



FAO/GLOBAL ENVIRONMENT
FACILITY

PROJECT DOCUMENT



PROJECT TITLE: Climate-smart livestock production and land restoration in the Uruguayan rangelands	
PROJECT CODE: GCP/URU/034/GFF	
COUNTRY: URUGUAY	
FINANCING PARTNER: GEF	
FAO Project ID: 636320	GEF/LDCF/SCCF Project ID: 9153
EXECUTING PARTNERS: Ministry of Livestock, Agriculture and Fisheries (MGAP)	
Expected EOD (Starting Date): 01 February 2018	
Expected NTE (End Date): 01 February 2022	
CONTRIBUTION TO FAO's STRATEGIC FRAMEWORK:	
a. Strategic Objective/Organizational Result:	
Strategic Program 2: Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner	
Organizational Outcome 201: Producers and natural resource managers adopt practices that increase and improve agricultural sector production in a sustainable manner	
Organizational Output 20101 - Innovative practices for sustainable agricultural production are identified, assessed and disseminated and their adoption by stakeholders is facilitated.	
Strategic Objective 5: Increase the resilience of livelihoods from disasters	
Organizational Outcome 503: Countries reduce risks and vulnerability at household and community level.	
Organizational Output 50302 - Improving access of most vulnerable groups to services which reduce the impact of disasters and crisis.	
b. Regional Result/Priority Areas:	
Regional Priorities	
<ul style="list-style-type: none">• Food and nutrition security• Transformation of the rural sector• Social and economic inclusion and innovation• Sustainable use of natural resources	

Regional Initiatives:

- R2: Family Farming, Food Systems and Sustainable Rural Development
- R3: Sustainable use of natural resources, adaptation to climate change and disasters risk management

c. Country Programming Framework Outcome:

Priority Area 2 Environmental sustainability of agricultural production, and agricultural systems less vulnerable and more resilient

Result 2.1 Improvement of policies and programmes for sustainable intensification of agricultural production in order that farmers and natural resources managers adopt practices that increase and improve the delivery of goods and services of the agricultural sector in a sustainable way reducing risks.

GEF/LDCF/SCCF Focal Area:

Climate Change Mitigation (CCM-2, Program 4) Promote conservation and enhancement of carbon stocks in forest, and other land use, and support climate smart agriculture

Land Degradation (LD-1, Program 2) SLM for Climate-Smart Agriculture

GEF/LDCF/SCCF strategic objectives:

CCM-2: Demonstrate systemic impacts of mitigation options

LD-1: Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods

Environmental and social risk classification (insert v): Low risk v Moderate risk High risk

Financing Plan:

A) GEF/LDCF/SCCF allocation:	USD	2,091,781
B) Cofinancing:	USD	14,241,567
MGAP	Cash	8,950,000
	In Kind	2,660,000
INIA	In Kind	796,000
FAO	Cash	360,002
	In Kind	100,000
MVOTMA	In Kind	178,250
FAGRO	In Kind	670,000
CCAC	Cash	100,000
CNFR	In Kind	49,315
IPA	In Kind	378,000
C) Total Budget (A+B):	USD	16,333,348

Executive Summary

The agricultural sector, which includes crops, livestock, and forestry, is by far the most important economic activity in Uruguay. In 2016 the sector accounted for US D 6.4 billion of exports, representing almost 80% of the total value of goods exported by Uruguay. The main export product in the agro-industry was beef, followed by forest products (especially cellulose) and soy. The sector also accounts for 12% of employment nationally and 70% in rural areas. In terms of land use, 85% of Uruguay's land is suitable for agricultural production. In 2011 livestock raising occupied 14.9 million hectares of the 16.4 million hectares of private land in Uruguay. Cattle raising is by far the most important activity, with beef production being the most important economic activity, followed by the production of dairy products. A specific feature is the large number of mixed cattle and sheep livestock raising systems that cover almost all the pasture land.

Family farmers, with 500 ha or less, make an important contribution to the total agricultural production. More than half are involved in extensive cattle and sheep production on natural rangelands with low levels of productivity. Large investments in the crop agriculture and forestry sectors and the related processing industry have contributed to a sharp increase in production and exports, generating a strong pressure on land. The livestock sector has also increased its productivity, but at a slower pace. Family farmers are increasingly unable to reach the productivity levels that are required to stay in business. As a consequence, farmers often increase the stocking rate in order to increase their income. This results in a higher pressure on natural resources, degradation of pastures, and an increased vulnerability to climate change, as well as high GHG emissions due to large breeding overhead and poor diets.

The agriculture sector accounts for 73% of national GHG emissions in Uruguay. The livestock sector is responsible 93% of the agriculture sector emissions. Unsustainable management of cattle production over large rangelands areas has led to ongoing land degradation. 30.1% (almost 5 million ha) of the pasture land is degraded, and 400,000 ha are considered severely degraded. This has led to losses of soil organic matter, release of CO₂ in the atmosphere, and biodiversity loss. It also significantly reduces pasture productivity, and incurs economic losses. This is a 'triple-lose' scenario. In the baseline, given the current context of rising land prices, it is likely that farmers will continue to intensify production and exacerbate the problems.

The Government is committed to addressing livestock sector challenges through a holistic approach that addresses food security, economic competitiveness, sustainable land management, climate change adaptation and mitigation. The approach focuses on sustainably increasing productivity and efficiency. However, in spite of the baseline projects, the vast majority of small-scale farmers continues to practice livestock management approaches that do not generate good economic returns, that lead to unnecessarily high GHG emissions, and that continue to degrade the land including decreasing carbon stocks and biodiversity loss.

The project will tackle the barriers which stop small farmers and many medium sized farmers from adopting climate smart practices and technologies. These are: (1) High perceived risk of new technologies and practices; (2) Lack of awareness of alternatives to current management practices; (3) Inadequate incentives and technical assistance to guide the transition to CSLM; (4) Lack of an interinstitutional strategy on climate smart livestock

management (CSLM) and 5) Lack of scientific knowledge and data on CSLM practices and its impacts on GHG emissions, soil conservation, and biodiversity.

The alternative scenario involves the development, introduction and upscaling of CSLM on small and medium-sized farms that are engaged in intensive livestock production on natural rangelands. CSLM is based on (i) increased efficiency in the use of resources, and (ii) increased resilience and risk management at farm and systemic levels. CSLM contributes to improved productivity, decreased climate change vulnerability of farmers and climate change mitigation in primary livestock production; as well as to broader environment and development goals. Research and experience in Uruguay suggests that there are many low cost, high impact, simple to implement technologies and practices that can lead to CSLM. By improving the economic viability of small and medium-size farmers, the project will also contribute to avoid the conversion of natural grasslands to arable land, and the related high climate change and biodiversity impacts.

The **project objective** is to mitigate climate change and to restore degraded lands through the promotion of climate smart practices in the livestock sector, with focus on family farming.

