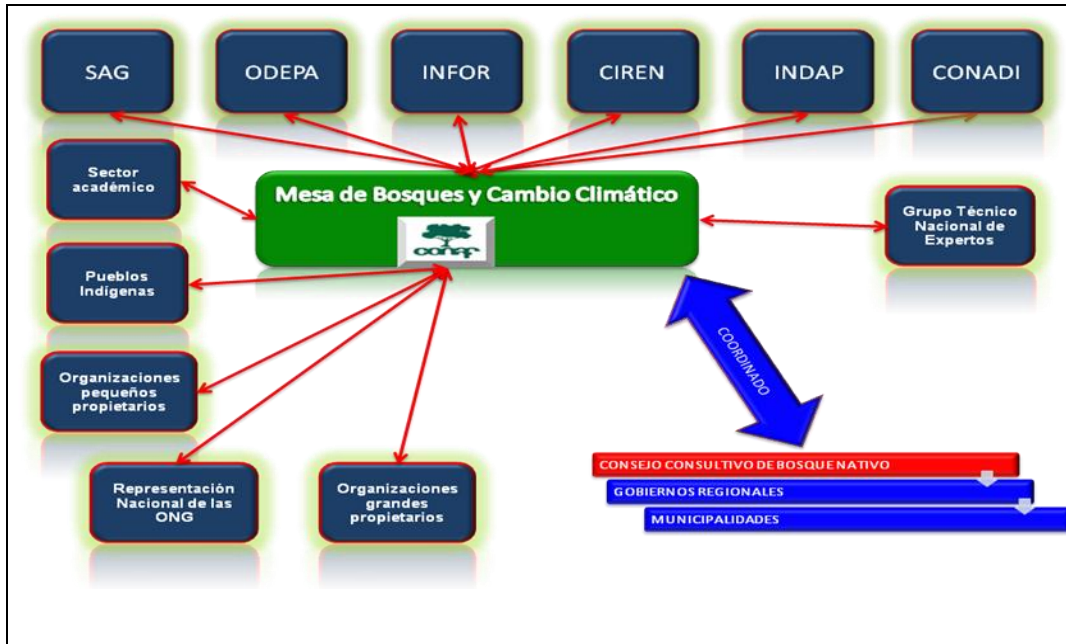


Figure 7.1-1. Structure of the Forest and Climate Change Board.

It must be noted that there are a number of institutions with which close collaboration is required or will be required on specific issues. The original intention was to include them as permanent members of the Board. However, in the interest of streamlining the decision-making process in the Board in particular, and in view of the specialized nature of some of the work to be undertaken with other entities, a number of agreements and/or specific work plans have been and will be developed and are intended for the implementation of proposed activities. One such activity could be the establishment of the Ministry of National Resources for all activities pertaining to the regularization of land titles.

B. National Technical Expert Group (GTNE)

It has been considered that members of this Expert Group could include professionals, consultant companies, project developers and NGOs, among other entities that work in these areas in Chile such as:

- PriceWaterhouseCoopers International Limited. Auditing, consulting and environmental Project development.
- Office of Climate Change of the Ministry of the Environment
- Office of Agricultural Research and Policy (ODEPA) of the Ministry of Agriculture.
- Poch Ambiental. Environmental consultants. Project development.
- Verified Carbon Standard (VCS). International Voluntary Standard Organization with recognized experience in AFOLU and REDD+ themes.
- LessCarbon. Environmental project development and trade in carbon credits.
- The Nature Conservancy (TNC). An International NGO. Environmental project development.
- Fundación Chile. Environmental project development
- Patagonia Sur. Environmental project development. Trade in carbon credits.

- Santiago Climate Exchange (Bolsa de Clima de Santiago (SCX)). Environmental Project development. Trade in carbon credits.
- A representative of national NGOs, to be appointed by his/her peers. Efforts will be made to ensure that the NGO is one that is well-versed in the theme of Forests and Climate Change. It should not be the NGO that will be represented on the Board.

As part of an internal process, this Group will appoint one representative on the Forest and Climate Change Board, to be elected in the manner and for the duration agreed.

The GTNE was formally configured in the year 2013, through the signing of an agreement among the institutions mentioned above. The GTNE is chaired by the CONAF Executive Director, while the CONAF Climate Change Unit will serve as its secretariat. This GTNE will remain in existence for an indefinite duration.

Members of the Group may invite other institutions that they may deem eligible to join on a temporary or ongoing basis.

The GTNE is a multi-disciplinary technical group, made up of organizations with workers in diverse disciplines; from engineering, law, economics as well as experts in social issues, among others. This diversity is one of the attributes that works in favor of the establishment of a permanent body, since its general purpose is as indicated, to endorse and make proposals, provide guidelines and orientation as well as to suggest possible adjustments to CONAF.

C. Group on Forests and Climate Change (GBCC)

As mentioned above, within CONAF and as reflected in memorandum N° 4152 of 28th August 2012, there was a call to nominate professionals from all over the country to take part in the Group on Forests and Climate Change (GBCC).

The GBCC, with its regional representatives, is the national CONAF structure responsible for providing support to the ENBCC. Specifically, among its other functions, it lends sustainability to the process of prior dissemination of the Consultation and Participation process during the developmental phase of the REDD+ mechanism and in this case, the ER Program.

Representatives of regions VII, VIII, IX, XIV and X, have already been identified. These regions are part of the Temperate Forests jurisdiction covered by the ER Program. Its representatives, working in conjunction with the CONAF office on Climate Change and Forest Management are responsible for implementing the ER Program.

Similarly, among the specific functions of the GBCC that relate to REDD+, the members of Regional CONAF, with the support of Regional Directors and the Regional Forestry Department will carry out the following functions:

- Coordination of local and regional activities relating to the Project.
- Institutional dissemination for cross-cutting action, capacity building and outreach to identified interest groups.
- Helping to strengthen generated proposals.
- Improving the capacity to identify local and regional interest groups.
- Development and implementation of operational initiatives.
- Implementation of the consultation and participation plan.
- Taking steps to manage the activities in order to obtain the desired objectives and outcomes.
- Contributing to the prevention, management of local and regional conflicts arising out of activities related to REDD+²⁶.

D. Platform for the Generation and Trading of Forest Carbon Credits in Chile (The Platform or PBCCh).

Pursuant to resolution N° 226 of 04 June 2012, CONAF, through its Executive Director, has institutionalized (at least in conceptual form) a Platform for the Generation and Trading of Forest Carbon Credits in Chile (PBCCh). This was the outcome of studies carried out by the Climate Change Unit. The concept of the platform is being promoted by CONAF (figure 7.1-2). It seeks to institutionalize a number of processes in the entity responsible for Chile's forestry resources (CONAF). At the same time, there are efforts underway to identify the jurisdictions, which should be permanently available to the specific owners of a given forest resource in one of these large areas.

The aim is to establish a technical, legal and even financial platform, by means of which the time, costs and the technical support required for a specific activity may be reduced. At the same time, technical information, institutional instruments and to some extent, the means of financing will have been previously defined and included in the Jurisdictions. In order to operationalize the carbon credit generating aspect of REDD+ (or the results-based payment system) and make it easier for groups of landholders to have access to the profits generated, one important first step is to consolidate technical, administrative and financial elements. This consolidation should be

²⁶The State of Chile has the so-called Transparency Law, whereby any citizen may request information and express concerns to the Public Administration.

in accordance with the type of forest resource, the landholding and the geographical region of the country, among other considerations. In this way, this would help to break with the pattern of individual projects, which currently prevails in the carbon market, while moving towards a sub-national or jurisdictional outlook. In this approach, much of the technical and administrative challenges are dealt with by a State body with the required competence, as in this case, CONAF.

CONAF has launched the Platform by contacting and bringing together in one workshop public and private stakeholders involved in the development and marketing of carbon credits. The workshop was held on 19th March 2012 and sought to hear the opinions and experiences of stakeholders with respect to the initiative. This information would then be fed back into the platform development process. Subsequently, a second and third workshop were organized with the same stakeholders in June and December 2012 to inform them of progress in the technical and strategic aspects of the initiative. Parallel to this, at an Inter-Ministerial meeting held on 8th June 2012, the corporation provided information on the Platform to representatives of the Ministries of the Treasury, Public Works, Energy, Transport and Telecommunications, the Environment, Foreign Affairs and the Ministry of the Economy, Development and Tourism. The aim of the meeting was to institutionalize activities being undertaken for the initiative and to link them with those actions being carried out by each Government entity.

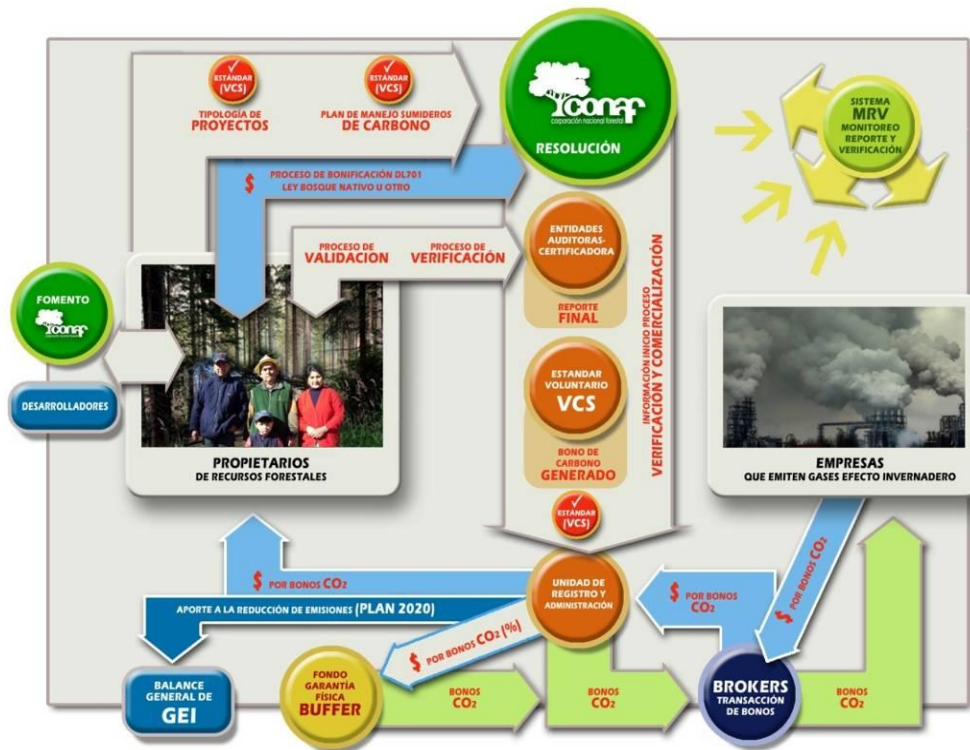


Figure 7.1-2. Outline of the Platform for the Generation and Trading of Forest Carbon Credits in Chile (PBCCh).

7.2 Linking institutional arrangements to national REDD+ implementation framework

In view of the fact that the ER Program is a jurisdictional component of the ENBCC, it will have the same institutional structure as the ENBCC and will therefore consist of:

- A Forest and Climate Change Board with its group of technical experts.
- Institutional Group of Forests and Climate Change for the Regions including the Temperate Forests Jurisdiction.
- Platform for the Generation and Trading of Forest Carbon Credits.

The ER Program is a part of the Strategy in all aspects pertaining to its design and concept, its governing structure, MRV System and trade.

7.3 Capacity of the agencies and organizations involved in implementing the proposed ER Program

The agencies and organizations that comprise the Forests and Climate Change Table (MBCC), the GTNE, the GBCC and the PBCCh all have different roles within the ENBCC and the ER Program. In this way, the MBCC, with technical support from the GTNE, is responsible for policy-making and management. Both organizations are made up of entities that have a direct competence in the areas under consideration and receive base funding to participate in organizations such as these. For example, this is apparent from the fact that they have previously been members of

the Steering Committees of projects funded by international agencies. Non-governmental representatives are motivated to attend because they are interested in having access to first-hand information on the subject and are willing to participate without the need for CONAF to stand any costs that may be incurred.

The GBCC operates at a regional level to implement the ER Program on the ground. Its funding is provided for under the Glosa Nacional as part of the CONAF budget. Additional allocations, for example for Strategic Environmental and Social Assessment (SESA) workshops and other activities deemed necessary for the preparatory phase will be transferred to the regions once FCPF contributions have been obtained. However, funding from other sources available to ENBCC has already been programmed to ensure the smooth functioning of regional CONAF teams working on climate change.

It must be noted that Chile has made important technical and financial progress in the implementation of its proposed ER Program:

- The ER Program is a part of the ENBCC.
- The FCPF preparatory fund will ensure the comprehensive development of SESA and generate the ESMF, which will also be used in the ER Program.
- Chile is already working on a forestry NAMA (Nationally Appropriate Mitigation Actions) in collaboration with the Swiss Government.
- The funding has made it possible to initiate and develop the studies required for the ER Program. Chile has a GEF Project called Sustainable Land Management, which provides substantial input for the implementation of the ENBCC. It also has financial support from the country's private sector.
- CONAF has already provided funding to begin the development of jurisdictions and allometric functions for native species, among other substantial disbursements that will undoubtedly be replicated in the future (self-financing).
- Discussions have begun with other international donors. Formal letters of support for granting funding to the ENBCC have already been made available.
- There are forestry incentive systems that are supported by legislation and are clearly linked to the ENBCC's vision on the sustainable management of native forests and the afforestation of suitable land.

Basic background information generated in Chile, even before the REDD+ mechanism was first mentioned within the UNFCCC, is available and will be available for NR and MRV.

7.4 Next steps to finalize the proposed ER Program implementation design (REL/FRL, ER Program monitoring system, financing, governance, etc.). Provide a rough timeline for these steps.

The following are the steps that are necessary for completing the program design and making progress in the implementation stages:

- Emissions reference lines and forests, drivers, barriers, monitoring indicators and safeguards. A specialized entity will be contracted to conduct the relevant studies in the ER Program jurisdiction, as set forth in the R-PP. It will benefit from the significant progress made in that area by a study directed by CONAF with support from the Universidad de Concepción, Los Ángeles Campus, on the specific situation of plantation forests in the area and their link with Mapuche communities.
- The study for the development of the SMFN (National Forest Monitoring System) has begun, and will incorporate the MRV of the ER Program. As previously announced, its design will be based on all of the forest monitoring and control systems that currently operate in the country, within CONAF as well as within other partner entities associated with the ENBCC.
- Financing will be provided from funds assigned and made available from the Readiness Fund, NAMA Forestry, the GEF Project for the Sustainable Management of Land, contributions from public and private sectors in Chile as well as resources disbursed directly by CONAF, among other sources of funding that may be available in the future.

Table 7.4-1. Timetable of activities to conclude the design of the ER Program.

Subject	Details	2014				2015	
		Term 1	Term 2	Term 3	Term 4	Term 1	Term 2
REL/FRL, drivers, barriers, indicators, safeguards	Tender						
	Execution of Study						
	Available Outcomes						
SMFN (Contains MRV of ER Program)	Design of Tender						
	Execution of Design and Outcomes						
	Implementation of Tender						
	Implementation and Outcomes						
Governance	Impl. Of proposed institutional R-PP arrangements						
	Impl. PBCCh						

	Impl. Of Voluntary Activities (example, REDD+SESA).						
Financing	Readiness Fund						
	CONAF						
	NAMA						
	GEF						
	National Private Companies						

7.5 Financing plan (in US\$ million)

A. National Government

There is a political and financial commitment to ensure that the institutions involved in the ER Program, as well as the structures generated by it should receive funding from the National Budget to satisfy the needs of the ENBCC.

B. National Subsidies that are compatible with the REDD+ mechanism

Two Chilean State subsidies appear to be compatible with the REDD+ mechanism and by extension, with what is proposed in the ER Program.

The national forestry development instruments alluded to above are: D.L. N°701 and Law N°20.283. While these instruments were not originally formulated as emissions mitigation measures, they are of indisputable benefit to mitigation efforts.