The project is structured in 3 components which jointly contribute to the achievement of the objective. **Component 1** deals with strengthening the institutional framework and national capacities to implement the climate smart livestock management (CSLM) at scale. Under this component, a national CSLM strategy will be developed, as well as a National Appropriate Mitigation Action (NAMA) framework and corresponding monitoring, reporting and verification system for the beef sector. Furthermore, institutional capacities will be strengthened to implement the CSLM strategy, and capacities of extensionists will be strengthened in the understanding and transmission of CSLM technologies and practices. **Component 2** deals with development and deployment of CSLM technologies and practices at field level. Under this component, 60 farm-level CSLM strategies will be implemented using the co-innovation approach. Capacities of 120 farmers will be strengthened. Through a cooperation arrangement with the Natural Resources and Climate Change project (DACC), about 700 farms will be targeted indirectly. An on-farm monitoring system will be set up to keep track of the green house gas emissions, vegetation and soil quality on the 60 pilot farms. **Component 3** deals with monitoring, evaluation and knowledge-sharing. Under this component, a monitoring and evaluation system will be set up to enable results-based project management. Training materials will be produced and validated to facilitate replication of the CSLM practices. A communication strategy will be implemented to disseminate project findings, from the local to the global level. The GEF project builds on the experience and lessons of past projects, and is closely aligned with ongoing initiatives for sustainable livestock development. The project strategy builds on the close engagement of key stakeholders to ensure sustainability of the results.

The global environmental benefits of the project are (i) a reduction of direct and indirect GHG emissions including CH₄ and N₂O emissions from livestock, and C sequestration on grassland and forests of 379,000 t CO_{2eq.} (over 4 years) and 5,911,000 t CO_{2eq.} (over 20 years), and (ii) a reversal of land degradation processes on 35,000 ha of natural rangelands, compared to the baseline scenario. At the same time, the overall meat production on the farms is expected to increase by 56%, resulting in economic benefits for the farmers.

Total project financing amounts to USD 16,333,348 over the four-year implementation period. Co-financing amounts to USD 14,241,567, out of which 66% in cash, provided by the Ministry for Livestock, Agriculture, and Fisheries, the Ministry for Housing, Land Use Planning and Environment, the National Agency for Agricultural Research, the University of the Republic, the Federation of Farmers' Associations, the Institute for Agricultural Planning, the International Clean Air Coalition, and FAO. GEF incremental resources amount to USD 2,091,781 (13% of the total financing).

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Acronyms

ANPP	Above Ground Net Primary Productivity
ARU	<i>Asociación Rural del Uruguay</i> Rural Association of Uruguay
AUGAP	<i>Asociación Uruguaya de Ganaderos del Pastizal</i> Uruguayan Association of Rangeland Farmers
AW/P	Annual Work Plan and Budget
BH	Budget Holder
BMUB	German Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BPC	<i>Base de Prestaciones y Contribuciones</i> Base for Contribution (Unit to measure Income in Uruguay)
BROU	<i>Banco de la República Oriental del Uruguay</i> Bank of the Eastern Republic of Uruguay
CAD	<i>Consejo Agropecuario Departamental</i> Agricultural Council on Department level
CAF	<i>Cooperativas Agrarias Federadas</i> Federated Agrarian Cooperatives
CAR	<i>Consejo Asesor Regional</i> Regional Advisory Council
CAS	<i>Consejo Agropecuario del Sur</i> Southern Agricultural Council
CC	Climate Change
CEPAL	<i>Comisión Económica para América Latina y el Caribe</i> United Nations Economic Commission for Latin America and the Caribbean
CGA	<i>Censo General Agropecuario</i> General Agricultural Census
CIAT	International Center for Tropical Agriculture
CNFR	<i>Comisión Nacional de Fomento Rural</i> National Commission for Rural Promotion
CONEAT	Uruguayan Soil Productivity Index
CSA	Climate-smart agriculture
CSLM	Climate Smart Livestock Management
DACC	<i>Desarrollo y Adaptación al Cambio Climático</i> Sustainable Management of Natural Resources and Climate Change
DGDR	<i>Dirección General de Desarrollo Rural</i> Directorate General for Rural Development
DGRN	<i>Dirección General de Recursos Naturales</i> Directorate General for Natural Resources
DIEA	<i>Dirección de Estadísticas Agropecuarias</i> Directorate of Agricultural Statistics
DILAVE	<i>Dirección de Laboratorio Veterinario</i> Veterinary Laboratory Division
DINAMA	<i>Dirección Nacional de Medio Ambiente</i> National Directorate of Environment

ECLAC	Economic Commission for Latin America and the Caribbean
Ei	Emission intensity
EULACLIAS	European Latin-American Project for Co-Innovation of Agro-ecosystems
FAGRO	<i>Facultad de Agronomía</i> Faculty of Agronomy
FAO	Food and Agriculture Organization of the United Nations
FCIEN	<i>Facultad de Ciencias</i> Faculty of Science
FE	Final Evaluation
FLO	Funding Liaison Officer
FNC	Fourth National Communication to the UNFCCC
FOB-Value	Free On Board Value
FPMIS	Field Programme Management Information System
FPTA	<i>Fondo de Promoción de Tecnología Agropecuaria</i> Fund for the Promotion of Agricultural Technology
FRU	<i>Federación Rural del Uruguay</i> Rural Federation of Uruguay
FUCREA	<i>Federación Uruguaya de Grupos CREA</i> Uruguayan Federation of Regional Centres of Agricultural Experimentation
GACSA	Global Alliance for Climate Smart Agriculture
GASL	Global Agenda for Sustainable Livestock
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEFSEC	Secretariat of the Global Environment Facility
GFCC	<i>Proyecto Ganaderos Familiares y Cambio Climático</i> "Building Resilience to Climate Change and Variability in Vulnerable Smallholders" Project
GGCI	Global Climate Change Initiative
GHG	Greenhouse Gas
GIS	Geographic Information System
GLEAM	Global Livestock Environmental Assessment Model
GRAS	<i>Unidad de Agro-Clima y Sistemas de información</i> Agro-Climate and Information System
HDI	Human Development Index
HOI	Human Opportunity Index
HQ	Headquarter
IEF	Index of Economic Freedom
INAC	<i>Instituto Nacional de Carnes</i> National Meat Institute
INDC	Intended Nationally Determined Contribution
INE	<i>Instituto Nacional de Estadística</i> National Institute of Statistics
INIA	<i>Instituto Nacional de Investigación Agropecuaria</i> National Institute of Agricultural Research
IPA	<i>Instituto Plan Agropecuario</i> Institute of Livestock Technology Transfer

LEAP	Livestock Environmental Assessment and Performance
LTO	Lead Technical Officer
LULUCF	Land Use, Land Use Change and Forestry
M&E	Monitoring and Evaluation
MDR	<i>Mesa de Desarrollo Rural</i> Rural Development Committee
MGAP	<i>Ministerio de Ganadería, Agricultura y Pesca</i> Ministry of Agriculture, Livestock and Fisheries
MGCN	<i>Mesa de Ganadería de Campo Natural</i> National Livestock Rangeland Board
MRV	Monitoring, Reporting and Verification
MTE	Mid-term Evaluation
MOVOTMA	<i>Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente</i> Ministry of Housing, Territorial Planning and Environment
NAMA	Nationally Appropriate Mitigation Action
NAP	National Adaptation Plan Process
NDC	Nationally Determined Contributions
NPTTD	National Program of Technology Transfer and Diffusion
OED	Office of Evaluation
OPP	<i>Oficina de Planeamiento y Presupuesto</i> Office of Planning and Budget
OPYPA	<i>Oficina de Programación y Política Agropecuaria</i> Office of Programming and Agricultural Policy
PIC	Proyecto Integrando Conocimientos
PIR	Project Implementation Review
PNA-Agro	<i>Plan Nacional de Adaptación al Cambio y Variabilidad Climática para el Sector Agropecuario en Uruguay</i> National Plan for Adaptation to Climate Change and Variability for the Agricultural Sector
PNCC	<i>Política Nacional de Cambio Climático</i> National Policy on Climate Change
PPR	Project Progress Report
PROCISUR	<i>Programa Cooperativo para el Desarrollo Tecnológico Agroalimentario y Agroindustrial del Cono Sur</i> Cooperative Program for the Development of Agricultural Technology in the Southern Cone
PRONADEGA	<i>Programa Nacional de Desarrollo de Pequeños y Medianos Ganaderos</i> National Program for the Development of Small and Medium Livestock Farmers
PRONAOPPA	<i>Programa Nacional de Apoyo al Pequeño Productor Agropecuario</i> National Support Program for Small Agricultural Farmers
PSA	<i>Programa de Servicios Agropecuarios</i> Agricultural Services Program
PSC	Project Steering Committee
PT	Project Team
PTF	Project Task Force

RBM	Results-based management
RUSLE	Revised Universal Soil Loss Equation
SNAP	<i>Sistema Nacional de Areas Protegidas</i> National System of Protected Areas
SNIA	<i>Sistema Nacional de Información Agropecuaria</i> National Agricultural Information System
SNRCC	<i>Sistema Nacional de Respuesta al Cambio Climático y Variabilidad</i> National Response System to Climate Change and Variability
SOM	Soil Organic Matter
SUL	<i>Secretariado Uruguayo de la Lana</i> Uruguayan Wool Secretariat
TNC	Third National Communication to the UNFCCC
TOR	Terms of Reference
UASCC	<i>Unidad Agropecuaria de Sostenibilidad y Cambio Climático</i> Agricultural Sustainability and Climate Change Unit
UdelaR	<i>Universidad de la República</i> University of the Republic
UFFIP	<i>Proyecto Mejora de la Sostenibilidad de la Ganadería Familiar en Uruguay</i> Uruguay Family Farming Project
UGP	<i>Unidad de Gestión de Proyectos</i> Unit for Project Management
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USLE	Universal Soil Loss Equation

SECTION 1 – PROJECT RATIONALE

1.1 PROJECT CONTEXT

1. **Socioeconomic context of Uruguay:** Uruguay is located in the southeast of South America between 30º and 35º South and 54º and 59º West. It has borders with Brazil to the north, Argentina to the west and the Atlantic Ocean to the south and east. The total land area is 176,215 km² or 17.6 million hectares. Uruguay is divided into 19 administrative departments (see map in Figure 1).

2. In 2015, Uruguay had a total population of 3,480,222 inhabitants, of which 51.6% were female and 48.4% male. The country is characterized by its low population density (20 inhabitants per km²) and a high rate of urbanization. According to the National Institute of Statistics (INE), the rural population accounts for only 5% of the Uruguayan population. However, according to data from the project “Thinking the concept of rurality” of the Faculty of Social Sciences (FCIEN) of the University of the Republic (UdelaR), the rural population exceeds the numbers established by the INE and amounts to 12%¹.

3. Uruguay ranks high in comparison of other countries in the region with regard to various welfare measures, such as the Human Development Index, the Human Opportunity Index (HOI)² and the Index of Economic Freedom³. The stability of institutions and low levels of corruption are reflected in the high degree of confidence that citizens have in the government. According to the World Bank's Human Opportunity Index, Uruguay has achieved a high level of equal opportunities in terms of access to basic services such as education, drinking water, electricity and sanitation⁴.

4. According to the Economic Commission for Latin America and the Caribbean (ECLAC), the literacy rate in the country is 98.8%, being slightly higher for women (99.4%) than for men (98.3%). Thus, Uruguay is the country with the highest level of literacy in Latin America and in 2016 the organization Transparency International stated that Uruguay was the Latin American country with the lowest Corruption Perceptions Index⁵.

¹ This is due to the fact that for INE the rural population is defined as living in dispersed centers, whereas the project took into account those centres (566 centres excluding Department capitals, according to the 1996 census) where the majority of the economically active population is working is related to the agricultural sector.

² The World Bank's Human Opportunity Index (HOI) measures how circumstances that are beyond the control of children and young people (birthplace, gender, parental education and family composition) affect their access to basic goods and services such as education, drinking water, electricity and sanitation.

³ The Index of Economic Freedom (IEF) was created in 1995 by the Heritage Foundation and The Wall Street Journal. It consists of the classification of countries or states based on the number and intensity of government regulations on wealth-generating activity. The measures that are evaluated by an index of economic freedom include restrictions on international trade, public spending relative to GDP, labor licensing requirements, private property rights, minimum wages, and other government-controlled factors that affect people's ability to earn a living and keep what they earn. Such indices are generally produced by economic research centers. According to the 2017 world ranking of this index, the IEF of Uruguay is 68.8, which means that in the country economic freedom is moderately free, ranking in the 41st position (Miller and Kim 2016).

⁴ <http://www.bancomundial.org/es/country/uruguay/overview>

⁵ Transparency International (2016): Corruption Perceptions Index. Available online:

http://transparencia.org.es/wp-content/uploads/2017/01/tabla_sintetica_ipc-2016.pdf

5. According to the Human Development Report 2016, Uruguay's Human Development Index⁶ (HDI) is 0.795, ranking 54th in the world, while in Latin America it ranks third⁷. With a Gini⁸ index of 0.382, Uruguay is considered the most egalitarian country in Latin America and the Caribbean. In terms of equity, the income of the poorest 40% of the Uruguayan population has increased much faster than the average income growth of the entire population⁹.

6. According to the INE, the incidence of poverty in households in the country was 6.4% in 2016, while the incidence of poverty by persons was 9.8%. As for the geographical distribution of poverty, the incidence is higher in Montevideo (the capital of the country) and lower in rural areas where 2.1% of the households (or 2.7% of the people) live on or below the poverty line. The incidence of indigence in Uruguay is only 0.1% of households and 0.2% of the population. Its geographical distribution shows that it is homogeneous in urban areas and that there is no incidence of indigence in the rural environment¹⁰.

7. **Geomorphology.** The geology of Uruguay is very complex. Diverse geological materials form a great variety of soils: igneous rocks that range from granite to basalt; diverse metamorphic rocks (gneiss, amphibolite, etc); diverse sedimentary rocks: sandstones with variable cement (silt, lutite and limestone, etc.) that have sometimes undergone ferrification processes or silicification; fluvial and lacustrine deposits and large areas of mainly Aeolian deposits. The physical and chemical differences in the characteristics of these materials have been a fundamental factor in the evolution of a large number of soil types for a country this size. Five soil groups are recognized, differing in the land use capability, the handling problems that they present and their potential productivity. Overall, the geology and soil types, the climate, and the topography have defined seven agro-ecological zones in Uruguay (see map in Figure 2).¹¹

⁶ The Human Development Index (HDI) is a synthetic indicator of the average achievements made in the fundamental dimensions of human development, namely, having a long and healthy life, acquiring knowledge and enjoying a decent standard of living. The HDI is the geometric mean of the normalized indices of each of the three dimensions.

⁷ UNDP 2016

⁸ The Gini index or Gini coefficient is an economic measure that serves to calculate the existing income inequality among the citizens of a territory, usually of a country. It ranges between 0 and 1, with zero being the maximum equality (all citizens have the same income) and 1 the maximum inequality (a single citizen has all income)

⁹ <http://www.bancomundial.org/es/country/uruguay/overview>

¹⁰ INE 2016

¹¹ FAO 2006: "Country Pasture/Forage Resource Profiles – Uruguay".