For example, the potential for mitigation inherent in the incentives provided for in Law N° 20.283 was analyzed by INFOR (2010). INFOR studied the example of 1.1 million hectares of land between the Maule and Magallanes Regions and the effect of the Law's provisions on this territory over a 20-year period. It found that, depending on the availability of biomass for energy, the enrichment of the native forest through the exclusion of livestock, as well as the availability of varying levels of budgetary allocations for incentives (an annual minimum of 30% and maximum of 70% for each mitigation measure), the results show that between 523,000 and 733,000 hectares would have a carbon capture potential of 34 million tCO₂eq and 52 million tCO₂eq.

The promulgation of a New Development Law for the forestry sector is now under consideration. It would replace the incentive component of current Decree Law N° 701. Among its most noteworthy characteristics is its focus on small and medium-sized landholders, carbon capture incentives and the payment of an annual income to smallholders. Laroze and Nazif (2012)²⁷ estimate that approximately 110 million tCO₂eq would be stored over a 40-year period if an average annual budget of US\$ 37.3 million in credits were allocated over a 20-year period. This would make it possible to plant approximately 592,000 hectares of plantation forest with species such as *Pinus radiata*, *Eucalyptus spp*, wood-energy plantations and "permanent" or "semi-permanent" forests, exclusively for the purpose of creating carbon sinks. An additional consideration is the reduction of emissions through the replacement of fossil fuels, thus leading to an accumulated total of 73 million tCO₂eq by the end of the period, or an average of 5.7 million tCO₂eq/year as a result of the New Forestry Development Law.

C. Other sources of financing

The following are some complementary actions currently being developed:

- Sustainable Land Management Project with financing from the Global Environment Fund (GEF), with the World Bank as Implementing Agency. Its main objective is to manage degraded lands, conserve biodiversity in areas under production and carry out climate change mitigation activities. To this end, efforts will be made to strengthen the tools needed to promote sustainability in agriculture, forestry and the environment in Chile. This will bring economic benefits to landholders and enable them to be guided by these objectives in the management of their holdings. The project will last 5 years and have a total funding of US\$ 5.8 Million.
- NAMA Forestry is an initiative funded by the Swiss Government in the amount of US\$ 1.7 million, a figure that could increase depending on results obtained in 2014. NAMA is planning a series of preparatory activities such as the defining of jurisdictional reference lines, supporting MRV systems and carrying out studies on the need for emission reduction and carbon capture in Chile. It also plans to make substantial progress towards the registration mechanism, among other key tasks.
- Other important elements are the Cadastre that was mentioned above, the Monitoring System for Wood Energy and Forest Carbon, among other pre-existing tools for monitoring national forest resources.

²⁷ Laroze, A. y I. Nazif. 2012. Fundamentación del proyecto de ley de fomento forestal 2012: valorización del potencial de mitigación de gases de efecto invernadero asociado a la forestación. Informe preparado para la Corporación Nacional Forestal. Santiago, Chile. 85 p.

- CONAF has made available approximately US\$378 million for the development of studies on ENBCC Jurisdictions by the Universidad Mayor and the Universidad de Concepción, Los Ángeles Campus.
- Additional financing that may be obtained from the Carbon Fund is indispensable for the proposed objectives of emission reduction and carbon capture, as this would serve to augment the income available for national programs. These programs would become more attractive for the owners of forest resources, especially the most marginalized who, without the help of State programs, would otherwise never be able to participate in payment mechanisms based on emission reduction and carbon capture.

The implementation of the Jurisdictional and Nested REDD+ (JNR) framework of the VCS will present an opportunity for attracting private sector funding for purchasing emission reductions from the jurisdictional program and/or nested projects.

All of these Forests and Climate Change-related initiatives constitute an important source of early cofinancing for the ENBCC, as they are in keeping with the model currently under development and allow for synergies and the efficient use of technical and financial resources for one common objective: the strengthening of the role of Chile's forests and soils suitable for forestry in climate change mitigation.

8. Reference Level and Expected Emission Reductions

8.1 Approach for establishing the Reference Emission Level (REL) and/or Forest Reference Level (FRL).

A. Methodological Approach

In order to establish the Reference Emissions Level (REL) for the ER Program, the methodology used will be the same as for the greenhouse gases inventory (INGEI) to be submitted to the UNFCCC (Criterion 10 of the Methodological Framework), which complies with the guidelines established by the IPCC and the Carbon Fund Methodological Framework. In addition, the requirements of the Jurisdictional and REDD+ Nested (JNR) Framework of the VCS are compatible with IPCC and FCPF guidelines and will be applied in the development of the reference level.

In all matters pertaining to MRV and REL, efforts are made to ensure maximum consistency with the data and provisions of the INGEI (National Inventory of Greenhouse Gases and Sinks) in which CONAF plays an active role. It provides information and participates in decision making at the level of the groups of experts. For Chile's forestry sector, the logical sequence for the development of a Reference Scenario and the estimated year for its implementation would be as follows:

- i. A first phase involving the results at the national level of the outcomes of the MAPS Project, which will define reference levels for different sectors in the country, including the AFOLU sector (2013 and 2014).
- ii. A second phase, based on the development of the Jurisdictions, each one of which will be assigned a specific and more detailed Reference Level at the sub-national level (between 2012 and 2015).
- iii. Finally, sub-national reference scenarios will be consolidated into one national scenario which will be more detailed than the initial one (2014-2015).

B. Reference Period

The start dates and termination dates for each reference period are the same for each activity, that is, deforestation, degradation and the increase of carbon stocks. The start date is 1st January 1998, while the date of termination is 31st December 2012. The duration is therefore 15 years, as suggested in the methodological framework in indicator 11.2.

The choice of a 15-year time period is due to the fact that the data available for the ER Program are the updated data of the Cadastre, in compliance with Thematic Focus Element 3 of the IPCC in that they are based on spatially designed polygons and on local parameters, for the most part. Furthermore, these data have been formalized by the State of Chile, thus allowing for greater consistency in determining the average time period for the reference level when a greater amount of data and longer time periods are included.

C. Definition of "forest" and "degradation"

The ER Program's definition of forest is the same as the one established in Chilean legislation and the UNFCCC definition, which states: "an area populated by plant formations with a predominance of trees occupying a minimum area of land of 0.5 hectares with a minimum width of 40 meters, with tree crown cover of more than 10%

of the surface in arid and semi-arid conditions and 25% in more favorable conditions.”²⁸ Therefore, when a surface area no longer conforms to these conditions, deforestation is said to have occurred.

In Chile, there is no official definition of the word “degradation.” Efforts are therefore underway to find a definition, at least for practical purposes, which will be compatible with prevailing international guidelines. Defining what is meant by “degradation” is a key problem and one to be resolved by interest groups in Chile. An acceptable solution for establishing a base for future actions would be to adopt a harmonized international definition of the term. The point of departure for such an exercise has been developed in the Project: “Methodological Development and Tools for REDD in Temperate Forests” by INFOR and funded as part of the MIA Project²⁹. This lends continuity to studies of this type that will receive validation from national and international experts.

For the purposes of the ER Program, “degradation” will be understood to mean the loss of the carbon stock of a forest, in relation to its potential, or its condition immediately prior to the loss, based on the benchmarks observed over various periods of analysis, without losing its legal status as a forest. At the same time, the provisions of the VCS and other forest carbon credit standards operating in the voluntary market will apply in respect of reference lines and mitigation measures.

D. Calculation method for each REDD+ activity of the ER Program

As noted above, and as stipulated in indicator 11.1 of the methodological framework, the use of the Cadastre of Native Vegetation Resources of Chile, together with the monitoring of changes and updates has allowed for implementation of Thematic Focus Element 3 of the IPCC. Furthermore, the matrix of land use change obtained from updates of the Cadastre serves as a basis for information used in the INGEI of the AFOLU sector. This gives heightened consistency to the public information disseminated to different sources.

In 1997, the Cadastre produced a detailed cartographic representation with the aid of a thematic mapping of land use, vegetation and forests throughout the national continental territory. This required the interpretation of 50 thousand aerial photographs. Descriptions were made of 50% of the polygons with native forests and transposed to topographic maps of varying scales.

Access to more advanced technology has, over time, made it possible to develop a methodology for correcting defects or errors caused by instruments that were used in the initial phase. The development of orthophotos has led to the elaboration of orthorectified cartography, which makes it possible to correct errors in the coordinates of geographical locations and hence errors in surface area information. The methodology used to classify land use and different plant formations is known as the LUM, or Land Use Mapping, a methodology developed by the Louis Emberger Center for Phytosocial and Ecological Studies (CEPE Montpellier) and adapted by Etienne and Prado in 1982.

The updating of the Cadastre has yielded important information, making it possible to recognize trends in the various measured uses and sub-uses, as well as to identify the reasons for such changes. The table below shows the years when updates were effected, by region within the jurisdiction.

Table 8.1-1. Years of cadastre updates by region.

Regions	Base year	First update	Second update	Third update
El Maule	1997	1999	2009	
Bío Bio	1997	1998	2008	
Araucanía	1997	2007	2014*	
Los Ríos	1997	1998	2006	2014*
Los Lagos norte**	1997	2006	2013	
Los Lagos sur**	1997	1998	2013	

* Available from April 2014

** In the first update, this region was divided into two, specifically down the middle of Llanquihue province.

Data for the years 2013 and 2014 cannot be included in the historical reference level, as the ER Program began in 2013. Most regions therefore have two points of measurement, which will be used to determine the historical reference points, in keeping with the method used by the INGEI. The historical reference period used would therefore be 1998 to 2012.

²⁸Technical report N°176. Manual for the development of forestation/reforestation projects, under the Clean Development Mechanism in Chile, A/R MDL Kyoto Protocol de Kyoto. INFOR 2009. 140 pp

²⁹ Rojas, Y.; Loguercio, G.; Nieto, V. and C. Bahamondez.2012. Analysis of forest degradation within the REDD+ framework. INFOR Project: development of methodology and tools for REDD in Temperate Forests. Forestry Institute (INFOR, Chile). Center for Research and Patagonian Andean Forest Extension (CIEFAP, Argentina) and National Corporation for Forestry Research and Development (CONIF, Colombia). Financed by MIA, Cooperative Project on Mitigation and Climate Change Adaptation in Sustainable Forest Management in Latin America. 152 p.

The uses of the Cadastre have been applied in a consistent manner to take account of IPCC requirements, GHG inventories, as well as the ER Program.

Table 8.1-2. Categories of land use, as defined by CONAF and IPCC

CONAF	IPCC
Agricultural lands	Cultivated Lands (CL)
Grasslands and scrubland	Pasturelands (PL)
Native forest, mixed forest and plantation forests	Forest lands (FL), subdivided into native forest (FL-NF) and Plantation forests(FL-PF)
Wetlands	Wetlands (WE)
Urban and industrial areas	Human Settlements (HS)
Areas devoid of vegetation, snow covered areas and glaciers, bodies of water and areas that are not categorized	Other lands(OL)

D.1.- Deforestation

In cases of deforestation, the change of land use from forest to other uses will be utilized, separating forest lands into native forest and plantation, as was done in the country's last INGEI (see Table 8.1-2). In addition, the INGEI uses other activity data that will be explained in later sections of the ER-PIN.

To determine the matrix of land-use changes from native forest and identify the presence of emissions from deforestation the following changes in land use will have to be factored in, using the assumptions of Chile's last INGEI, as detailed below:

D.1.1.-Native Forest Losses:

D.1.1.1.- Native Forest Lands Converted to Cropland

Cropland includes arable and tillage land, rice fields and agroforestry systems in which vegetation falls below the threshold used for the forest land category and is not expected to exceed them in the future. Cropland includes all annual and perennial crops, and temporary fallow land. Crops can be annual, biennial and permanent, except where the land use meets the criteria for classification as forest land. Included under cropland is arable land normally used for annual crops but temporarily used for forage crops or pasture, as part of an annual crop-pasture rotation (mixed system).

Given the failure of country- or region-specific values which permit a differentiation to be made between the surface area that was converted to annual cropland and the surface area converted to perennial crops, the assumption was that all conversion was to annual crops.

D.1.1.2.- Native Forest Lands Converted to Pastureland

Pastureland, which basically comprises the lands known in Chile as "natural grasslands" covers an area of 10.8 million ha, and improved grassland 1.06 million ha, according to the Seventh National Census of Agriculture and Forestry (INE, 2007).³⁰ In Chile, many of these plant formations comprise annual herbaceous plants and shrub formations known as "scrubs," the surface area of which, according to the same census, amounted to 1.92 million ha.

For purposes of the ER Program, there is evidence of lack of country- or region-specific values on natural grasslands specifically with reference to shrubs and scrubland. This has prevented a full inclusion of these lands in the ER program (the same thing happened in the INGEI). For purposes of this National Inventories series, only the herbaceous stratum was considered, which was calculated by default values in accordance with the 2006 IPCC Guidelines.³¹

³⁰INE.2007. ICET, Territorial Statistical Consultation System [*Sistema de Consulta Estadístico Territorial*]. Obtained in September 2013, from VII National Census of Agriculture and Forestry [*Censo Nacional Agropecuario y Forestal*]: <http://icet.odepa.cl/>

³¹IPCC GLs Worksheets. (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4. Obtained from Agriculture, Forestry and Other Land Use Worksheets: http://www.ipcc-nggip.iges.or.jp/public/2006gl/worksheets/2006GL_Worksheets.zip

D.1.1.3.- Native Forest Lands Converted to Settlements

The “Settlements” category includes vegetation—herbaceous, shrubby and trees—of residential areas, urban areas, public and private gardens, parks, among others etc., functionally or administratively linked to cities, towns or other types of human settlements, provided they are not counted in another category of land use (IPCC, 2006).

According to statistics from CONAF (2011),³² settlements cover an area of 248,002 ha, equivalent to 0.33 percent of the surface area of the country. Furthermore, the land surface converted annually to settlements, determined from the matrices of land-use changes of CONAF’s Cadastre of Native Vegetation Resources in Chile, is 6,778.8 ha, cropland and pastureland being the most affected.

D.1.1.4.- Native Forest Lands Converted to Other Lands

According to the IPCC (2006), the category “3B6.Other Lands” (OL) is comprised of bare soil, rock, ice and all land areas that do not fall under any of the other five categories of land use. For this inventory, the “Other Land” category is comprised of the categories that recognize the Chilean forestry institutional structure (CONAF), namely:

- Areas devoid of vegetation;
- Snow and glaciers;
- Water bodies; and
- Areas not recognized.

These comprise 30,678,266 ha, equivalent to 41 percent of the total national area (CONAF, 2011).

D.2.- Degradation

Degradation occurs in the INGEI categories in those native forest lands that remain native forest lands.

Owing to the lack of a national definition of degradation it is thought to be the loss of carbon stock from a native forest area, without the latter ceasing to be forest land according to the definition of forest land in Chile.

Determining the reference scenario of degradation of native forest will be done in the first instance as item A of this question states, following the logical sequence for the construction of a reference scenario. First, the methodological bases established by Chile’s National Greenhouse Gas Inventory (INGEI) will be employed using emissions from activities such as consumption of logs and firewood, as well as forest fires, and then an advance will be made to a jurisdictional proposal, setting out in the form of maps the polygons with degradation throughout the forest cover.

Initial data identifying differences of coverage in the updates of the Cadastre showed differences between regions that cannot be explained by degradation as such, but could be associated with the different technologies used according to the dates of updating, which matter is being reviewed in more detail in the preparation phase in progress, how to link spatially the emissions from activities with the percentage changes in cover in native forests provided by the Cadastre in order to comply with the IPCC Tier 3 approach for calculating forest degradation.

Table 8.1-3. Treatment of canopy cover in updates of the Cadastre.

Region	Type of Forest	Period	Changes in canopy cover in hectares according to Cadastre updates (hectares)		
			Dense to semi-dense	Dense to open	Semi-dense to open
VII	Native forests	99-09	1,428.4	168	212
VIII	Native forests	98-08	25.91	188.95	0
IX	Native forests	97-07	113.8	184.7	250.3
X	Native forests	98(06)-13	91,631.82	14,470.87	18,122.99

Sources of GHG emissions considered in this category were:

- Emission by:
 - Harvesting of native forest logs (above-ground and below-ground biomass is counted);
 - Harvesting—or rather—removal of firewood (considering only above-ground biomass); and
 - Forest fires in native forest (considering only above-ground biomass).