Figure 1: Departments of Uruguay



Source: MGAP

8. **Agricultural sector.** Approximately 85% of Uruguay's land is suitable for agricultural production. Hence, the agriculture and livestock production systems are economically very important and are expected to remain so. The agricultural sector, which includes crops, livestock, and forestry, accounts for 12% of employment nationally and 70% in rural areas¹². The average annual growth rate of agricultural GDP for the period 2001-2009 was 6.5%, higher than the 3.5% of the overall economy. However, the challenge is to let small and middle producers participate in this growth, increase their income and contribute to economic development.

9. According to official statistics, in 2011 livestock raising occupied 14.9 million hectares of the 16.4 million hectares of private land in Uruguay.¹³ In this, cattle raising is by far the most important, with beef production being the most important economic activity, followed by the production of dairy products.

10. According to the latest General Agricultural Census (CGA) of 2011 there are 41,357 commercial farms occupying 16,308,983 hectares with the following distribution of farm types: 15,777 (38%) of the farms are medium and large sized occupying 13,790,655 (85%)

¹² "Rural Productive Development Program – Program Document". Inter-American Development Bank, 2012.

¹³ "Agricultural Census". DIEA-MGAP 2011.

hectares, while 25,580 (62%) are family farms¹⁴ occupying 2,518,318 (15%) hectares¹⁵. Analyzing the land use by agricultural activities, according to the CGA of 2011, livestock (meat, wool and milk) occupied 13,396,000 hectares, agriculture (extensive and intensive) occupied 1,604,000 hectares, forestry 1,701,000 hectares and other uses (unplanted plowed land and unproductive land) 286,000 hectares¹⁶.

11. **Economic importance and export markets.** The agro-industrial sector plays a key role in the country's exports. With a small domestic market of only 3.48 million people, the country's increasing production in the agro-industrial sector is destined for export. Uruguay's total food exports feed 28 million people in the rest of the world¹⁷. In 2016 the sector accounted for approximately 78% of the total value of goods exported by Uruguay. In that year, agro-industrial sales were around US D 6.4 billion. In 2016, the main export product in the agro-industry was beef, followed by forest products (especially cellulose) and soy¹⁸.

12. During the last decade, the GDP grew at an average annual rate of 4.4% in Uruguay, which is considerably higher compared to the previous decades¹⁹. This development was fostered by the agricultural sector and the agro-industrial chains due to their key role in the economy. The agro-industrial sector accounted for approximately 12.4% of Uruguay's GDP in 2015. This contribution was shared equally between the primary sector (agriculture, livestock and fishery) and the industries related to agriculture, each of them accounting for 6.2%²⁰. In addition to that, other sectors such as the construction, transport, storage and communications sectors are also strongly associated with the development of the national agricultural and agro-industrial sector²¹.

13. According to estimates of the Mercosur-FAO Network, the agricultural sector had the greatest multiplier effects on the economy as a whole in the beginning of this decade compared to the rest of the productive activities. The effects of agricultural activity on production and employment were above the average for all types of economic activity²².

¹⁴ The resolutions 219 and 387/14 states that: Family farmers are natural persons manage directly a farm (with or without the help of others) and / or pursue an agricultural productive activity that does not require the direct use of the land. This person, together with his/her family, must comply with the following requirements:(i) Exploit the farm with the help of at most two permanent non-family employees or their equivalent of non-family work days (500 per year); (ii) Explore in total up to 500 ha (CONEAT 100); (iii) Live on the farm or with a distance of less than 500 ha (CONEAT 100); (iv) Nominal family income from non-farming activities is less than or equal to 14 BPC (Base de Prestaciones y Contribuciones) per month.

¹⁵ DGDR 2014

¹⁶ MGAP-DIEA 2015.

¹⁷ BALSERINI *et al.* 2014.

¹⁸ Uruguay XXI based on data from the National Customs Authority, Nueva Palmira and Montes del Plata *in* Uruguay XXI, Dic. 2016..

¹⁹ The average anual growth rate of the economy was 1.1% in the 1980s and 3.3% in the 1990s. Uruguay XXI based on BCU and Cepal *in* Uruguay XXI, Dic. 2016.

²⁰ Within the agro-industries, this study included "Elaboration of food products, beverages and tobacco" (the GDP of this sector was deducted an estimate of the GDP of the production of beverages and other food products) and "Manufacturing of paper and products from paper and board". Uruguay XXI based on BCU *in* Uruguay XXI, Dic. 2016.

²¹ Uruguay XXI, Dic. 2016.

²² DECON, 2009 – "¿Cuál es la importancia real del sector agropecuario sobre la economía uruguaya?"; CEPAL, 2014 – "Cambios en la dinámica agropecuaria y agroindustrial del Uruguay y las políticas públicas" *in* Uruguay XXI, Dic. 2016.

14. Beef has traditionally been Uruguay's main export product. Despite the fact that in recent years soy exports started to lead this ranking, in 2016 the meat lead again the country's ranking of exported products. In 2016, beef exports summed up to US D 1.44 billion, which represents a growth of 2% over the previous year. Beef represented about 22% of all agro-industrial sales²³, which makes Uruguay one of the 10 main beef exporters in the world.

15. China was the main export market in 2016, with 34% (US D 498 million) of the exported beef; the EU was second with 23% (US D 340 million); the United States ranked third with 16% (US D 241 million), and Israel was fourth 8% (US D 116 million). Together, these four destinations accounted for 81% of Uruguay's exports and constituted the main markets of interest²⁴.

16. Exports of living cattle have increased since the financial year 2012/13. As of November 2016, more than 225,000 animals were exported, slightly more than in the whole year 2015. 90% of the animals that were exported in 2016 were males, and younger than two years. Turkey has been the main export destination, receiving 90% of the live animals.

17. The number of employees in the agro-industrial sector was approximately 226,000 in 2016, which is 15% of Uruguay's workforce. The largest number of employees works in the fields of cattle breeding (64,000 persons)²⁵. These figures refer only to direct employment. Furthermore, the agro-industrial sector also generates indirect jobs and is the basis for local economies.

18. **Characteristics of the livestock sector.** Apart from cattle, Uruguay has large numbers of sheep, horses, goats, chicken and pigs. A specific feature is the large number of mixed cattle and sheep livestock raising systems that cover almost all the pasture land. Three categories of mixed cattle and sheep production systems are distinguished²⁶:

- The rearing of animals on natural grasslands or *rangelands*. In this system, shortage of food in winter typically leads to a loss of weight, followed by large weight gains in spring and then moderate gains over summer and autumn. Typically, A three-year old steer weighs 330 to 380 kg, and requires one more year of fattening;
- The rearing of animals on improved pastures. Improved nutrition and managed grazing means weight gains can be maintained through winter. Steers often reach 380 kg by the age of two;
- Intensive rearing systems, in which weight gains can be above 350 kg per year.

19. Cattle ranching is one of the most important activities in Uruguay. In this production system, the animals live outdoors throughout the year and graze on natural rangelands, which is essential to the national production.

20. A traceability system tracks all product information, from the animal's birth until it reaches the final consumer. This system has allow Uruguay to ensure the quality and safety of its product and thus enter the most demanding international markets, such as the EU.