Forest fires are being included in the ISGEI - AFOLU because CONAF declared some years ago that all forest fires in Chile are anthropogenic in nature. If the fire affects native forest, this surface will be subsequently subjected to a

³²CONAF. 2011. Monitoring and Updating the Cadastre of Native Vegetation Resources in Chile. Period 1997 to 2011.

process of natural regeneration, which requires accounting for emissions from the fire and then the regeneration of above-ground biomass for a transition period until the forest reaches a stable condition (for Chile, the consensus was to consider 80-year periods).

This is so even though the IPCC 2006 Guidelines provide a default period of 20 years, as a definite consensus was reached by a panel of national experts³³ on the basis of the time it takes for trees to reach a quadratic mean diameter of 50 centimeters. This criterion was used to count the years an area continues to capture CO₂ after a disturbance, including forest fires and clear-cutting.

Besides emissions from activities, degradation occurs in the historical reference period when land use is changed from native forest to forest plantations of exotic species, which is called Substitution. Though the original idea was to consider the substitution of native forests by forest plantations as **deforestation** the final decision was to adapt the term and connect it to degradation since the national regulations consider even the monocultures of exotic species as forests (see definitions included in the Law N°20.283), and in general terms the law does not specify the condition of exotic or native plant formations to be considered as forests. On the other hand, even though there is a constant discussion on the social and biodiversity attributes of forest plantations, these have historically been reported as forests in the national statistics specifying their “exotic” condition but otherwise including them under this land use category

D.2.1.- Native Forest Lands Converted to Plantations (Substitution).

“Substitution “ is a special case of change in the existing plant formations on the surface of lands that produce carbon emissions but do not qualify for change of land use according to the IPCC criteria, equivalent to the conversion of an area covered with native forest into an area of forest plantation, mainly of pine and eucalyptus trees.

While the change of land use from native forest to plantations is also classified as “forestry” it generates significant changes in vegetation, with emissions associated with it which should certainly be taken into account.

For inclusion in this subcategory we worked with the assumption that the biomass presented by forest land prior to conversion (i.e. native forest) accounts for only 50 percent of the above-ground and below-ground biomass stock because after analyzing the statistics of the “Cadastre of Native Vegetation Resources in Chile” it was determined that 73 percent of the native forest prior to substitution had dense or semi-dense covers and the remaining 27 percent had open covers, i.e., most forests had an average cover of about 50 percent.

D.3.- Increase in Carbon Stocks

D.3.1.- Increase in Native Forest:

D.3.1.1.- Restored Lands: so-called because having sustained forest plantations, they have been restored to the class of lands with native forest formations; and

D.3.1.2.- Reconverted Lands: so-called because having been dedicated to other than forest uses, they have been converted to lands with native forest formations.

In both cases, carbon captures resulting from an increase of above-ground and below-ground biomass and a progressive accumulation of necromass were considered for this ER program. For those cases, the criterion of an 80-year transition period for the new forest to reach a condition of stability was also applied.

D.3.2.- Increase in Plantations:

In land converted to forest plantation changes in carbon stocks were recorded when land with other uses (cropland, pastureland, wetlands, settlements, other lands) are converted into forest land specifically forest plantations. In the national context and based on an analysis of Matrices of Changing Land Use and of the Vegetation Cadastre, we determined that the area of land converted to forest each year is 72,329.8 ha, 92.2 percent of this surface area being intended for forest plantations (66,708.1 ha).

E. Methodology

The methodology applied in the ER program to estimate GHG emissions and removals corresponds to the methodology described in Chapter 2 of Volume 4 of the 2006 IPCC Guidelines. Regarding carbon stocks, only three

³³Panel composed of the Forestry Experts, Messrs. José Antonio Prado (MINAGRI), Yasna Rojas (INFOR), Carlos Bahamondez (INFOR), Aquiles Neuenschwader (FIA) and Hugo Rivera (CONAF).

of them were included in the present accounts of the ER program: above-ground biomass, below-ground biomass, and necromass; the other two stocks were not included (litter and soil organic carbon) for lack of national data.

It should be noted that when changes in land use are identified, the ER program uses the stock changes methodology. However, in the case of emissions from activities using logs and firewood, and in the case of fires the gains and losses method is used.

Further details of methodology, activity data, and emission factors are described in Annex II.

G. Uncertainties

The calculation of uncertainties will be made using the same GHG AFOLU sector inventory methodology. In the AFOLU sector inventory the uncertainty of each category and subcategory of the sector component is determined by applying the “error propagation” method equivalent to the IPCC Tier 1 Methodology. According to the IPCC in Method 1 the propagation of error estimates uncertainty in individual categories in the total inventory and in the trends between the base year and the year of interest. This method is implemented through the Calculation of uncertainty in Method 1³⁴ which will be implemented to be applied in this ER Program.

For purposes of obtaining the uncertainty results achieved, the following procedure will be followed:

- First, what should be considered “statistical activity data” will be defined by category and subcategory of the AFOLU sector. It should be noted that there are primary and secondary statistical activity data, the latter being derived from the former;
- Second, what should be considered “parametric activity data” will be determined by category and subcategory of the AFOLU sector;
- Third, the categories/subcategories where there are no actual emission factors will be identified;
- Fourth, the uncertainty of each statistical and parametric datum will be assigned by application of the following criteria:
 - Uncertainty values published by the original sources of the data.
 - Use of the uncertainty published by the IPCC for default values, whether these be parametric data or emission factors.
 - Uncertainty values according to the judgment of experts.
- Fifth, the uncertainty for statistical and parametric data is calculated together with emission factors; in the event there is more than one datum, the formula will be applied to obtain a combined uncertainty for each set of values; and
- Sixth, the uncertainties for statistical and parametric data in conjunction with emission factors are transferred to the general calculation table in order to calculate uncertainty of the time series yearly, so the values of captures and emissions by category/subcategory must also be taken up.

8.2 Expected REL/FRL for the ER Program

A. CALCULATION OF REFERENCE EMISSIONS LEVEL (REL)

Calculations similar to those of the INGEI were made, but with the safeguard of incorporating captures and emissions from new land uses since the INGEI separates uses identifying emissions and/or captures, essentially an analysis by type of use and not as in this case, by activity.

For the calculation of the REL, this will be done for each activity separately, as presented in the previous question.

A.1.- DEFORESTATION

For deforestation what will be calculated are emissions from:

- Native forest lands that are converted to croplands;
- Native forest lands that are converted to pasturelands;
- Native forest lands that are converted to settlements; and
- Native forest lands that are converted to other lands.

Details of the calculation of the above categories are in Annex III. A summary of the average annual REL of each of the categories representing the Deforestation REL in the Temperate Forests Jurisdiction for the reference period 1998 to 2012 is presented below.

Table 8.2-1. Average annual emissions from deforestation in the historical reference period in the Temperate Forests Jurisdiction.

³⁴Included in the 2006 IPCC GUIDELINES (Chapter 1)

Carbon Fund Jurisdiction				
Category of land use		Average annual change in carbon stocks in above- and below-ground biomass	Average annual change in carbon stocks in necromass	Total average annual change in carbon stocks
		(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)
Initial land use	New land use	$\Delta C_B = \Delta C_G + ((B_{AFTER} - B_{BEFORE}) * \Delta A_{TO_OTHER}) * CF - \Delta C_L$	$\Delta C_{DOM} = A_{on} * (C_n - C_o) / \text{Ton}$	$\Delta C_B + \Delta C_{DOM}$
		ΔC_B	ΔC_{DOM}	
NFL	CP	21,858.80	15,343.15	37,201.95
NFL	GL	265,876.11	257,311.83	523,187.93
NFL	SL	986.01	483.39	1,469.40
NFL	OL	44,921.36	8,760.90	53,682.26
Total		333,642.27	281,899.26	615,541.54

The REL (historical annual average) for deforestation activity is 615,541.54 TCO₂e, for the period 1998-2012. The main change in land use affecting emissions is the change from native forest land (NFL) to pastureland (GL), with 85 percent of the total, which is explained by high rates of land conversion (activity data).

Necromass has a huge impact on emissions again as a result of the change of use from forests (NFL) to pastureland (GL), as higher conversion rates occur in Regions IX, X and XIV that have forests with a large amount of necromass that originate emissions when there is a conversion of use.

A.2.- DEGRADATION

Emissions from forest degradation, or rather loss of carbon stock without the status as a forest being lost, which in the INGEI means emissions from native forest lands that continue to be native forest lands, include:

- Commercial harvesting
- Removal of firewood
- Disturbances

Furthermore, the change in land use from native forest land to plantations (substitution) is considered to be degradation for this ER program.

Below is a summary of the average CO₂e emissions for forest degradation activity when forest lands continue to be used as forest lands.

Table 8.2-2. Summary of average annual emissions during the reference period 1998-2012, from degradation activities.

Temperate Forests Jurisdiction				
Category of land use		Emission subcategories		Annual losses of CO ₂ by biomass removal
Initial land use	Land use during the reporting year			(metric tons CO ₂ yr ⁻¹)
NFL	NFL	Loss of carbon through consumption of logs from native forest		1,511,784.86
NFL	NFL	Loss of carbon through consumption of firewood from native forest		9,324,381.41
NFL	NFL	Loss of carbon as a result of forest fires		2,565,025.98
TOTAL				13,401,192.25
Initial land use	New land use	Average annual change in carbon stocks in above- and below-ground biomass (metric tons CO ₂ yr-1)	Average annual change in carbon stocks in necromass (metric tonmetric tonss CO ₂ yr-1)	Total average annual change in carbon stocks (metric tons CO ₂ yr-1)
NFL	FTP	1,234,481.88	643,756.92	1,878,238.80
TOTAL DEGRADATION				15,279,431.06

The REL with respect to degradation in the Temperate Forests Jurisdiction is 15,279,431.06 TCO₂e, the use of firewood being the main source of emissions accounting for 61 percent of emissions from degradation. This confirms the importance of degradation in the ER program and further strengthens the actions proposed in this program to reduce the impact of the firewood driver originating from native forest.

It is also confirmed that the change in land use from native forest to plantations is degradation because it causes emissions during the reference period, with a REL of 1,878,238 TCO₂e.

A.3.- CARBON STOCK INCREASES

Increases in stock are caused by the introduction of new forest areas, which correspond to the following categories of conversion of land uses:

- Restored Lands
- Reconverted Lands
- Increase in plantations, this category will be factored in the ER Program and be spatially monitored, but will not be offered to the Carbon Fund.

A summary of the REL for increases in stocks in the Temperate Forests Jurisdiction for the historical reference period 1998-2012 is presented below.

Table 8.2-3. Emissions (+) or Captures (-) from increased stocks caused by increases in forest lands.

Temperate Forests Jurisdiction				
Category of land use		Average annual change in carbon stocks in above- and below-ground biomass	Average annual change in carbon stocks in necromass	Total average annual change in carbon stocks
		(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)
Initial land use	New land use	$\Delta C_B = \Delta C_G + ((B_{AFTER} - B_{BEFORE}) * \Delta A_{TO_OTHER}) * CF - \Delta C_L$	$\Delta C_{DOM} = A_{on} * (C_n - C_o)/Ton$	$\Delta C_B + \Delta C_{DOM}$
		ΔC_B	ΔC_{DOM}	
FTP	NFL	18,460.53	16.58	18,477.11
CP	NFL	-19,123.69	-241.26	-19,364.95
GL	NFL	-232,452.40	-3,908.63	-236,361.03
SL	NFL	-102.93	-0.29	-103.22
OL	NFL	-2,220.75	-34.02	-2,254.77
TOTAL to NFL		-235,439.23	-4,167.63	-239,606.86
CP	FTP	-2,454,812.98	-12,626.85	-2,467,439.82
GL	FTP	-3,699,999.77	-27,245.74	-3,727,245.51
SL	FTP	-1,329.58	-4.45	-1,334.03
OL	FTP	-52,812.75	-461.90	-53,274.65
Total to FTP		-6,208,955.08	-40,338.94	-6,249,294.03
TOTAL		-6,444,394.32	-44,506.57	-6,488,900.89

The REL caused by increases in stock during the reference period (1998 to 2012) for native forests is -239606.86 TCO₂e of capture. For plantations the REL is -6249294.03 TCO₂e of capture, much higher than any possible capture in native forest. This is mainly due to afforestation rates in the jurisdiction, which are almost entirely focused on forest plantations of exotic species.

For native forests and plantations, the major capture is obtained when pasturelands (GL) are converted.

B. FINAL RESULT

The reference emission levels and/or captures for the historical reference period 1998-2012 in the Temperate Forests Jurisdiction were calculated above; below the REL results are presented by type of activity under the ER program.

Table 8.2-4. Reference emission levels (+) and captures (-) for each of the activities under the ER program.

Temperate Forests Jurisdiction				
Activity	Average annual change in carbon stocks in above- and below-ground biomass	Average annual change in carbon stocks in necromass	Annual losses of CO2 by biomass removal	Total average annual REL
	(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)	(metric tons CO ₂ yr ⁻¹)
	$\Delta C_B = \Delta C_G + ((B_{AFTER} - B_{BEFORE}) * \Delta A_{TO_OTHER}) * CF - \Delta C_L$	$\Delta C_{DOM} = A_{on} * (C_n - C_o) / \text{Ton}$		□
	ΔC_B	ΔC_{DOM}		
DEFORESTATION	333,642.27	281,899.26		615,541.54
DEGRADATION	1,234,481.88	643,756.92	13,401,192.25	15,279,431.06
INCREASE IN STOCK	-6,444,394.32 ³⁵	-44,506.57		-6,488,900.89

Total of activities aimed to avoid GEI emissions into the atmosphere (deforestation an degradation) = 15,894,972.6

Total of activities to capture GEI from the atmosphere (associated to the preceding minus sign since the said GEI are subtracted from the atmosphere) = -6,488,900.89

Total of the three activities in absolute values (without considering if the action avoids emissions of GEI into the atmosphere or capture them from it) = 22,383,873.5

As a result of the REL in the Temperate Forest Jurisdiction for each of the activities addressed by this ER program for the historical reference period spanning 1998-2012, it is clear that degradation of native forests is the activity with greatest emissions and it is here that the actions of the ER program are mainly focused in order to reduce the effect of the drivers of degradation.

It is also noted that in terms of degradation emissions by biomass are the major emissions, explained mainly by the use of firewood from native forests. The calculation details are in Annex III of this document.

9. Forest Monitoring System

9.1 Description of approach and capacity for measurement and reporting on ERs

The proposed focus for each of the REDD+ activities that Chile will implement will be the “Land based approach” because our current monitoring system employs the territorial approach through the change matrix resulting from cadastral updates and the SMFN is also based on territory. However, for emissions from consumption of logs and firewood and for fires an activity-based approach will be adopted using as activity data the INFOR and CONAF statistics.

³⁵ The apparently large figures of captures (increases of stock) are partially explained by a dynamic Chilean forestry policy applied during the last 20-30 years mainly represented by exotic fast-growing forest plantations. However when excluded from the proposal submitted to the Carbon Fund (see Table 12.1.4) there is a substantial decrease since they only consider increases associated to hectares of lands with bare soils that became forests by means of actions aimed to restore the natural native forests

Under VCS JNR the “land based approach” can be used only for Scenario 2 where the results of the land-based accounting can be separated by activity to facilitate project-level accounting within the jurisdiction, which is totally in line with what the ENBCC establishes in this area.

This approach is being implemented in Chile from 1997, so there is practical knowledge in this regard, and moreover past and future INGEIs reported to the UNFCCC were and will be based on the Cadastre and on INFOR statistics.

9.2 Describe how the proposed ER Program monitoring system is consistent with the (emerging) national REDD+ monitoring system.