²³ Uruguay XXI, Dic. 2016

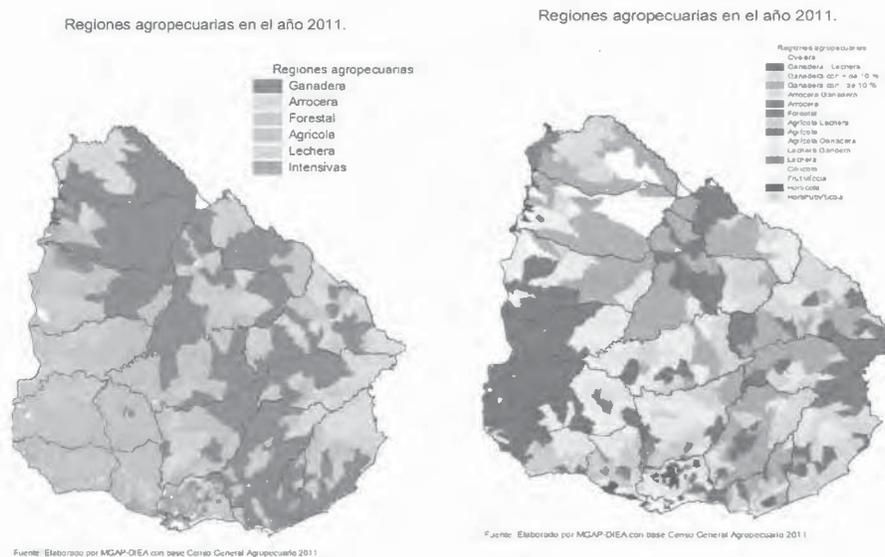
²⁴ INAC, 2017, in Pérez, 2017.

²⁵ Uruguay XXI, Dic. 2016.

²⁶ FAO 2006 (ibid).

21. Between 2000 and 2011 there was a significant decrease %in the area for livestock production (ca. 9% or 1.3 million hectares), mainly due to the increase of rainfed agriculture (especially soybeans) and afforestation. Although many farms have been converted to agricultural land, the number of cattle has remained relatively stable during the last decade. On the other hand, the number of slaughtered animals has declined slightly during this period.

22. Despite the conversion from pastures to agricultural land in recent years, natural rangelands, that cover 10,518 million hectares, are the most important type of land use, representing 78% of the area devoted to livestock production and 64% of the national territory. All types of improved grasslands (fertilized natural rangeland, interseeded rangeland, multiannual rangeland and forage crops) occupy 2.2 million hectares, which is equivalent to 13.4% of the national territory and 14% of the area devoted to livestock production²⁷ (see Figures 3 and 4), and Table 1.



Figures 3 y 4 – Agricultural regions of Uruguay

Source: MGAP-DIEA 2015, based on data from CGA 2011.

Table 1- Land use in the livestock sector, 2000-2011

Land use	Area (1000 ha)		Difference (1000 ha)	% of agricultural land		Difference (%)
	2000	2011		2011/2000	2011	
Livestock rearing on grasslands	14.727	13.396	-1.331	90	82	-9
Natural rangelands(1)	11.669	10.518	-1.151	71	64	-10
Pastures with fertilization	678	683	5	4,1	4	-10
Planted pastures, multi-year	1.196	934	-262	7	6	-21,9
Annual forage crops	418	592	174	2,5	4	41,6

²⁷ *Id.*

Natural Woods and short grass	766	669	-97	4,7	4	-12,7
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Source: DIEA/MGAP, May 2015

23. The pasture land in Uruguay is mainly private property (although there are some State owned areas). Privately owned lands may be rented or leased. 69% of private pasture areas are directly exploited by the owners; 26% are exploited by renters and the remaining 5% is exploited in other ways.²⁸ On most farms, both public and private, the producer is responsible for management and rarely receives technical assistance. The qualification levels of the producers are very uneven.

24. By global standards, farm sizes in Uruguay are very large and the farming is extensive (both 'natural' and 'improved'). In 2011, by area, only 1.15% of farmland was farms under 50 ha. A recent survey established that a large proportion of livestock raising is on farms between 50 and 500 hectares. 22.540 farms under 500 hectares cover a total of 2.985.700 hectares.²⁹ These 'small' farms are typically privately owned by families or family groups and can typically invest only a very limited amount in improved technologies and practices.

25. Family farmers make an important contribution to the total production of relatively labor intensive agricultural activities. More than half of the family farmers³⁰ are involved in extensive livestock production with low levels of productivity. These family farmers work mainly in the cattle and sheep production³¹ (breeding and complete cycle). They represent 22% of the total production and compete directly with large and medium-sized farmers, but lag behind in productivity and have no prospects of developing climate-smart agriculture systems without support from the public sector³².

26. Women and men, due to their different economic and social roles and experiences, have differentiated responsibilities and capacities in terms of CSLM. A review conducted during project preparation with specialists from INIA and IPA concluded that on livestock farms, two types of roles can be observed. The first role is the woman who manages the household, is in charge of the family, and perhaps the garden and small animals, but does not get involved in management decisions on the farms. In the second case, the woman is also involved in the management of the farm, in addition of the activities in the household. In the second case, the role of the women as key agents of change becomes evident. Women who participate in farm-level decisions are more open to innovating processes and adopting new technologies. It can be observed that farms where women participate in management decisions dedicate a larger part of the revenue to productive investments, and less to family consumption, than farms managed only by men. Likewise, younger farmers are generally more open to innovation than older farmers.

27. Large investments in the crop agriculture and forestry sectors and the related processing industry have contributed to a sharp increase in production and exports,

²⁸ FAO, 2006 (ibid). It is noted that the figures date from 2000 and may have changed since, although they are generally considered to be accurate.

²⁹ CGA, 2011.

³⁰ From all family farms, 54% are dedicated to cattle production and 8% to ovine production. DGDR 2014.

³¹ Of all 36,696 livestock farms (CGA 2011), 58% are family farms according to DGDR 2014.

³² GFCC, 2011

generating a strong nationwide pressure on the prices and leases of land. The livestock sector has also increased its productivity, but at a slower pace. Without support, family farmers are increasingly unable to reach the productivity levels that are required to stay in business. As a consequence, they often increase the stocking rate in order to increase their income. This results in a higher pressure on natural resources and an increased vulnerability to climate change³³.

Vulnerability of the livestock sector. The impacts of climate change are already affecting the agricultural production systems in Uruguay. By the end of this century, climate change scenarios estimate an increase of the mean annual temperature by 2-3 °C and a 10-20% increase in the total annual precipitation, which can generally enhance plant productivity. However, these changes are likely to be associated with an increased climatic variability and more frequent and intense extreme weather events³⁴. Especially livestock farming systems that rely on rangelands as a main source of fodder are vulnerable to the adverse effects of climatic changes. A severe drought in 2008-2009 caused severe losses that are estimated at USD 886 million. 75% of the losses (USD 557 million) occurred in the livestock sector³⁵.

Institutional framework

28. Reflecting the importance of the livestock sector, there is a strong institutional network including the public sector, the public-private sector, the academia and civil society organizations. Figure 5 gives an overview of the relevant institutions.

29. In the public sector, the main institutions include the Ministry of Agriculture, Livestock and Fisheries (MGAP) which oversees implementation of the country's agricultural policy. Its relevant departments include units for policies and programmes (OPYPA), sustainability and climate change (UASCC), natural resources (DGRN) and rural development (DGDR). Furthermore, MGAP maintains a decentralized structure of rural development committees and hosts a Project Management Unit (UGP) specialized in the implementation of technical and financial cooperation projects. MGAP maintains extension services through different projects.

30. The Ministry of Housing, Territorial Planning and Environment (MVOTMA) is charged with implementation of Uruguay's policies on environmental protection as well as climate change mitigation and adaptation. MVOTMA is focal point for UNFCCC and UNCCD. Relevant units include the Division for Environment (DINAMA) as well as the National System to Respond to Climate Change and Variability (SNRCC).