A major conceptual element in the design of the SMFN system in Chile has to do not only with aims to meet international requirements for monitoring of GHG emissions related to forest degradation, but also aims to have its development consolidate and modernize existing administrative and information systems currently operating within CONAF and from which the statistical information-based reporting across the country in every area is developed. In short, it aims to incorporate all registration, control, and monitoring actions in different areas, a geographically distributed dynamic, which will significantly increase institutional capacity in terms of public forest administration, evaluation of policies, programs, and projects, inter alia.

Based on this reasoning, it aims to develop a multi-level monitoring system capable of interacting in different areas based on straightforward cartographic and alphanumeric information and processing software that are specifically well-defined in each element.

The requirements for this are basically related to forest management actions in all spheres, with the REDD+ guidelines and the associated environmental and social safeguards. All the requirements are interrelated in one way or another to shape a system that must comply with the characteristics of the estimates in terms of hardness, transparency, comparability, consistency, and accuracy defined by IPCC. It should be noted that to date most of the background data that Chile could input into its forest monitoring system would qualify as Tier 2 according to the IPCC’s nomenclature, as it aims to gradually build a system that largely meets the requirements associated with Tier 3 and the items required for this as funding permits.

The level of detail at which it is economically feasible to monitor, report, and verify emissions associated with forest degradation as well as deforestation and increases in carbon stocks will be defined in the ENBCC.

An analysis sequence from the general to the particular has also been established for the country in the ENBCC, which is very solid from a methodological point of view. It is based on the National Forest Monitoring System (SMFN) which is currently used by Chile to comply with the UNFCCC. From this, the monitoring system for the ER Program (MRV system) will be generated and with the same information the reference levels for the jurisdiction will be built, generating coherence and methodological soundness of the information provided to the various sources (Figure 9.2-1).

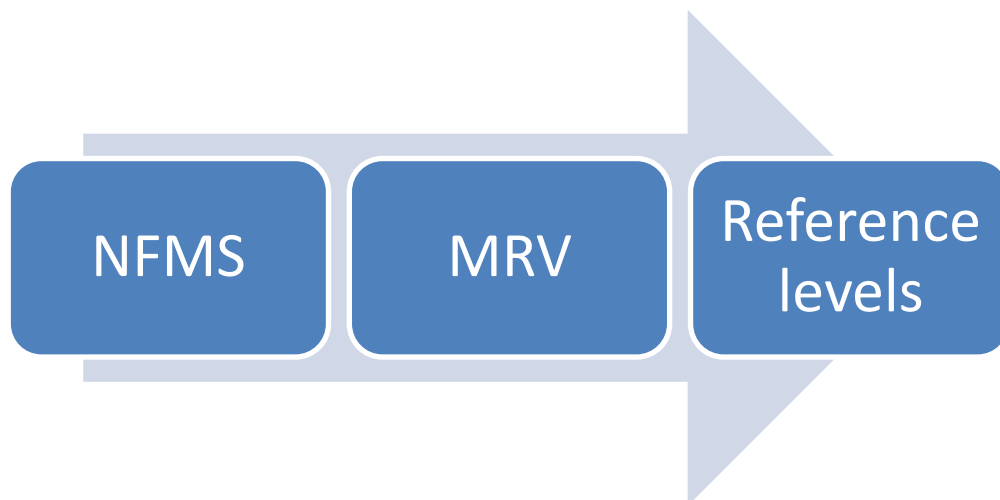


Figure 9.2-1. Flow chart of monitoring under the ENBCC.

For the reference levels and the MRV of the various activities of the ER Program the activity data will be based on the Cadastre of Native Vegetation Resources in Chile, the INFOR forest statistics, and the emission factors. In the first stage they will be the factors fueling the INGEI that Chile presents to the UNFCCC, and then the allometric functions and the Forest Carbon Wood Energy Monitoring System will be used.

Table 9.2-1. Calculation of reference levels in the second stage.

Activity	Activity Data	Emission Factors
Deforestation	Cadastre (forest to non-forest)	Wood Energy and Forest Carbon Monitoring System, a set of commercial and allometric volume functions for calculating biomass and carbon.
Degradation	Cadastre (coverage levels) and statistics on consumption of logs and firewood and on forest fires where possible with spatial representation.	Inventory of wood energy and carbon, a set of commercial and allometric volume functions for calculating biomass and carbon, inventory data provided by INFOR, Universidad Austral among others.
Forestation	Cadastre (non-forest to forest) and statistics on forest plantations.	A set of commercial and allometric volume functions for calculating biomass and carbon. Using several rotations in the case of plantations. In the future, agreements with companies with forest plantations that can provide data on them permanently.

It is important to mention that the Agriculture Ministry, coordinated by INFOR, is currently working on the GEF project *“Integrated national Monitoring and assessment System on Forest Ecosystems (SIMEF) in support of policies, regulations and SFM practices incorporating REDD+ and biodiversity conservation in forest ecosystems”* that will be a fundamental part of the progresses in the design and implementation of the national MRV system.

9.3 Describe how the proposed ER Program monitoring system is consistent with UNFCCC guidance available to date and with the emerging Methodological Framework of the FCPF Carbon Fund.

Monitoring of emissions by sources and removal by sinks will be using the same methodology as that used to calculate the reference levels nationally and in each jurisdiction for each of the activities.

In addition, the activity data will be monitored at least twice between the time the ERPA is signed with the World Bank FCPF and 2020. The calculation of deforestation will be made on the basis of gross losses of hectares of forest according to national definition (in accordance with IPCC’s indications), and for the calculation of degradation direct quantification methods will be used through, as a minimum variable, canopy cover associated with activity values to link the drivers to the surface.

The emission factors will be obtained from national studies or equivalent and save in exceptional cases the IPCC default data will be employed. A review of these values will be done at least once during the ERPA period, which will be the same values used for calculating the reference levels.

As explained above, a different monitoring system has not been established with regard to the SMFN, but it is a part of it, as is suggested by the methodological framework of the FCPF and the “Warsaw Package of REDD+ Decisions” in terms of using pre-existing systems for the MRV systems.

The SMFN has planned a schedule to comply with the decisions of the different COPs that have addressed the issue of MRV and REDD+:

- The SMFN uses remote sensing and inventories with clear, consistent estimates being as accurate as possible to reduce uncertainties, depending on the national situation (4/CP15);
- It incorporates safeguards indicators and consults indigenous peoples (1/CP16);
- It incorporates subnational approaches to maintain a national MRV system and consistency with GHG inventories (12/CP17); and
- It also includes other details of the MRV system identified in the COP 18.

In addition, it will collect all the indicators proposed for REDD+ by VCS and REDD+SES of the CCBA.

The community will be involved in monitoring through the SESA and will be following up with the ESMF, where environmental and social safeguards will be measured by indicators.

9.4 Describe any potential role of Indigenous Peoples or local communities in the design or implementation of the proposed ER Program monitoring system.

The incorporation of owners of all types (large, medium, small, indigenous and non-indigenous peoples) has been achieved through the institutionalization of the ENBCC and strengthened every day by implementing the participatory process comprising SESA and REDD+SES as well as the comprehensive Communication Plan provided for in the national initiative.

In practice, the incorporation of indigenous and non-indigenous owners in the PBCCh will be achieved through private developers as well as with the participation of forestry extension officers, who will provide technical assistance in forest establishment and management to small and medium-sized indigenous and non-indigenous owners in the sector, seeking to promote economic and social development for rural communities. Forest extension officers will provide advice in identifying sources of forest financing, support in submitting projects for

incentives-based competitions under Law No. 20.283 and grants under D.L No. 701, and collaboration in the development of forest management plans.

In turn, the Forest Carbon Wood Energy Monitoring Project will provide for the creation of permanent plots distributed in such a way as to generate statistically reliable information from the point of view of the ecosystem, notwithstanding the fact that several of the sampling points are associated with territories of indigenous peoples, where they have become participants of the initiative as a whole, as well as specifically during their own field sessions.

9.5 Describe if and how the proposed ER Program monitoring system would include information on multiple benefits like biodiversity conservation or enhanced rural livelihoods, governance indicators, etc.

As mentioned above work is already being done on the design and complete implementation of the SMFN, which includes the MRV of the ER Program. In addition, we are replying on inputs in the area on the issue of how to approach the development of plantations with carbon initiatives through indigenous peoples (mainly Mapuches).

For these studies it is of paramount importance that the MRV system comply with the provisions of the methodological framework of the FCPF, the UNFCCC, and standards such as VSC and REDD+SES of the CCBA. This will generate a comprehensive SMFN in terms of multiple benefits and how they are handled. Obviously this SMFN will be connected to the ESMF tool that is being developed with the Readiness Fund.

The principles contained in the ESMF involving variables to be measured are indicated in question 6.2 of this document. The actions described in these principles having been completed, the result is an ESMF compliant with safeguard policies applicable when evaluating package preparation, and it provides the overall framework for addressing issues relating to the management of future social and environmental risks and REDD+ activities that are carried out after the readiness preparation work.

As output an initial and a final ESMF draft is expected, both well-known by the stakeholders through the consultation process. The final ESMF framework will be strengthened with feedback from the consultation workshops with regard to the initial ESMF document.

Integrating the implementation of REDD+SES into the SESA implementation framework in stages 1 and 2 is of the utmost importance considering that REDD+SES is a continuous process that goes on even after the SESA process is completed, and that then steps 7 to 10 of the REDD+SES assessment element will apply in stages 2 and 3 of SESA and continue as a continuous process of monitoring, reporting and verification .

10. Displacement

10.1 Description of the potential risks of both domestic and international displacement of emissions (leakage)

This REDD+ Jurisdictional ER Program seeks to reduce activities that lead to deforestation and forest degradation. However, there is a risk that these activities may cause an increase in GHG emissions outside the boundaries of the jurisdictional program. These displaced emissions, or leaks, will be accounted for by the jurisdictional program and the figures for jurisdictional GHG emissions or removals achieved by the Jurisdiction will be adjusted accordingly.

Such leaks pose the potential risk of changes in land use in the bordering regions within the country and the extraction of firewood and logs in neighboring areas. International leakage would not occur, since there are no similar forests in Argentina.

Because the activities under the ER Program are based on the ENBCC, the proposed activities go beyond the Temperate Forest Jurisdiction of this ER Program. Hence the risk for leakage outside the Jurisdiction is going to be controlled or managed in the same way as it would be inside it, thus radically reducing the risk.

Moreover, these risks can be ruled out because any engine of deforestation or forest degradation inclined to transfer to another area of the country would encounter climate challenges and excessive shipping costs. In the former case, because of the size of the Jurisdiction and its very specific climate conditions: for example, crops that can be grown in the temperate forest climate would not survive in the country's regions farther to the north because of rainfall and temperature conditions. In the latter case, the extraction of firewood entails shipping costs, which means that the activity could not be extended beyond the Jurisdiction, since shipping costs are more than the value of the product itself.

The ER Program will deal with and quantify any possible leakage using the VCS-JNR leakage detection tool,³⁶ which identifies the risks for scenarios 2 and 3 of the JNR. This leakage tool provides a stepwise approach to evaluating and accounting for leak activity due to displacement, market changes, deforestation, or forest degradation in the jurisdictional programs. The leakage tool can be used to estimate leaks due to activities in the jurisdictional program aimed at reducing deforestation and/or forest degradation, including leakage stemming from the following situations:

- Market changes related to raw materials in general: emissions that result when a jurisdictional program reduces the production of a commodity linked to international markets, thus triggering a shift in the market balance of supply and demand, which leads in turn to an increase in the production of commodities elsewhere.
- Regional changes associated with national markets and subsistence activities: emissions that occur when a jurisdiction reduces production of a commodity that is not linked to international markets but rather is sold on local or regional markets and is related to household needs or local demand for basic commodities, triggering a shift in the market balance of supply and demand and leading to an increase in the production of commodities elsewhere.
- Switches from activities that cause deforestation to activities that cause degradation: emissions that occur when a jurisdictional program reduces subsistence activities or the production of basic commodities that generate deforestation, leading to further forest degradation.

This tool does not calculate leaks that occur outside the host country (i.e., international leaks), which do not need to be accounted for or deducted from national reductions in greenhouse gases due to emissions or absorption. Nor does it evaluate or calculate leaked emissions due to ecological displacement.

Moreover, this tool does not directly evaluate or calculate emissions leakage due to increased forest carbon reserves. This program will adapt the tool's framework to evaluate leaks from these activities or else develop alternative procedures for evaluating the risk of leakage.

The tool also establishes criteria for the mitigation of leaks that enable a jurisdictional program to evaluate how its activities are dealing with leakage risks. Based on an evaluation of efforts to address both leakage risks and mitigation, the tool may generate a leakage deduction that can be applied to the reductions in GHG emissions and removals achieved by the jurisdictional program to cover the anticipated effects of the leak.

The National Forest Monitoring System (SMFN), which will include the ER Program's monitoring, reporting, and verification (MRV) system, will identify any leaks that may have occurred on the jurisdiction's borders and report its findings to the Platform Registration System. The leakage tool described above will be used to prepare the reports.

11. Reversals

11.1 Activities to address risks of reversal of greenhouse gas benefits

The ER Program's risk analysis will consider how to address the non-permanence of results due to reversals. The main cause of reversals in Chile is forest fires unintentionally set by humans. The ER Program will consider supporting the current forest fire prevention program under CONAF by sharing information and raising awareness.

Through this support it is hoped to reduce the risk of forest fires for the duration of the Emissions Reduction Payment Agreement (ERPA) and beyond termination of the agreement for at least 10 years.

The ER Program will use a buffer mechanism, defined along the lines of the VCS-JNR Non-Permanence Risk Tool,³⁷ to derive the appropriate percentage of buffer, which will extend beyond the term of the ERPA.

This tool establishes the procedures for determining the non-permanence risk classification ("risk rating"), which will be used to determine the number of buffer credits that a Jurisdictional and Nested REDD+ (JNR) shall deposit in the jurisdictional pooled buffer account in the case of scenarios 2 and 3. The risk ratings are based on an analysis of the risk factors, which are added up to determine the total risk classification.

The risk factors are:

- Political and governance risk: This factor addresses general political risk, the rule of law, and overall governance (i.e., not specifically related to forest governance). This includes the risk that governance issues may result in a reversal in cases, for example, where government accountability, effectiveness or

³⁶ <http://www.v-c-s.org/methodologies/jnr-leakage-tool-v10>

³⁷ http://www.v-c-s.org/sites/v-c-s.org/files/JNR%20Non%20Permanence%20Risk%20Tool%2C%20v3.0_0.pdf

- rule or law is weak, corruption is high, governance is unstable, or other highly disruptive events such as war or civil unrest are common.
- Risk related to the strategy and design of the ER Program: This factor assesses the risk that the design or strategy of the jurisdictional program does not adequately reduce the impacts of core agents or underlying causes of deforestation and forest degradation or mitigate reversal risk over the long term. Because it is difficult to objectively assess the risks entailed in the different GHG mitigation strategies, particularly given the circumstances of various jurisdictions, the factor uses a default value that can be reduced when the jurisdictional proponent demonstrates strategies to ensure that the program design will lead to sustainable GHG emissions reductions (for example, by maintaining basic commodity production levels without increasing deforestation or forest degradation, or by integrating REDD+ into broader low-emissions development or green-economy planning and implementation).
- Risks related to carbon rights and use of their revenues: This factor assesses the definition or allocation of rights to carbon credits or payments for GHG emissions reductions and removals (i.e., carbon rights), and how this may create disincentives (or perverse incentives) for those who are reducing emissions, potentially leading to a reversal. For example, when agents reduce emissions and they are not rewarded, they may discontinue the implementation of low-emission land management practices. Or if government carbon revenues are not reinvested in the jurisdictional program, it might not be possible to continue funding relevant program activities. Likewise, when carbon rights or benefit-sharing networks are not seen as equitable and transparent, there is a risk that stakeholders might not support the program, potentially leading to reversals.
- Funding risk: The jurisdictional program needs upfront funding (e.g., to successfully design and appropriately staff the program), as well as ongoing funding for the implementation phase (e.g., to implement strategies, policies, and measures that produce GHG emission reductions, undertake monitoring and verification, and administer the program). This factor assesses the risk that adequate funding which is not generated in a timely manner may undermine program success and lead to a reversal. Funding risk will be assessed by assigning the default risk factor and applying qualifying mitigations.
- Natural risk: This factor assesses the risk that natural disturbances may lead to a reversal.