31. The University of the Republic (UdelaR) is a public university which hosts the Faculty of Agronomy (FAGRO). FAGRO implements research and innovation projects for sustainable livestock systems through its experimental stations and regional center.

32. Further to the public sector, Uruguay has several public-private institutions dedicated to research, development, technology transfer and technical assistance in the agriculture and livestock sectors. These include the National Institute for Agricultural Research (INIA),

³³ *Id.*

³⁴ MVOTMA SNRCC, 2010.

³⁵ ARU, 2009.

Institute of Livestock Technology Transfer (IPA), National Meat Institute (INAC) and the Uruguayan Wool Secretariat (SUL).

33. At regional level, several farmers’ associations which support the development of their members through technical assistance, access to inputs and capacity building activities. These associations have a long tradition articulating farmers’ interests at national level through their federations. Important federations include the Uruguayan Federation of Regional Centres of Agricultural Experimentation (FUCREA), National Commission for Rural Development (CNFR) and the Uruguayan Association of Rangeland Farmers (AUGAP). Others are the Uruguayan Rural Federation (FRU), the Rural Association of Uruguay (ARU) and the Federated Agrarian Cooperatives (CAF).

34. The National Livestock Rangeland Board (MGCN) created by MGAP in 2012 with the purpose of harmonising cattle ranching with the conservation of resources, thus encouraging livestock management practices that promote both the conservation and efficient use of natural rangelands. The extended MGCN includes the abovementioned institutions. It has been designated as Advisory Board of the GEF project (see section 3, implementation arrangements).

35. For an in-depth description of institutional roles and mandates, please refer to Annex 11.

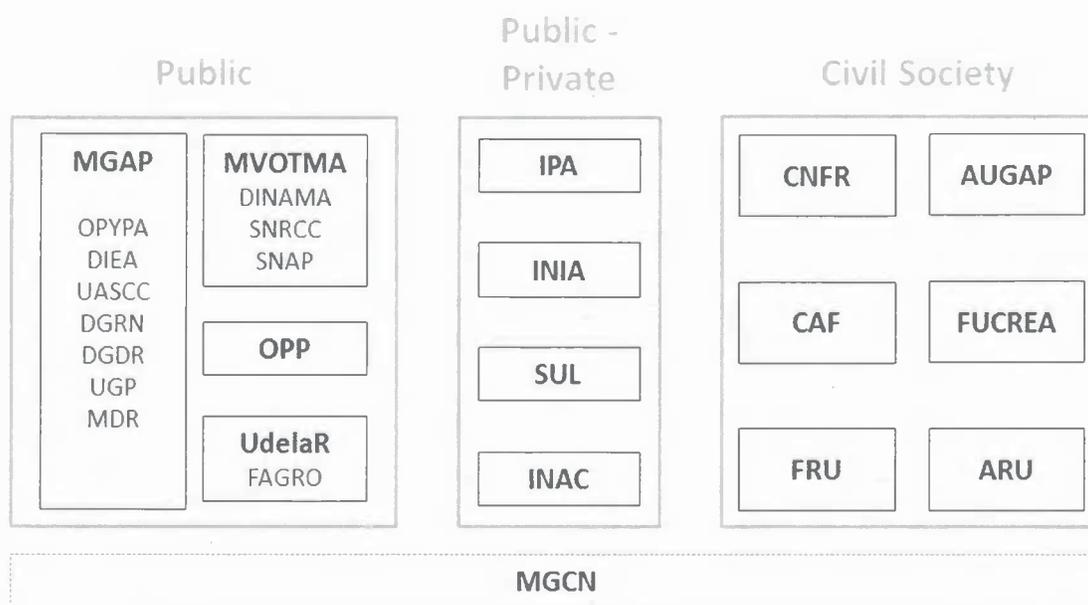


Figure 5: Map of actors in the livestock sector

Legal and political framework

36. Uruguay is a world leader on developing policies for sustainable agricultural and livestock development. The country has made a strong commitment in the NDC to curb GHG emissions of the livestock sector, by far the largest emitter (see section 1.2.1), and is actively pursuing the goal to reach the ambitious targets. The regulation on soil conservation in agriculture in the region also serves as a leading example for the region and beyond.

37. In 2015, MGAP defined five strategic goals for the agricultural policy of Uruguay³⁶:
- Promotion of competitiveness and participation in international markets
 - Sustainable intensification and care for the environment.
 - Adaptation of production systems to climate change.
 - Rural development: Competitive integration of family farms into value chains.
 - Institutional strengthening and coordination
38. The MGAP has worked on the strategic through the promotion of investments, innovation, and negotiations for market access. At the same time it promoted the control of the environmental effects that result from the intensification³⁷.
39. Uruguay has ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 and the Kyoto Protocol in 2000 (through Laws 16.517 and 17.279, respectively). Uruguay has submitted four National Communications to the Convention (1997, 1998, 2010 and 2016). In the regional context, Uruguay is an active member of the Southern Agricultural Council (CAS) and coordinates the Intergovernmental Working Group on Public Policies linked to Climate Change (WG4) and integrates the Cooperative Program for the Development of Agricultural Technology in the Southern Cone (PROCISUR). In this group, the aspects related to mitigation and adaptation to climate change have been included as priority topics of the regional work agenda.
40. Uruguay's international commitments to combatting climate change reverberate also in the country's national policies and programmes. As for the agricultural sector, some of the main actions of Uruguay in general and the MGAP, in particular, include:
41. National Plan for Adaptation to Climate Change and Variability for the Agricultural Sector (Plan Nacional de Adaptación al Cambio y Variabilidad Climática para el Sector Agropecuario – PNA-Agro) This Plan is funded by the German Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), with support from UNDP and FAO. The MGAP defined adaptation to climate change and variability as one of the priority policies of its management. Through strategic actions, efforts are made to reduce the vulnerabilities associated with food production and manage natural resources in a sustainable way.
42. PNA-Agro seeks to integrate adaptation actions and at the same time identify gaps in knowledge and capacities to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience. It also seeks to coherently integrate adaptation to climate change and variability into agricultural development policies and adaptation plans at the national level. The formulation phase of the PNA is expected to be completed in 2018, however, the plan is conceived as a continuous and iterative process that serves as a roadmap for guiding public policies in the medium and long term.
43. **Soil Use and Management Plans and Sustainable Milk Production Plans.** The Soil and Water Conservation Law 15.239 was passed in 1981 declares the use and conservation of agricultural soils as a national interest. As a consequence, the State is responsible to control

³⁶ Intensificación Sostenible. Uruguay Agointeligente Lineamientos Estratégicos 2015 – 2020. MGAP.

³⁷ 50 años de OPYPA El desarrollo agropecuario y agroindustrial de Uruguay. 2015.

and prevent soil erosion and degradation as well as inundations and sedimentation in water bodies. Within the MGAP, the DGRN oversees the implementation and approval of soil use and management plans (established in Decree 405/2008), which intend to promote soil conservation based on its productive capacity. Since 2013 it is mandatory for farmers who manage more than 50 hectares to submit soil use and management plans to the MGAP. In their plans, farmers determine with the assistance from technicians a crop sequence that ensures that erosion losses do not exceed a critical level.

44. **National Agricultural Information System (SNIA).** Since 2012, MGAP has been developing the National Agricultural Information System (SNIA) as a platform for the integration of information systems, containing climate information and data on natural and productive resources from different sources. The overall objective of SNIA is to provide information on the different productive systems and tools for the agricultural and fishery sectors at the national level. The platform is a useful tool for farmers, technicians, entrepreneurs and researchers and seeks to support decision-making, the implementation of public policies and the risk management of agricultural and fishery activity at the national level.

45. **National Policy on Climate Change (PNCC).** The PNCC, adopted in 2017, is a strategic and programmatic tool that provides the framework for Uruguay to face the challenges of climate change and variability for both, adaptation and mitigation, at the national and sub-national levels. This Policy foresees its development and implementation in the short, medium and long term, with the participation of different actors of society and with a time horizon towards the year 2050.

46. **Climate insurance plans** developed for horticulture, dairy and livestock breeding based on pilot rates and considering the size of farms.

47. **Agro-climate and Information System (GRAS),** which focuses on identifying and assessing the impact and vulnerability to climate change as well as on possible adaptation measures.

48. **Regulatory adjustments** that seek to reduce emissions and improve the use of agrochemicals, including product registration, remote monitoring of applications, recycling of packaging and the promotion of organic products.

49. **Policies aiming at sustainable intensification of the livestock sector** through actions expected to reduce methane and N₂O emissions by 33% and 31%, respectively, per kilogram of meat produced by 2030, compared to 1990 in accordance with the INDC.

1.1.2 Areas of intervention

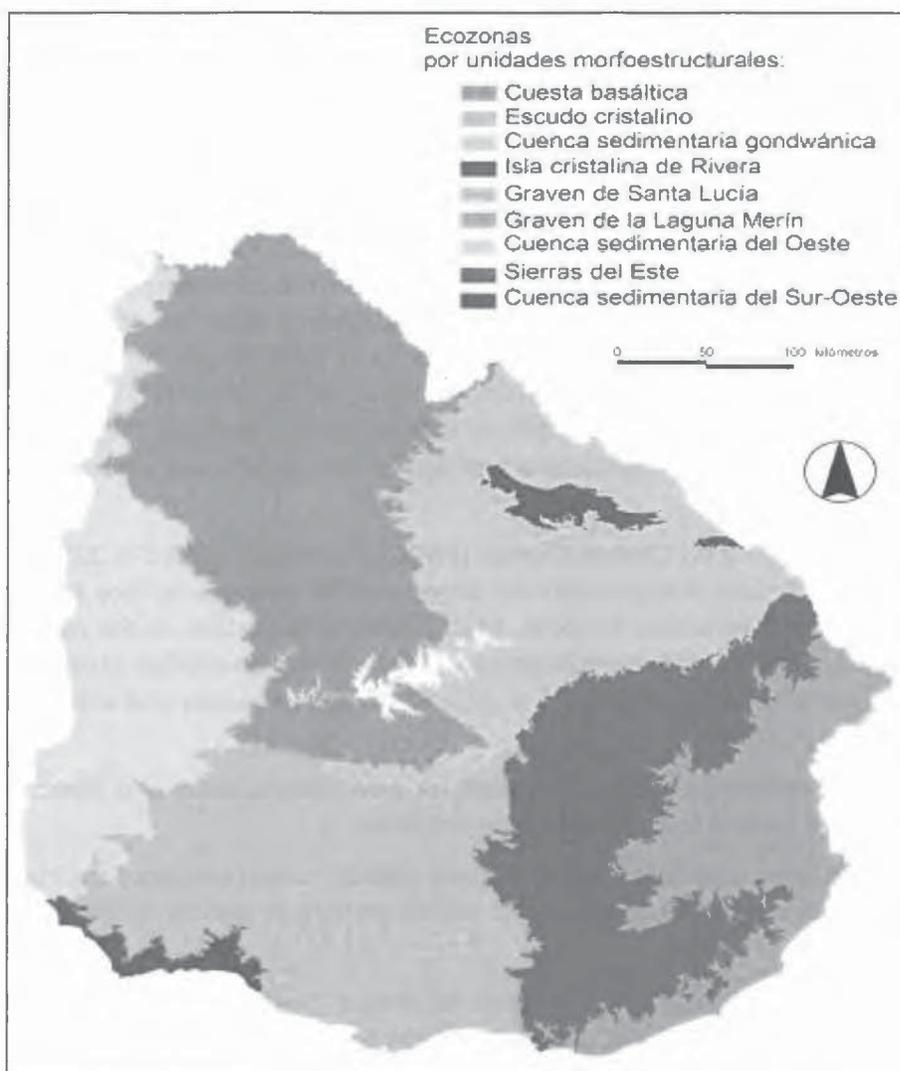


Figure 1: Ecoregions of Uruguay.

Source: Panario et al. (2011) in Brazeiro et al. (2012)

50. The focus of the project lies on livestock farming on natural rangelands, most of which are located in four of the seven Uruguayan ecoregions (see Figure 3):

- **Basalt region** (Fig. 3: “Cuesta basáltica”);
- **Gondwanic sedimentary basin** (Fig. 3: “Cuenca sedimentaria gondwanica”)
- **Eastern hills region** (Fig. 3: “Sierras del Este”);
- **Central crystalline region** (Fig. 3: “Escudo cristalino”)

51. According to the latest agricultural census (2011), the natural rangelands cover 10.518 million hectares, equivalent to 78% of the livestock production area and 64% of the total agricultural land. In these four ecoregions, there are 26,508 farmers, 18,008 (67,9%) of which

are engaged in livestock production. According to the current legislation, livestock farmers can be classified (see Table 2 below) into the following categories³⁸:

- 12,500 (representing 69.5% of all livestock farms in the four intervention areas) are **family farmers** (farm size up to 499 ha) who comprehensively manage a grassland area of 1.9 million ha (18.4% of all grassland in the four eco-regions) and have about 1.6 million animals, (21.2% of all cattle livestock of the four ecoregions). About 22.8 thousand persons work on these family farms, of which 19.1 thousand (84.1%) are family labour force.
- 3,300 (18.5% of all livestock farms in the four intervention areas) are **medium-sized farmers** (farm size 500 – 1,249 ha) who comprehensively manage 2.6 million ha (25.1%) of the livestock area and have about 1.9 million animals, which is equivalent to 26.3% of the total cattle livestock of the four areas. About 9,000 persons work on these medium-sized farms, 4,000 (45%) of them are family labour force.
- 2,100 (12% of all livestock farms in the four intervention areas) are **large-sized farmers** (farm size greater or equal to 1250 ha) who manage 5.9 million ha (56%) of the livestock area and have about 3.9 million animals, which is equivalent to 52% of the total cattle livestock of the four ecoregions. About 13,000 persons work on these large-sized farms, 2,000 (17%) of them is family labour force.

Table 2: Share of livestock farmers in the project’s area of intervention of the GEF project

Farm size	Number of livestock farms in Uruguay	%	Number of livestock farms in the four intervention areas	% of all farms of this size in Uruguay
up to 49 ha	7,920	26.65	3,398	42.90
50 to 199 ha	8,848	29.77	5,217	58.96
200 to 499 ha	5,682	19.12	3,900	68.64
500 to 1,249 ha	4,396	14.79	3,330	75.75
1,250 and more	2,877	9.68	2,163	75.18
Total	29,723	100.00	18,008	60.59

Source: Based on General Agricultural Census 2011.

52. The 12,500 family farms (<500 ha) in the intervention areas represent 56% of all family farms in Uruguay (22,500). Small farms are underrepresented (43%), while larger family farms are overrepresented (69%). Overall, however, the intervention areas offer a good base for upscaling and testing of the technical approach.