To determine the number of buffer credits to be deposited in the jurisdictional pooled buffer account, the overall risk rating is turned into a percentage (e.g., an overall risk rating of 35 becomes 35%). This percentage is then multiplied by the net GHG benefit (indicated on the verification report).

All reversals are captured by the ER Program’s monitoring, reporting, and verification system. They will be reported and promptly announced through the forest sector’s Platform for the Generation and Trading of Forest Carbon Credits in Chile (PBCCH).

It is important to emphasize that mitigation of all the ER Program reversal risks is incorporated into the Chilean forest sector’s institutional structure, lending sustainability and permanence to any action taken to prevent these risks.

12. Expected Emission Reductions

12.1 Expected Emission Reductions (ERs)

Please provide an estimate of the expected impact of the proposed ER Program on the REL/FRL (as percentage of emissions to be reduced). Based on this percentage, also estimate the volume of ERs, as expressed in metric tons of CO₂e, that would be generated by the ER Program:

- a) up to December 31, 2020 (currently the end date of the FCPF)
- b) for a period of 10 years; and
- c) the lifetime of the proposed ER Program, if it is proposed to continue longer than 10 years.

The start date for the generation of emission reductions is 2015, immediately after signature of the ERPA with the Carbon Fund.

With the actions proposed in this ER Program, it is expected to reduce deforestation emissions relative to their reference emissions level (REL) by 7% a year during the first five years—in other words, through the year 2020. After that, the annual emissions reduction rate goes to 3% for the period 2021-2029, finishing with an annual rate of 0% by the end of the ER Program in 2114. The reduction curve is scaled downward because the initial measures generate sizable impact until an asymptote, or balance, is reached, at which point the reduction rate remains steady.

The calculation to determine the reduction of emissions due to deforestation relative to the REL until the year 2025 is shown in the following table.

Table 12.1-1. Calculation of emissions reductions between 2015 and 2025, from deforestation activities

Year	REL TCO ₂ e	ER Program TCO ₂ e	Reduction as a percentage of REL	Delta TCO ₂ e	Cumulative reduction of TCO ₂ e emissions
2015	615,541.54	615,541.54	0	0.00	0
2016	615,541.54	571,574.29	7	43,967.25	43,967
2017	615,541.54	527,607.03	14	87,934.51	131,902
2018	615,541.54	483,639.78	21	131,901.76	263,804
2019	615,541.54	439,672.53	29	175,869.01	439,673
2020	615,541.54	395,705.28	36	219,836.26	659,509
2021	615,541.54	351,738.02	43	263,803.52	923,312
2022	615,541.54	307,770.77	50	307,770.77	1,231,083
2023	615,541.54	293,115.02	52	322,426.52	1,553,510
2024	615,541.54	278,459.27	55	337,082.27	1,890,592
2025	615,541.54	263,803.52	57	351,738.02	2,242,330

The same method was used to estimate degradation activity, except that the annual reduction rate is expected to be 3% for the period 2015–2020, 1% for 2021–2034, and 0% for 2035 until 2114.

The following table shows the calculated estimate for emissions reductions as a percentage of the REL thanks to [degradation] activities that are expected to be carried out in this ER Program between 2015 and 2025.

Table 12.1-2. Calculation of emissions reductions between 2015 and 2025, from degradation activities

Year	REL TCO ₂ e	ER Program TCO ₂ e	Reduction as a percentage of REL	Delta TCO ₂ e	Cumulative reduction of TCO ₂ e emissions
2015	15,279,431.06	15,279,431.06	0	0.00	0
2016	15,279,431.06	14,842,875.88	3	436,555.17	436,555
2017	15,279,431.06	14,406,320.71	6	873,110.35	1,309,666
2018	15,279,431.06	13,969,765.54	9	1,309,665.52	2,619,331
2019	15,279,431.06	13,533,210.36	11	1,746,220.69	4,365,552
2020	15,279,431.06	13,096,655.19	14	2,182,775.87	6,548,328
2021	15,279,431.06	12,660,100.02	17	2,619,331.04	9,167,659
2022	15,279,431.06	12,223,544.84	20	3,055,886.21	12,223,545
2023	15,279,431.06	12,098,814.79	21	3,180,616.26	15,404,161
2024	15,279,431.06	11,974,084.75	22	3,305,346.31	18,709,507
2025	15,279,431.06	11,849,354.70	22	3,430,076.36	22,139,584

Again, the same methodology was used to calculate emissions reductions, this time for increased stocks, with an annual rate of 7% for the first five years (2015–2020), 3% for 2021–2030, and 0% for 2031–2114.

Because of Carbon Fund safeguards, the REL will not be used to calculate increased stocks due to new exotic forest plantations.

The table below shows the calculation for estimated increases in carbon stocks as a percentage of the REL for native forests thanks to actions that will be carried out under this ER Program.

Table 12.1-3. Calculation of increased capture between 2015 and 2025 from activities to increase stocks

Year	REL TCO ₂ e	ER Program TCO ₂ e	Increase as a percentage of REL	Delta TCO ₂ e	Cumulative reduction of TCO ₂ e emissions
2015	-239,606.86	-239,606.86	0	0.00	0
2016	-239,606.86	-256,721.64	-7	-17,114.78	-17,115
2017	-239,606.86	-273,836.41	-14	-34,229.55	-51,344

2018	-239,606.86	-290,951.19	-21	-51,344.33	-102,689
2019	-239,606.86	-308,065.97	-29	-68,459.10	-171,148
2020	-239,606.86	-325,180.74	-36	-85,573.88	-256,722
2021	-239,606.86	-342,295.52	-43	-102,688.66	-359,410
2022	-239,606.86	-359,410.29	-50	-119,803.43	-479,214
2023	-239,606.86	-365,115.22	-52	-125,508.36	-604,722
2024	-239,606.86	-370,820.14	-55	-131,213.28	-735,935
2025	-239,606.86	-376,525.07	-57	-136,918.21	-872,854

The following table shows emissions reductions or expected capture relative to the RELs for the periods requested.

Table 12.1-4. Emissions reductions or expected capture by the ER Program, Temperate Forest Jurisdiction

Activity	Periods		
	2015 - 2020	2015 - 2025	2015- 2114
	TCO ₂ e	TCO ₂ e	TCO ₂ e
Deforestation	659,509	2,242,330	38,676,527
Forest degradation	6,548,328	22,139,584	422,834,868
Increased stocks	-256,722 ³⁸	-872,854	-15,540,216

In the same way as the total values of Table 8.2.4. when adding the reduction and capture of emissions (increased stocks) for each activity using absolute values (without considering the preceding sign) for the period 2015-2020 (associated to the Carbon Fund) the resulting value is 7,464,558 TCO₂. In this case the calculations of reference levels for each case already consider the net value in the proposed results, being all the cases of increased stocks situations that took place in different areas that were not considered in terms of degradation and afforestation, that is to say there is no geographic overlap between different types of activities, and each type of activity was processed using different polygons. The situation is schematically explained for each case in Figures 12.2.1., 12.2.2. y 12.2.3., precisely representing this last captures since they are placed under the "0" value axis (subtraction sign), such as the examples for the removal of forests from graphics of Inventories of Greenhouse Gases in Chile.

A review of capacity for emissions reduction by activity clearly shows that this ER Program is focused on reducing emissions as a result of degradation, which will be its main objective in each phase.

12.2 Volume proposed for the FCPF Carbon Fund

It is estimated that 30%³⁹ of the reductions will be set aside to cover possible uncertainties, reversals, and displacements, calculated using the Leak Risk and JNR-VCS Non-Permanence tools. The remainder will be made available for Carbon Fund reductions until the year 2020.

Therefore, if the Emissions Reductions accumulated between 2015 and 2020 according to Table 12.1-4 are added up, the total volume is 7,464,558 TCO₂e, and 70% of this amount to be made available to the Carbon Fund would be **5,225,191 TCO₂e.**

³⁸ Corresponds to the capture of emissions from "non-forest" areas that were later classified as native forest based on data from the cadaster activity and and the corresponding emission factors. This change of use is reported when the native forests -due to human actions, natural causes or a combination of both- are established in areas that were previously not qualified as forests, a situation that can be the result of the capacity of some native species to colonize new territories on their own.

³⁹ This figure is a very conservative estimate, given the national reality; it will be adjusted during the jurisdiction's current readiness preparation phase using the VCS-JNR tool for the calculation.

The graphs below show the estimated reduction for each activity.

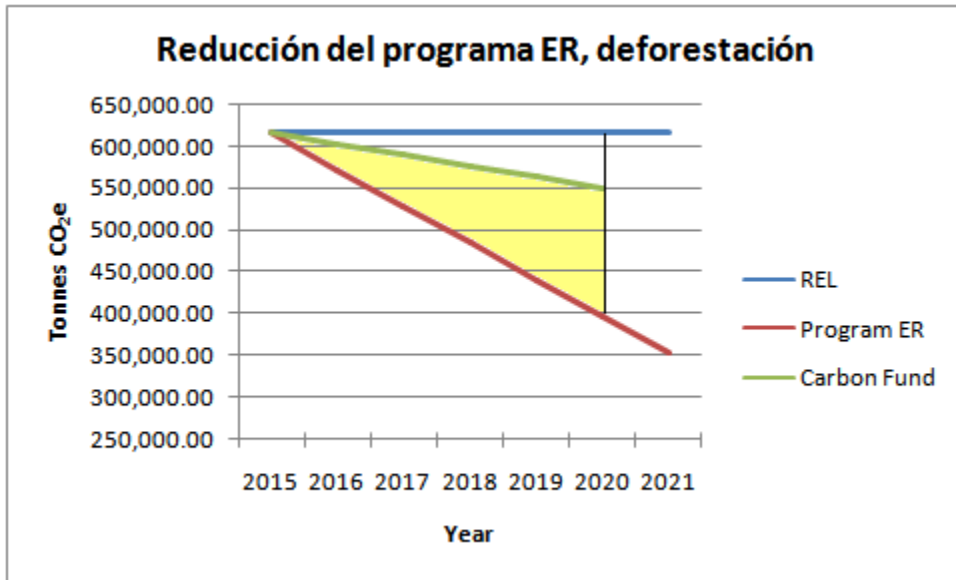


Figure 12.2-1. ER Program emissions reductions from avoided deforestation and amount available for the Carbon Fund.

The estimated emissions reductions from avoided deforestation that can be offered to the Carbon Fund come to a total of 461,657, TCO₂e, shown in the yellow area of the graph above.

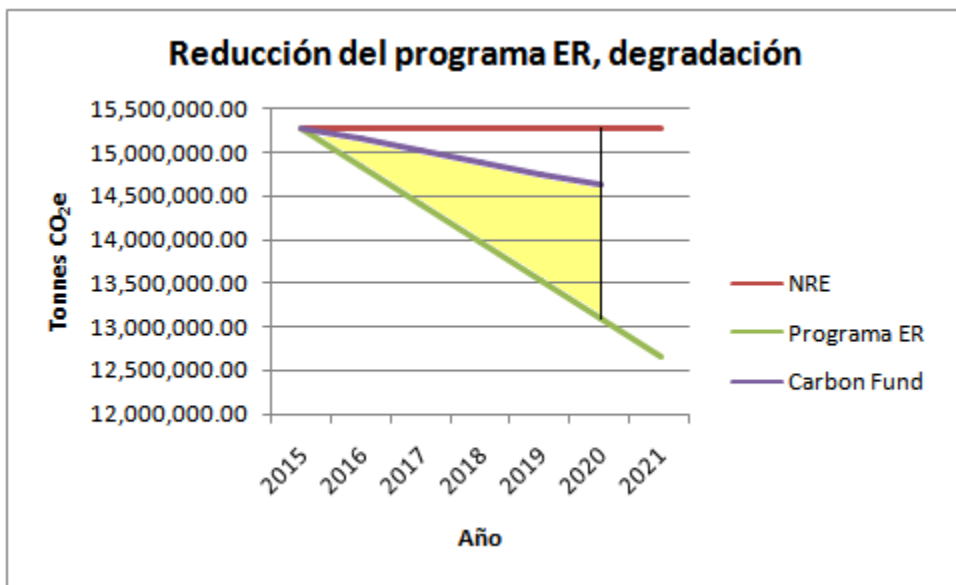


Figure 12.2-2. ER Program emissions reductions from avoided forest degradation and amount available for the Carbon Fund.

The estimated emissions reductions from activities to forestall degradation that can be offered to the Carbon Fund come to 4,583,829 TCO₂e, highlighted in the yellow area above.

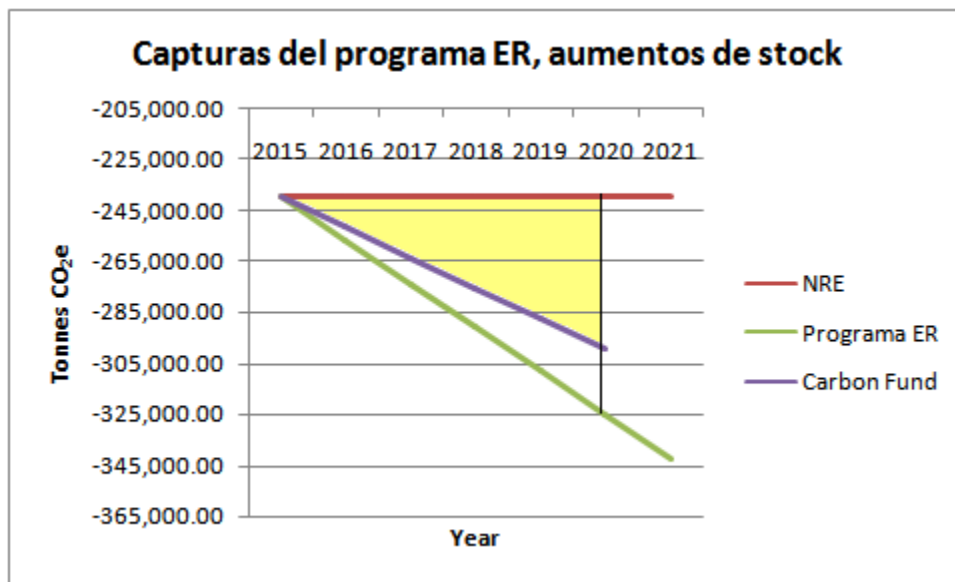


Figure 12.2-3. ER Program capture from in increased stocks and amount available for the Carbon Fund.

In the case of increased stocks, the estimated emissions reductions that can be sold to the Carbon Fund total 179,705 TCO₂e, as seen in the yellow area above.

13. Preliminary Assessment of the Proposed ER Program in the Context of the National Strategic Environmental and Social Assessment (SESA) and the Environmental and Social Management Framework (ESMF)⁴⁰

13.1 Progress on SESA/ESMF

SESA progress goes hand-in-hand with the ENBCC formulation process, and it is therefore inherent to implementation of the ER Program that has been defined for temperate rainforests.

So far, national mechanisms have been defined for the SESA process to embark on an exchange of information and dialogue with the key groups and concerned stakeholders. Information-sharing and communication are taking place with a view to holding a future consultation and ensuring the participation of indigenous peoples and all stakeholders in general. As the SESA process unfolds, standards are being reviewed and adjustments are being made so that the Strategy will lead to high socio-environmental efficiency. The map of stakeholders has been defined for engagement and capacity-building at the national, regional, and local levels.

ESMF, as one of the main outputs of the SESA process and a guiding tool for implementation of the R-Package, guarantees attention to the social and environmental issues agreed upon with the priority groups and stakeholders and ensures that implementation of actions like the ER programs are monitored by permanent reliable systems.

⁴⁰The SESA is the assessment process to be used in FCPF REDD+ countries during R-PP implementation and REDD+ readiness preparation. The ESMF is an output of SESA that provides a framework to examine the issues and impacts associated with projects, activities, and/or policies/regulations that may occur in the future in connection with the implementation of the national REDD+ strategy but that are not known at the present time.

Esquema General de Implementación SESA – Estrategia Nacional de Chile.

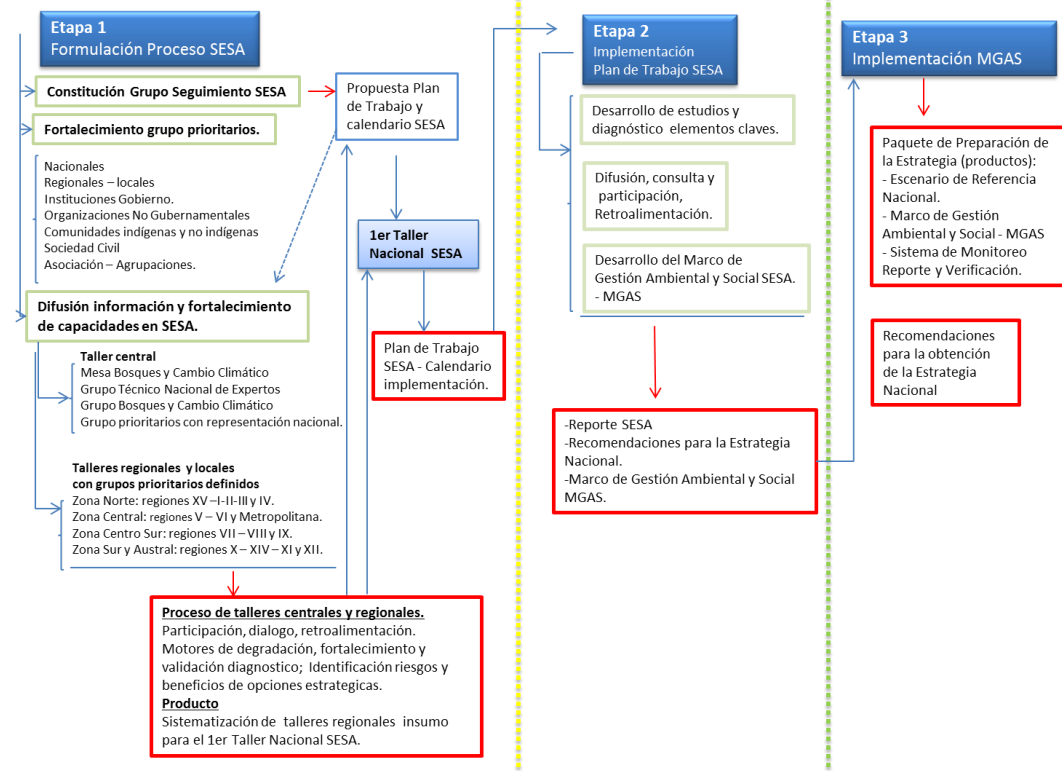


Figure 13.1-1. General scheme for SESA implementation—Chile.

13.2 Incorporation of SESA outputs and/or outcomes into the proposed ER Program

The SESA, as an analytical and participatory process that supports the ENBCC preparation phase, is delivering key elements to be incorporated into the ER Program, for which CONAF is the responsible agency, in the context of managing forest resources and the Strategy itself, including elements that should be taken into account to foster the sustainability of REDD+ activities over the long term.

Following are the main outcomes that should be considered in the future ER Program:

- Involvement in formulation of the ENBCC and implementation of the Program by different forest-related sectors and key stakeholders;
- Engagement and information-sharing with stakeholder groups on the scope of actions, such as implementation of an ER Program;
- Identification of specific actions to minimize risks and derive benefits from the REDD+ strategic options and activities that may be implemented with future programs;
- International standardization of all the elements, areas, and processes in the formulation and implementation of both the ENBCC and emissions reduction programs;
- Decision-making through an adequate and transparent process that continues over time;
- Incorporation of the principles of participatory dialogue, community strengthening, social accountability, intersectoral and inter-institutional coordination, and training; and
- Response to feedback and concerns expressed through formal communication channels with civil society organizations and forest-reliant communities.

In addition, to ensure institutional sustainability for the Strategy and the ER Programs, the SESA, under the leadership of CONAF, has enlisted the involvement of a number of partners: public agencies (services and ministries); private organizations at the national and international level, including the World Bank; standards-setting bodies like VCS, CCBA, and the Gold Standard; and national academic institutions, including the Universidad de Concepción/Los Ángeles campus, the Universidad Mayor, and the Universidad Austral.

One of the outcomes, and one of the most important results of the SESA process that affects the Jurisdictions and therefore the ER Programs, is that users will have access to the entire public online information system on environmental and social issues and to the Environmental and Social Management Framework, an instrument that can be monitored in its implementation to ensure that it is actually helping to avoid, mitigate, and manage the

environmental and social risks of any strategic mitigation option related to deforestation, forest degradation, or non-forestation.

13.3 Feedback and grievance redress mechanisms

The Mechanism for the Resolution of Questions, Complaints, and Grievances will improve the existing CONAF systems for receiving and responding to concerns regarding the impact of its policies, programs, and operations. With this improved system, it will be possible to file complaints, grievances, and requests for information with a view to improving performance under the Strategy and knowing what is happening with implementation of the ER Programs in real time.

This institutional mechanism is in alignment with national Chilean policy, currently enshrined in two laws that govern the processing of requests, grievances, and user feedback: Law 19,880, on Administrative Procedures, and Law 20,285, on Access to Public Information. These laws require that all ministries and public services have an Integrated Information and Citizen Response System. Thus, the new system for responding to questions, grievances, and complaints within the ENBCC framework and the SESA process will fit easily into the existing context.

While this space for response, which is available for expeditious access throughout the national territory to concerned stakeholders and priority groups defined by the ENBCC, might be seen as a procedure similar to the system currently in place in all public services for responding to questions, grievances, and complaints at the national level, the National Strategy Coordination has determined that the entire process, not only the facilities for filing grievances and complaints but also the responses, will be handled at the regional level. There will be Regional Coordinations responsible for seeking and proposing solutions. It is intended that the mechanism will be accessible, collaborative, rapid, and effective in resolving concerns through dialogue, joint investigations, negotiation, and problem-solving, and that it will focus on finding solutions to concerns about the impact of the initiative and its potential risks, thus becoming a feedback channel for the consultation and engagement process.

The Joint FCPF–UN-REDD Programme Guidance Note on establishing and strengthening grievance redress mechanisms (GRMs), dated December 2013, lists the following approaches to be used in the ENBCC Mechanism for the Resolution of Questions, Complaints, and Grievances:

- Identify and resolve implementation problems in a timely and cost-effective manner: As early warning systems, well-functioning GRMs help identify and address potential problems before they escalate, avoiding more expensive and time consuming disputes.
- Identify systemic issues: Information from GRM cases may highlight recurring, increasingly frequent or escalating grievances, helping to identify underlying systemic issues related to implementation capacity and processes that need to be addressed.
- Improve REDD+ outcomes: Through timely resolution of issues and problems, GRMs can contribute to timely achievement of REDD+ objectives.
- Promote accountability in REDD+ countries: Effective GRMs promote greater accountability to stakeholders, positively affecting both specific activities and overall REDD+ governance.

According to the guiding principles of the Mechanism for the Resolution of Questions, Complaints, and Grievances, it must be legitimate, accessible, predictable, equitable, transparent, rights-compatible, enabling continuous learning, and based on engagement and dialogue.

In process terms, the regional coordinator, working jointly with the regional communicator and the head of the Office for Information, Complaints, and Suggestions (OIRS), will be responsible for receiving questions, grievances, and complaints related to the National Forest and Climate Change Strategy and actions taken within its context, using the same set of forms used by the CONAF OIRS at the national level, pursuant to Law 19,880, which empowers it to maintain a registry and keep the documents on file, together with the responses thereto. The following flow is

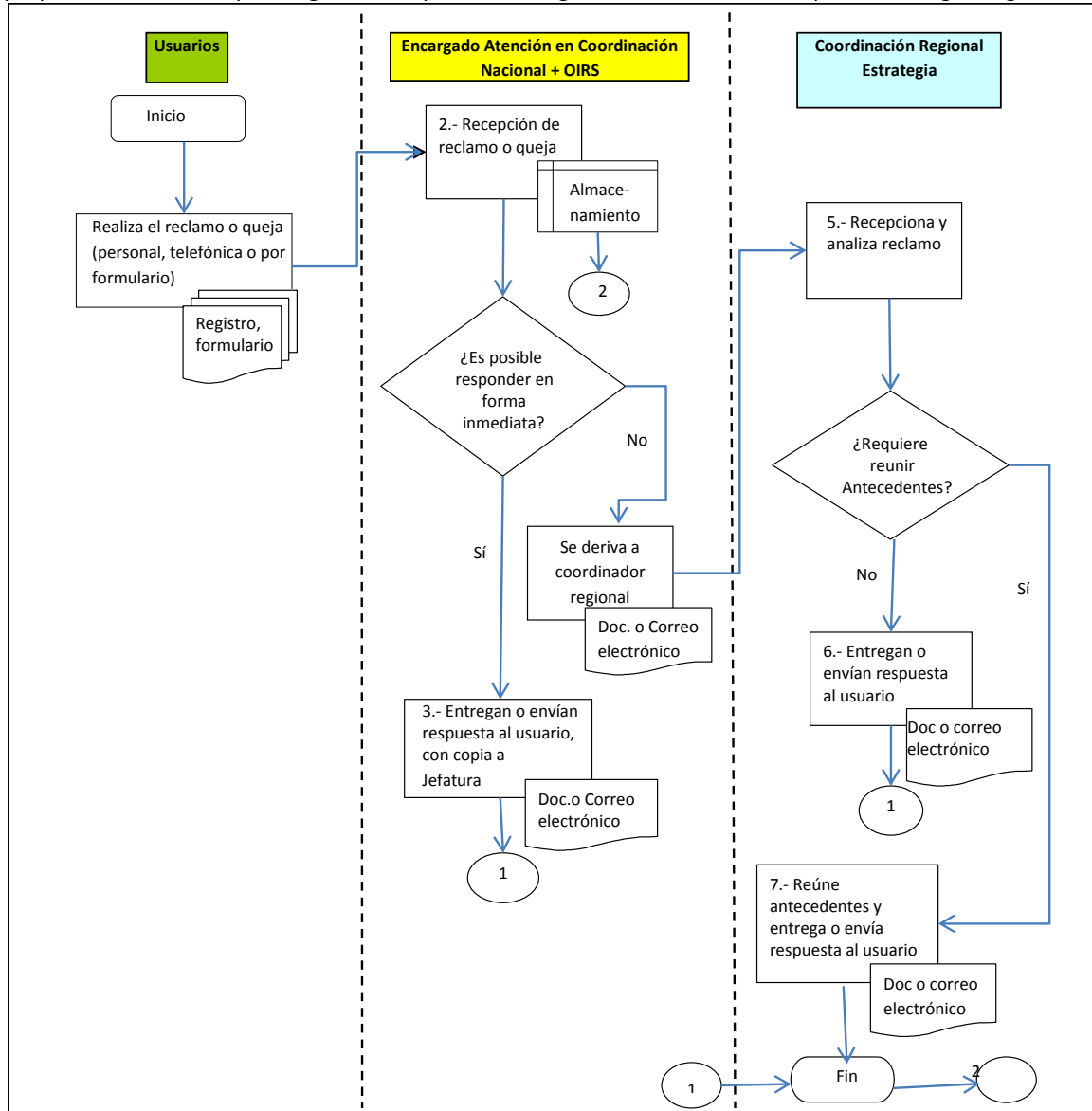


Figure 13.3-1. Proposed flow chart for responding to grievances and complaints.

With regard to the process and response times, the first step will be to inform the national and regional CONAF OIRS, so that the questions, grievances, or complaints submitted on the forms are properly handled and filed in this office. In terms of response time, Law 19,880 stipulates that for cases that can be handled immediately, a response must be given within 48 hours; for grievances or complaints that need to be referred to the head of the office, up to 10 working days are allowed; and if the background needs to be researched, up to 20 working days. All time frames are understood to be the maximum allowed.

The steps involved in responding to questions, complaints, or grievances set forth in the Joint FCPF–UN-REDD Programme Guidance Note on establishing and strengthening grievance redress mechanisms (GRMs) of December 2013 and applied in the national mechanism are: receive and register the grievance; acknowledge, assess, and assign (acknowledge receipt, assess eligibility, and assign organizational responsibility); develop a proposed response; communicate the proposed response to the complainant and seek agreement on the response; implement the proposed response to resolve the grievance; review the response if it is unsuccessful; and close out or refer the grievance.

It should be emphasized that this mechanism will apply only to those questions, grievances, and complaints that arise as part of the development or implementation of the Strategy. Ordinary conflicts having to do with the internal operation of the organizations or between beneficiaries should be resolved through the regular internal mechanisms that have traditionally been used by the social stakeholders involved.

14. Land and resource tenure

14.1 Rights to territories and land, and mitigation benefits

A. LAND TENURE

Land tenure is a set of norms invented by society to regulate the behavior of those who comprise it. These rules define how ownership rights can be assigned in the society, including regulation of the access, control, and transfer of land, and they define the owner's rights and obligations.⁴¹

It is not totally clear exactly what "ownership" means; there could be a general impression that any type of tenancy is applicable for dealing with forest carbon. There is a hypothesis at the country level that ownership is important to know the rights of the parties to contracts signed in this framework, making it possible to know the beneficiaries of the carbon-generated resources, in order to facilitate equitable sharing of the benefits therefrom.

LUCAS says that: "For carbon transactions to be viable and effective the nature and ownership of sequestration rights must be reasonably certain.

A successful carbon project requires prior determination of who owns the carbon.

If these rights are property rights of definable character, the legal principles and legislation that secure and protect property rights will be available to parties to sequestration rights transactions. If there is significant uncertainty, legislative clarification will be required..⁴²

CORBERA adds: "Land tenure systems are essential for ensuring the legitimacy and effectiveness of the carbon projects. We can define tenure as the common or statutory law that governs who holds and uses land (including forests), for what time, and under what conditions. Tenure encompasses ownership, understood as a relationship to something, and informal relations that regulate the access, use, and exclusion of resources, potentially involving multiple authorities."⁴³

Therefore, not all forms of tenure can guarantee carbon rights; there must be basic considerations that the tenure includes the capacity to use, enjoy, and transfer the land during the entire period of the initiative for reduction or capture of emissions.

Given the long time required for carbon-related forest initiatives, land ownership is considered the only form of tenure that can effectively guarantee the rights.

B. THE RIGHT OF OWNERSHIP IN CHILE

Art. 582 of the Civil Code: "Dominion (also called ownership), is the real right to a corporal thing, to enjoy and transfer it arbitrarily; provided that it not be contrary to law or contrary to another's right. Ownership separated from the enjoyment of the thing is called mere or stripped ownership."

Article 19 of Chile's Constitution of 1980 guarantees to all persons: "24.- The right of ownership in its diverse aspects over all classes of corporeal and incorporeal property....",

This right is safeguarded with guarantees consisting of protection through a legal reserve to establish the modes of acquiring dominion and to impose restriction or deprivation of the right with fair and proper compensation.

For the acquisition of real estate, Chilean law treats this as property of great importance, and therefore sets higher requirements. The formalities established are signing of the bill of sale in front of a notary and registration of the title in the Real Estate Conservator's Registry in the administrative district (*comuna*) where the property is located.

Chile's land registry system has a cadastre of all properties in the country, with their title chain, which provides a national level register with simple, orderly, complete, updated, reliable, and public information on ownership, and the parcel's liens and restrictions.

With this information, it is not a major problem in Chile (in comparison with other developing countries) to comply with the requirement for land ownership, since the country's percentage of untitled lands is relatively small. According to the National Agricultural Census of 2001, there were about 1,800,000 ha of untitled forest, of which most is native forest, especially in small properties. Only a minuscule part is rapidly growing exotic plantations.

⁴¹FAO- LAND TENURE STUDIES 2003

⁴²LUCAS, A. The significance of Property Rights in Biotic Sequestration of Carbon In: MCHARG, A., BARTON, B., BRADBROOK, A., GODDEN, L. (eds) Property and the Law in Energy and Natural Resources. United States, Oxford University Press, 2010, p 444.

⁴³CORBERA, E. ESTRADA, M. MAY, P. NAVARRO, G. and PACHECO, P. Derechos a la tierra, los bosques el carbono en REDD+:[Rights to Land, Forests, and Carbon in REDD+] Lessons of Mexico, Brazil, and Costa Rica In: PETKOVA, E. LARSON, A. and PACHECO P. (eds) Forest Governance and REDD+: Challenges for the Policies and Market in Latin America. Indonesia. CIFOR, 2011, p217.

It is therefore necessary to generate a proposal for temporary or permanent programs, projects, or legal actions to regularize the right to ownership. This requires firstly a survey to identify the problems that may arise with the titles, which can be of two types: titles may not be current, or the identity of the owner of a specific parcel may be unclear. In the first case the most frequent cause is the death of the owner, with the heirs taking physical possession of the property without following the required procedures to ensure they actually own it. In the second case, if the land is not registered in the name of a private party, by law it is considered state property and it is managed by the Ministry of National Resources. There has to be a review of the prior ownership of the land, and based on that review's results, the land must be registered through National Resources in the name of the person who proves ownership of it.

Ownership of indigenous lands presents basically the same issues, but to a lesser extent, because the Indigenous Land and Water Fund Program of the National Indigenous Development Corporation (CONADI) recently granted titles to the communities, which drastically reduces the problem of updating titles. Although it is important that the lands were given to the communities, in practice these communities have been dividing them and given each member a parcel of their own or a shared interest in it, which has resulted in lack of updating of land ownership. Article 15 of Law 19.253 established the Indigenous Land Registry, which is maintained by CONADI. This permanent register's main purpose is to record lands that are identified as indigenous. This certification has legal implications for the society in general, CONADI, and the indigenous landowners, and it generates legal obligations for other services, such as conservators of real property, notaries, the courts, and the Internal Revenue Service.

A socio-economic survey with the support of Universidad de Concepción, Campus Los Angeles, will take place at the area proposed to the Carbon Fund in order to define the number of forest owners with problems of land tenure, information that will be a contribution not only for the ER Program but also several other governmental programs executed at those regions that will improve their operation based on this data. These surveys will be carried out along the entire national territory.

Though there were several efforts made to gather more detailed information regarding the number of landowners in the territory associated to the Carbon Fund, it was impossible to determine the exact figures, a situation that gives even more reasons for the task that CONAF entrusted to Universidad de Concepción. It is estimated that the results will be available by May 2014, and therefore the pertaining measures will be taken in the course of the year.

Considering that the irregular situation of land tenure among forest landowners and owners of lands suitable for forests could place some difficulties in the fulfillment of the proposed goals, a complementary program of land tenure regularization will take place during the year 2014 with the contribution of the Switzerland Government and forestry NAMA, and the expected collaboration of Instituto de Desarrollo Agropecuario (INDAP) of the Agriculture Ministry in view of its experience gained in previous participation as the leader of similar processes. In the same way, the Project Preparation Fund associated to FCPF will provide funds for the regularization of land tenure titles, complementing the work already done in this subject under the framework of NAMA.

Even though the regularization of land tenure is an imperative for obtaining economic benefits by means of the current legal instruments of forest promotion in Chile this will not become an impairment for landowners who voluntarily adhere to the present and future proposals of ENBC in terms of obtaining the corresponding payments for successful results in decreasing deforestation and degradation of soils, and increasing the existence of forest carbon, a basic principle that could be included in the ***benefit-sharing arrangement for emission reduction/capture*** to be developed during 2014.

C. OWNERSHIP OF CARBON IN CHILE

Since there is no statement concerning ownership of carbon in the UNFCCC, it is necessary to analyze how it is defined in Chile. In the case of legislation such as Chile's, since there is no explicit reference to carbon ownership, it is necessary to analyze the legislation on the right of ownership of land or forest rights, which can be extended or interpreted to encompass the capture of forest-based carbon.

Therefore, to interpret the Chilean norm in the absence of a law, we must first specify what is to be traded in a market, and what rights and obligations are going to be recognized by the parties involved (buyer and seller).

On this point it is necessary to distinguish between carbon and the carbon credit. It is clearly understood that the carbon credit is made official by a certificate that has an existence separate from the carbon itself, and therefore it must have a different legal treatment from carbon.

With respect to Chile's expertise in the minimum detection level (MDL) in afforestation and reforestation, HERVÉ and CLARO have said that "The right to a CER is a "real right" (it can be exercised against all parties) over an intangible and movable good (the credit) which gives its holder the rights to use it, receive its benefits, and sell it. A

contract over the right to CER would be classified as a contract over a movable right as it is exercised over a movable thing, the credit over the emission reduction.⁴⁴

This theory is applicable not only to the case of the MDL, but to any voluntary forest carbon credit, provided there is independent validation to certify that the reduction/capture of carbon has effectively occurred.

There has been a similar determination by Chile's Internal Revenue Service (SII), in its notice number 2073, of August 9, 2012, by the Regulatory Subdirectorate of the Indirect Taxes Department, regarding the Value Added Tax (VAT) applicable to operations of buying and selling carbon credits. The notice states: "Article 8, in accordance with Article 2.1 of Decree Law 825 of 1974, applies a Value Added Tax to sales, meaning any arrangement regardless of what the parties call it that serves to transfer dominion of tangible property for good and valuable consideration. In this context carbon credits are securities representing a specific volume (certified) of GHG emission reduction. Therefore, the purchaser of carbon credits is buying a right to compensate for GHG emissions. From analysis of the background, it is clear that the transfer of carbon credits involves the sale of an intangible asset consisting of the right to release into the atmosphere an amount of GHG equivalent to the amount of carbon dioxide whose emission has been reduced, and is represented in said credits. Therefore, considering that the act of a "sale" established in Article 2.1 of Decree Law 825 requires as an essential element that the transfer involve tangible goods, we conclude that the sale of carbon credits by the taxpayer is not subject to the VAT, because the transferred assets lack the tangibility required by the law."

In Chile the carbon credit is therefore a real right to an intangible asset (credit) that gives the owner the right of use, enjoyment, and transfer.

D. HOLDER OF THE RIGHT OF CARBON OWNERSHIP

Thus far we have identified carbon legally, at least from the perspective of Chilean law. Now it is important to examine who owns the carbon. There are different situations depending on domestic legislation, and in the Chilean case, the carbon owner is the property owner.

Public ownership implies that the state is the only institution with authority to confer rights of access and quotas for management of the resource. In Chile all land within the territorial limits that does not have another owner is owned by the state (Art. 590). The state currently possesses 48% of the national territory, and the rest is privately owned.

Since Chile has no specific regulation providing that forest carbon is state property, the general law prevails, which grants the carbon to the owner of the land where the forest is situated. The National Forest and Climate Change Strategy states that the forest owners have the carbon rights.

15. Benefit Sharing

15.1 Description of envisioned benefit-sharing arrangement for the proposed ER Program.

As noted in question 14, landowners own the carbon rights, so they receive most of the benefits. However, the State of Chile will take actions to prevent deforestation and forest degradation and will promote increases in stocks. The benefit-sharing arrangements will be incorporated in the platform (PBCCh), which was previously explained in this document.

Currently, in development of the SESA, we are consulting and reaching agreements with owners of land and forests concerning how to share the benefits from the sale of carbon certificates. This topic will also be addressed by the Forests and Climate Change Table and its National Technical Expert Group, to determine how the platform will distribute the benefits.

Chile's National Forest and Climate Change Strategy (ENBCC) has established that the forest owners will be the main beneficiaries of the REDD+ activities, a criterion that has been reinforced by Chile's intent to use Scenario 2 of the JNR of the VCS, with projects nested in a jurisdiction. The project proponents are the principal beneficiaries and the ones who will decide how to sell and to whom to sell, because the platform only provides the basis and the tools for negotiating with the buyers.

The Chilean State will undertake dissemination and transfer of techniques by increasing the number of extension agents, conducting more inspections and monitoring, and implementing the ESMF and the platform. Part of these activities will be financed by the Chilean State, as implementation of the public policies for application of the ENBCC, but the rest will be charged as a sort of tax on the projects nested in the jurisdiction.

⁴⁴HERVÉ, D., CLARO, E. Legal Aspects in the Implementation of CDM Forestry Projects, UICN Environmental Policy & Law Paper N° 59, 2005, p 2.

Proponents will join the platform (and in so doing, the ER program) by implementing activities specified in the Forest Management Plan for Environmental Carbon Capture Services (PMSACC). Thus when the owner benefits from carbon sales, he or she will pay a tax in the platform to cover some of the costs for implementation of REDD+ in Chile.

The benefit-sharing arrangement, as proposed and outlined in the decisions of REDD+ in the UNFCCC, will use the country's existing mechanisms for technical and financial administration of the incentives that CONAF has handled based on domestic legislation on the subject. Once the gaps and potential of these systems are analyzed, we will define and implement the optimum design for equitable sharing of benefits to all types of owners, hoping thereby to include even those with imperfect tenure (lacking title or still not totally regularized). This whole question will be dealt with in the preparation phase, beginning in 2014 with a complete design of how the system should function based on pertinent domestic legislation and the international requirements that must be assumed.

As it was already mentioned, it is an imperative to be the legal owner of land to qualify for benefits granted by legal instruments of forest promotion (Decree Law N°701 of 1974 and the following modifications, and Law N°20.283 of 2008). However, there are different instruments managed by other services of the Agriculture Ministry as it is the Law N°20.412 that establishes a System of Incentive for Agro-environmental Sustainability of Agricultural Soils, granting benefits for natural persons and legal entities who are owners, usufructuaries, tenants, sharecroppers and bailees of land, with projects for managing the land. This law also recognizes inherited, agricultural and indigenous communities as potential beneficiaries⁴⁵. This situation is under thorough analysis in the framework of the Sustainable Land Management Project with the contribution of GEF funds and the participation of SAG, INDAP, ODEPA and the Ministry of Environment lead by CONAF, specifically by the Unit of Climate Change. This initiative will establish five (5) pilot activities with a national scope allowing the review and assessment of the basis for developing new instruments of promotion and experiences in relation to the benefits associated to payment schemes for results on emissions reduction/capture and securing the effective distributions of benefits to an increased number of persons related to forest lands, with emphasis on those who are not considered under the current forest legislation. Other related actions will be included in benefit-sharing arrangement associated to ENBCC.

15.2 Link between the envisioned benefit-sharing arrangement and the activities in the proposed ER Program.

With the tax per certificate marketed we will increase the activities of dissemination, training, and technological transfer of the corps of forest extension agents of the National Forest Corporation, and they will work with the inspection initiatives of the CONAF for timely detection of deforestation and forest degradation.

Additional activities will be implemented in the National Forest Monitoring System and specifically in the MRV of the ER program, to conduct monitoring more frequently than established by the state, and to upgrade its technology with higher resolution images.

Since most of the benefits will be received by the owners of the forests or lands, when activities are carried out to avoid degradation or deforestation or increase stocks the program will be stronger and have less risk of failure.

If the coordinated actions fail to achieve the desired result, as detected by the MRV, the platform will notify the MBCC and its GTNE so they can implement additional measures that will produce satisfactory compliance levels.

15.3 Progress on benefit-sharing arrangements

We are currently planning regional workshops to be carried out by CONAF's Group on Forests and Climate Change. The stakeholders have been selected and we are awaiting funding from the FCPF to continue developing the workshops.

We are also going to open bidding for the study on the jurisdiction of temperate forests, which is under the jurisdiction of the ER program. One chapter in this study is the social evaluation that will analyze the social perception of the benefit-sharing arrangement.

The operation model for the platform will analyze how it will distribute benefits between the project proponents and the Chilean State.

16. Non Carbon Benefits

⁴⁵ Article 8, Law 20,412 Establish a System of Incentive for Agro-environmental Sustainability of Agricultural Soils, of the Agriculture Ministry February 9 of 2010. URL:<http://www.leychile.cl/N?i=1010857&f=2010-02-09&p=>

The non-carbon benefits granted by the ER Program are in direct relation to the “plus” concept of REDD+ activities since they are environmental and social elements with jurisdictional/territorial condition and through them landowners will appreciate the value and importance of long-term sustainability in activities implemented to decrease the degradation and deforestation of lands, increasing the presence of carbon in their forests.

Thus, the non-carbon benefits projected at a jurisdictional level are the following;

Improvement of **forest governance** as the local communities and the holders of projects executed under the Program develop REDD+ activities defined and agreed for the territory during the SESA participatory process and the implementation of EMSF. In practice, this will mean an increased territorial control made by stakeholders permanently interested on implementing activities under the REDD+ approaches that were defined as strategic options with the highest socio-environmental benefit and are supported by CONAF as the representative of ENBCC and proposer of the jurisdiction. An important instrument of the forest governance is the national System of Complaints, Claims and Suggestion implemented by CONAF that will allow landowners and stakeholders in the areas where the different jurisdiction are located to interact, request information and submit their disagreement in relation to the activities being implemented.

Because of its geographic features Chile has a great variety of environments, including extremely arid deserts and temperate rainforests. Nevertheless, these features are not translated into a great variety of species when comparing it to other countries of the region, having a little more than 30,000 described species though between 22% to 25% of these are endemic. The amphibian group (toads and frogs) have the highest endemism where 65% of the species are exclusively from Chile, reptile have a 63% of endemism, fishes of continental waters have 55% of endemic species (CONAMA, 2009), and half of the flora is constituted by species exclusively from Chile, with more than 60% of the flora and endemic species located in Central Chile, an area that starts at Coquimbo, in the Fourth Region (approximately at 30°S) to the South of Chiloé Island in the continental region next to the Tenth Region (approximately at 43°30'S).

Factors as exploitation, decreasing and degradation of native forests, along with others such as climate change are increasing the risk of extinction for several species of flora. The total amount of threatened flora in Chile is unknown. The last review was carried out during the year 2007, and included 95 species of Chilean fauna and 39 species of Chilean flora in the “Threatened” category from a total of 841 Chilean species assessed by the International Union for Conservation of Nature (IUCN 2007). The Red Book of Chilean Terrestrial Flora (Benoit 1989) includes 333 species (almost 6% of the Chilean flora) under the “Extinct”, “Threatened”, “Vulnerable” or “Rare” categories. The first global list of threatened flora by the IUCN (Walter & Gillett 1998, cited by Hechenleitner et al, 2005) included 323 Chilean species. Both lists used the same criteria and categories, and are based on the categories of the IUCN established before 1994 (Hechenleitner et al, 2005).

In this scenery, another positive element of the participatory process developed as a part of the devising of ENBCC, is that at the moment of reaching an agreement regarding REDD+ activities, their benefits, impacts and mitigation measures to be included in the projects developed under the schemes of the ER Program, the **Biodiversity protection and increase** will be secured by means of concrete actions as it is the incorporation of species with conservation problems, the consideration of non-disturb and/or alter protected areas or buffer zones established for the conservation of sites of environmental importance that are already protected under the current national legislation. In addition and as a component of the ER Program there will be a promotion of researches and studies developed at the area of jurisdiction in order the gather information on the conservation condition of flora and fauna to develop programs, actions and initiatives aimed to protect the threatened species that will include the participation of the local communities and other governmental services related to the subject.

Along with the biodiversity protection and increase, the **environmental education** is one of the non-carbon long-term benefits that will produce effective changes in the practices of local communities to achieve the actions implemented to mitigate the effects of climate change and for the protection of biodiversity, being sustainable in time and the implementation area of ER Program. Therefore, the Jurisdictional Program will include an environmental education program that, among other courses of action will consider i) field trips to schools at the jurisdictional area, ii) reinforce the information channels on strategies of forest fires prevention and, iii) adaptation of forestry extension to be used as a tool to strengthening those aspects related to biodiversity, importance of forests in GEI mitigation and the role of local communities, among other elements to be considered.

During the planning process of ENBCC, the Indigenous Peoples and specifically Mapuche People located at the area where the ER Program will take place, have emphasized the **value of use** and the **conservation of spaces with cultural importance** as non-carbon benefits of native forests. In relation to this subject, it is important to mention the cultural uses of native forest given by Mapuche people which include the use of plants, herbs and shrubs as traditional medicines; the use of forests as a source of food when collecting wild fruits which are considered as Non-wood Forest Products; feeling of wellness and comfort associated to native forests as they are considered as a sign of natural balance and mental and physical health; the forests as home for different animals considered as brothers

under the Mapuche worldview; the use of sacred species in religious or medicinal rituals; landscape value as an spiritual element; etc. Therefore, since at the Mapuche territory can be found larger and better quality native forests factors as an increase of afforestation, avoidance of deforestation, and decrease of degradation reached through the Program will have a positive and direct impact on the quality of life of Mapuche people considering that the previously described uses will have better development possibilities along the entire Jurisdiction.

Thus, the spaces with cultural importance are understood as a part of Mapuche people since they comprehend zones in their territory considered as sacred in terms of spiritual rituals inherent to their religion, or areas in the forests holding spirits or immaterial entities that are part of the natural balance, among other elements that should be subject of better analysis to be explained. Accordingly, the planning and implementation of REDD+ activities in the Mapuche territory under the framework of the Program should clearly include; i) location of spaces with cultural importance, ii) their description and characterization, iii) a guaranty of non-disturb or alter of the same, and iv) establish the mitigation measures for potential impacts.

Diverse studies have demonstrated that the regulation of the water regime in watersheds and landscapes has a direct relation to the quantity and quality of native forests. Therefore, the availability of drinking and irrigation water among rural communities will be improved in permanent terms by establishing activities that along the increase of carbon stocks will promote a better quantity and quality of forests that are currently affected by degradation processes. Thus, the Program will have important benefits for a great number of districts located in the implementation area, where local governments (Municipalidades) must distribute drinking water in the period comprehended between spring and autumn, with an important cost for the municipal funds.

Regarding the importance of water management through forests for Indigenous Peoples and non-indigenous rural communities it is possible to say that there is full awareness of its feasibility and the need of implementing it by means of activities considered under the REDD+ approach, an aspect that was permanently emphasized by priority groups and stakeholders during the participatory process of ENBCC planning. Therefore, to improve the amount and quality of water as an impact of the ER Program will be a high value non-carbon benefit in terms of territory and local governments.

At the zone comprehended in the Jurisdiction associated to the Program the collection and use of Non-wood Forest Products (NWFP) has a high value as is the case of edible mushrooms *Citaria espinosae* (Digüeñes), *Morchella conica* (Morchela), *Boletus loyus* (Loyo), *Clavaria coralloide* (Changle), among others, along other edible seeds and fruits as *Gevuina avellana* (Chilean hazelnut), *Araucaria araucana* (Pehuén or Piñon), *Fuchsia magellanica* (Chilco), *Aristolis chilensis* (Maqui) *Fragaria chiloensis* (wild strawberry), *Gunnera tinctoria* (Nalca), *Rubus ulmifolius* (blackberry) *Rosa moschata* (Rosa Mosqueta), included the collection and use of barks of herbs, trees and shrubs for medicine among the Indigenous and non-Indigenous Communities, the use of some sections of trees in handcraft and the collection of branches performed by women of rural communities who sell them in the nearest towns for their use as ornaments.

A higher value of collection and use of NWFP represents an important benefit not only for project owners but also for the territory associated to the ER Program in general since they increase the environmental value and use of forests and also contribute to improve and diversify the food source among local communities causing an impact on the household economies reducing feeding costs and increasing the incomes as the surpluses are sold, all of what is translated into improvement of life quality, education, health and housing.

Another important benefit associated to projects for reducing emissions applied in the area proposed in the Program area related to the removal of barriers for the access of landowners to Governmental instruments by means of land tenure regulation processes targeting the actions currently performed by the Ministry of National Assets in this subject and in addition to new programs coordinated to the Instituto de Desarrollo Agropecuario (INDAP) and resources granted by CONAF for areas with the highest potential for implementing forest carbon projects.

In conclusion, in terms of life quality of landowners and the strengthening of the territory comprehended in the Jurisdiction, the sum of non-carbon benefits has an equal or greater importance than the carbon stored in stock since these benefits are also the instrument that will allow the sustainability of the ER Program activities, that will certainly be monitored through the MRV and the Information System of Safeguards.

16.1 Expected social and environmental benefits

One of the main initiatives being carried out in Chile that will aid in monitoring carbon-related environmental benefits is the National Action Plan on Biodiversity and Climate Change being prepared by the Division of Natural Resources and Biodiversity in the Office of Climate Change at the Ministry of the Environment.

The Action Plan's overall objective is to identify measures at the national level that will offer synergistic advantages for both biodiversity and climate change and generate conditions for the implementation of these actions, with a view to mitigating the effects of climate change and enhancing the resilience of ecosystems and species in terrestrial, marine, coastal, and inland water environments, as well as strengthening the country's capacity at all levels to deal with climate change's impact on biodiversity.

The plan is essentially operational in nature: in other words, it seeks to contribute to the implementation of activities already under way while at the same time identifying and generating new measures or courses of action from a strategic perspective that looks at both the short term (2014) and the medium term (2015-2020).

The Action Plan has three components:

- Mitigation component: Contribute to the mitigation of greenhouse gases generated by the degradation of land and deforestation, and enrich carbon stocks from terrestrial, marine, coastal, and inland water biodiversity.
- Adaptation component: Enhance the resilience of our terrestrial, marine, coastal, and inland water ecosystems while at the same time fostering the capacity of local and indigenous communities living in these vulnerable ecosystems to adapt to climate change.
- Capacity-building component: Build capacity within environmental institutions, public agencies, private entities, and civil society to address the challenges that climate change poses for biological diversity, its processes, and the ecosystem goods and services that it provides, as well as to strengthen the positive role of biodiversity in adapting and mitigating the effects of climate change.

Preparation of the Action Plan is funded by the government through the Ministry of the Environment. The actions emanating from it will be financed by public agencies that qualify as potential contributors to the plan. While the Action Plan involves all the ministries that sit on the Interministerial Group on Climate Change, there is greater emphasis on the Ministry of Agriculture, of which CONAF is a part.

Within this framework, the country must move forward to develop criteria and indicators for monitoring the multiple environmental and social benefits. This work should be tied in with initiatives already under way in the country, and it must be consistent with the results obtained from carrying out the activities proposed and analysis of proposals for Strategic Environmental and Social Assessment (SESA) and the Environmental and Social Management Framework (ESMF).

The execution of REDD+ activities will also yield additional benefits for the communities involved, for the national forest sector and for strengthening CONAF's institutional capacities.

16.2 Diversity and learning value

The principal innovative characteristic of this ER program is the assessment and development of the concept of degradation involved in the execution of the jurisdiction. All the more so, because the approach to be applied is based on the landscape and not on the activities. The actions focus on avoiding the motors of degradation and monitoring their effects; degradation will be quantified in hectares degraded, identifying them on the land. The methodology generated by this program will be innovative, because most proposals concentrate on deforestation, and if they contemplate degradation, they do so from the activity approach, in which it is harder to see whether the degradation is decreasing; it is only estimated by extrapolation. This is one of the program's great strengths.

Another great strength of this program is the linkage with the requirements of voluntary standards, whether they be the VCS-JNR, Gold Standard or REDD+ SES of the CCBA. The certificates offered to the Carbon Fund will have the strength of being certified in compliance with these voluntary standards, and may possibly command a higher price in the market. The ability to connect the requirements of the Carbon Fund, the IPCC, the UNFCCC, and the standards will be of great value to the FCPF, because it will generate powerful information to create synergies between the various entities related to the REDD+ market.

Another distinction of this program is the proposal to strengthen Chile's National Forest Monitoring System rather than to create parallel systems that would result in errors or duplication of reduction estimates. It is very good that the same data and analysis are used for the MRV of the ER program, the GHG inventories for the UNFCCC, and the national forest monitoring system, in the same database.

Finally, the establishment of the PBCCH and the PMSACC help to accelerate the emission reduction activities, generating a tool that could possibly be replicated in other countries, given that it involves and engages the easy and rapid inclusion of the proponents, the MRV, the registry, and the negotiation tools for the sale of the certificates.

These four characteristics (Degradation, standards, the SMFN, and the PBCCh) make this ER program unique, offering more certainties than risks for appropriate use of REDD+ as an effective, transparent, public, and traceable tool for emission reduction.

17. Progress on registries

17.1 National registry

There is a proposal to establish a unit to administer the system for registry, custody, transaction, and retirement of carbon credits with a transparent arrangement for recording credits, collecting payments, and managing associated costs, which would show how much of the increase in carbon reserves and how much of the reduced emissions as determined by the Monitoring, Reporting, and Valuation System (MRV) are due to the carbon capture initiatives implemented. Such unit would not be exclusively for REDD+; it would be part of the PBCCh.

An administration and registry unit is an essential element in the system for management and regulation of the market for the process of certifying reductions and emissions, and supports the development of the emerging financial mechanisms in the carbon market. Its basic functions, among others, would be:

- To provide information on the participants registered, area covered, and credits issued, in order to ensure the market's transparency.
- To guarantee that the registered credits meet the quality requirements, which will lend credibility to the system.
- To be directly tied in with the financial system, so as to ensure the value and traceability of the carbon credits.

In this context we will analyze the need for and the technical, institutional, and economic feasibility of implementing a unit to administer this system that would be compatible with the needs of the PBCCh of CONAF and other national and international registries. To do so the activities that must be implemented are:

- To identify international experiences in the administration and registry of carbon credits, mainly on the voluntary market.
- To assess the similarities and differences between the situation in Chile and the experiences identified in other countries in terms of their technical, institutional, and economic aspects.
- To analyze the initiatives of the Ministries of the Environment and Energy, which also have registry units, in order to reconcile the objectives of these administrative entities.
- To propose and evaluate the modus operandi of a unit for administration and registry of carbon forest credits generated in Chile.

Although the PBCCh is based on voluntary markets, given Chile's situation with respect to the UNFCCC (an Annex I country), and since voluntary markets are less volatile than the regulated market, the Verified Carbon Standard will apply at the outset. This does not mean that future projects cannot use other standards, most of them complementary to the VCS, that emphasize other attributes—for example, environmental and social values—and offer a more supportive context from the standpoint of the initiative's sustainability. It is also possible that future projects could fall within the framework of the regulated market as long as this is advantageous to the country from the cost-benefit perspective and consistent with commitments already assumed with the UNFCCC or that might be assumed in the future. Another possibility is that these credits could be traded at the national level if there is sufficient potential demand for them in the future. As part of Chile's Nationally Appropriate Mitigation Action funded by the Government of Switzerland, we plan to conduct a study of current and projected demand at both the national and international levels in both the voluntary and regulatory markets.

Finally, it is necessary to clearly establish the relationship between the system for registry, custody, transaction, and retirement of carbon credits and the MRV System, as well as its links to other public and private institutions involved in emissions reduction schemes. It will be extremely important to offer workshops to discuss these issues, design the new entity, establish its institutional structure, and mobilize the financial resources needed to turn it into a legally recognized institution.

The main activities planned for this component are:

1. Support for landholders, including indigenous communities, in clearing their land titles and regularizing ownership of the forest carbon. In particular, an analysis of the current ownership of the native forest, the relationship between forestry incentive systems and the different forms of land tenure, and development of provisional or permanent alternative legal proposals regarding property rights.
2. Definition of mechanisms to ensure the participation of indigenous communities in the REDD+ deliberative body based on the rights and obligations of indigenous people established in domestic

legislation and any international agreements signed by the country, including the relationship between these elements and REDD+.

3. Creation of mechanisms for independent monitoring, evaluation, and review, with links to REDD+ and all the institutions concerned with this subject. This will include analysis of the technical, institutional, and economic aspects involved in implementing the system for registry, custody, transaction, and retirement of carbon credits; identification of possible challenges and pitfalls in guaranteeing transparency, accountability, and equity; and subsequent definition of the duties and responsibilities of the relevant local and national, public and private, governmental and nongovernmental institutions.

18. List of acronyms used in the ER-PIN

Acronym	Meaning
AFOLU	Agriculture, Forestry, and Other Land Use
AIFBN	Association of Forest Engineers for the Native Forest
APF	Preferably suitable for forests
BEF	Biomass Expansion Factor
CCBA	The Climate, Community and Biodiversity Alliance
ERC	Emission Reduction Certificate
DF	Dry fracking
CGE	General Electric Company
CIREN	Natural Resource Information Center
CL	Cropland or cultivated land
UNFCCC	United Nations Framework Convention on Climate Change
CONADI	National Indigenous Development Corporation
CONAF	National Forest Corporation
CONAMA	National Environmental Commission
SDC	Swiss Agency for Development and Cooperation
COT	Land use map
DIA	Environmental Impact Declaration
DL	Decree Law
EIA	Environmental Impact Assessment
ENBCC	National Forest and Climate Change Strategy
ERPA	Emission Reductions Payment Agreement
ERPA	Emissions Reduction Purchase Agreement
ESMF	Environmental and Social Management Framework
FCPF	Forest Carbon Partnership Facility
FIA	Foundation for Agricultural Innovation
FL	Forest land
FONDEF	Fund for the Promotion of Scientific and Technological Development
FONDEMA	Magallanes Development Fund
FRA	Forest Resources Assessment
FRL	Forest Reference Level
FSC	Forest Stewardship Council
FTP	Forest Tree Plantation or Plantations
GBCC	Group on Forests and Climate Change
GEF	Global Environment Facility
GHG	Greenhouse Gas
GL	Grassland or pasture
GRM	Complaint Resolution Mechanism
GSF	The Gold Standard Foundation
GTNE	National Technical Expert Group
IDE	Spatial Data Infrastructure
IGM	Military Geographic Institute
INDAP	National Agricultural Development Institute
INFOR	Forestry Institute
INGEI	National Inventory of Greenhouse Gas Emissions

INIA	Agricultural Research Institute
IPCC	Intergovernmental Panel on Climate Change
ISGEI	Sectoral Inventory of Greenhouse Gas Emissions
VAT	Value Added Tax
JNR	Jurisdictional and Nested REDD
JPD	Jurisdictional Program Description
LBMA	Environmental Bases Act
MAPS	Mitigation Actions, Plans, and Scenarios
MBCC	Forests and Climate Change Table
VCM	Voluntary Carbon Market
MINAGRI	Ministry of Agriculture
MRV	Monitoring, Reporting, and Verification System
NAMA	Nationally appropriate mitigation actions
NFL	Native forest land
OECD	Organization for Economic Cooperation and Development
ODEPA	Office for Agricultural Research and Policy
OIRS	Office for Information, Complaints, and Suggestions
ILO	International Labor Organization
OL	Other lands
NGO	Nongovernmental Organization
OP	World Bank Operational Policies
OTERRA	Center for Natural Resource Studies of the Universidad Mayor
PBCCH	Platform for the Generation and Trading of Forest Carbon Credits in Chile
PDC	Plan for Dissemination and Communication
PMR	Partnership for Market Readiness
R	Relation of underground biomass (roots) to aerial biomass
REDD+	Reduction of emissions from deforestation and forest degradation, fostering conservation, sustainable management of forests, and enhancement of forest carbon stocks
REDD+SES	Social & Environmental Standards for REDD+
REL	Reference Emission Level
RIOCC	Ibero-American Network of Climate Change Offices
R-PP	Readiness Preparation Proposal
SCX	Santiago Climate Exchange
SEC	Superintendency of Electricity and Fuels
SECOM	National Communications Secretariat
SEIA	Environmental Impact Assessment System
SESA	Strategic Environmental and Social Assessment
SII	Internal Revenue Service
SIT	Territorial Information System
SL	Settlement land or human settlements
SMFN	National Forest Monitoring System
SNI	National Inventory System
SNLC	National System of Certified Firewood
TNC	The Nature Conservancy
UACH	Universidad Austral of Chile
UNESCO	United Nations Educational, Scientific, and Cultural Organization
VCS	Verified Carbon Standard
WL	Wetland