³⁸ Numbers according to the General Agricultural Census of 2011. For the calculations all producers with a herd of more than 10 cows have been considered.

53. **Basaltic region:** The basaltic region of Uruguay is the ecoregion with the highest total biodiversity (911 species). It is also the region with the highest share (> 80%) of natural rangelands in the country and is thus dominated by cattle grazing for meat and wool production. This ecoregion covers an area of 4,174,599 ha (25.5% of the agricultural area) with an altitudinal range of 20 to 400 m above sea level, made up of hills, plains and hillocks with superficial soils with rocky outcrops and associated deep soils. On the superficial soils open rangelands (with low vegetation cover) are dominant and on the rocky outcrops steppes of lotophytes, while dense pastures with high vegetation cover can be found on the middle and deep soils.

54. In the basaltic region, livestock farming for cattle and wool production is the most common farming type and extensive cattle breeding on natural rangelands (less than 10% of improved pastures) is widespread. This ecoregion counts with 4,604 farms, 97.1% of them (4,470 farms) are dedicated to livestock farming. Among livestock farms, 2,466 (55.2%) are family farmers, 1,095 (24.5%) of medium-sized producers and 909 (20.3%) are large producers. Farms in the basaltic region have the lowest relative proportion of family labor force (44.76%), observing that this proportion increases as the size of the farms increases.

55. The region is characterized by the predominance of extensive livestock production systems, with low levels of productivity and investment, and where cattle and sheep graze together freely throughout the year. The systems are primarily based on natural rangelands and highly dependent on climatic conditions. Seasonal variation, quantitative and qualitative productivity of natural pastures, alongside with the low percentage of improved pastures and other technologies, partially explain the low production and economic result of extensive production systems. These characteristics of low economic benefit and investment are also associated with the poorly paid work and economic and financial problems of small and medium farmers, which is why this area is one of the most abandoned in the country and with the lowest level of infrastructure and social services³⁹. In the last decade, crop agriculture has been increasing rapidly in the basaltic region, especially in the zones with deep soils, which is competing with livestock farming for land.

56. **Gondwanic sedimentary basin:** This region is the second largest ecoregion with more than 3 million hectares (19.9% of the total agricultural area). It has the second highest total biodiversity in the country (854 species) and is characterized by a high share of natural rangelands (about 80%). The gondwanic sedimentary basin can be divided into two different agoreocological zones: In the Northern Sandstone Zone the soils are predominantly sandy and the landscape is characterized by rolling hills with deep soils and a low fertility. In this zone there are currently 4,702 farms, 52.4% (2,465) of them are dedicated to livestock farming. Among livestock farms, 1,796 (72.8%) are family farmers, 390 (15.8%) are medium-sized farms, and 279 (11.3%) are large farms. In 2001, natural rangelands covered 79% and the improved or seeded pastures accounted for 8% of the area. The production of rangelands in terms of dry matter is high, mainly in spring and summer, but of low quality. Therefore, the reproductive and productive indicators of cattle and sheep are low, indicating low efficiency and performance of these productive systems. Extensive cattle breeding have historically characterized the area. However, major changes have occurred in the last two decades due to the rapid increase in forest plantations, which has changed the character of this area to a

³⁹ FAO 2003

highly forested landscape. The importance of this area lies in that it is a recharge zone of the Guaraní Aquifer.

57. The other agro-ecological zone in the Gondwanic basin is the Northwestern Sediment Zone, characterized by the high heterogeneity of soil properties such as texture, fertility and depth, together with rolling hills and plains in the upper Rio Negro basin as the dominant landscape features (FAO, 2003, Franco, 2016). In this agro-ecological region there are 4,471 farms, 2,418 (54%) of them are dedicated to livestock farming. Among livestock farms 1,712 (70.8%) are family farmers, 418 (17.3%) medium-sized farms and 288 (11.9%) large farms. It is the agro-ecological zone with the third lowest relative proportion of family labor (53.91%). This zone is historically characterized by extensive livestock farming. However, soils in the Northwest have a high potential for increasing productivity and are suitable for the cultivation of winter and summer crops as well as seeded pastures.

58. **Eastern hills:** This ecoregion with more than 2.6 million hectares (16.11% of the total agricultural area) has an altitudinal range of 0 to 500 m above sea level and an intermediate level of biodiversity (744 species). 70 - 80% of the area is covered with natural rangelands. There are 8,855 farms in this region and 5,646 farms (64%) are dedicated to livestock farming. 79% (4,464) of the livestock farms are family farms, 822 (14.6%) are medium-sized farms and 360 (6.4%) are large farms. With 67.81% of family labor force, this share is the highest compared to the other ecoregions. In this region, two different landscape and soil types can be distinguished: rocky and non-rocky hills. The first one is very heterogeneous, the proportion of rocky area varies between 5% and up to 100% in small patches and slopes range from moderate to steep. In the non-rocky hills, the share of rocky soil does not exceed 5%. The soils are mainly superficial or medium and of low fertility.

59. These characteristics and the native shrubs and small trees make it difficult to subdivide large paddocks by fencing and thus impede an intensive management of improved rangelands and animals. Due to the high share of natural rangelands the livestock farming systems are extensively managed. In recent years the afforested area increased considerably in this region⁴⁰.

60. **Central crystalline region:** This ecoregion comprises an area of more than 2.7 million hectares (16.8% of the total agricultural area) with an intermediate level of biodiversity (727 species) and coverage of natural rangelands between 60 and 80%. There are 3,875 farms in this region and 3,009 farms (77.7%) are dedicated to livestock farming. 69% (2,077) of the livestock farms are family farms, 605 (20.1%) are medium-sized farms and 327 (10.9%) are large farms. In this region the relative share of family labor force is 51.65%, with a considerably increasing share of salaried workforce on farms with more than 200 ha. The landscapes in this zone are characterized by moderate hills with medium and deep soils (high to very high soil fertility) that are suitable for cattle grazing as well as crop cultivation. In the southern zone of this ecoregion, where the soil fertility is higher, the land is mainly used for dairy production and crop agriculture while the northern region is historically dominated by extensive livestock production systems. However, over the last decades the area under crop agriculture increased and led to a displacement of the historical farming sectors.

⁴⁰ FAO, 2013; Franco, 2016.

61. In the four areas of intervention, especially the large number of family and medium-sized farms rely on rangelands or natural pastures⁴¹ as a main resource for livestock production and they achieve only low levels of production and income. They are easily plunged in a spiral of unsustainability and very vulnerable to climate variability and change⁴² One of the main problems explaining the low levels of production is the imbalance between the animals' forage requirements and the rangelands' primary production, which leads to a low level of energy consumption throughout the production cycle⁴³. This imbalance between primary production and forage requirements can result from an inappropriate grazing intensity⁴⁴ and / or a lack of herd management⁴⁵.

1.2 THE CURRENT SITUATION

62. Currently, the main problem of cattle ranching in Uruguay is related to the poor meat productivity, particularly on small and medium size family farms. Large tracts of land are occupied, the pastures and rangelands are poorly exploited and overgrazed, and as a result GHG emissions per unit of meat produced are very high. Land degradation and biodiversity loss also occur.

63. This issue is rooted in past incentives and practices. Until recently, high inflation coupled with low land prices provided an incentive for *rangelands* farmers to keep large herds and to invest little in managing herd numbers. The resulting grazing pressure on the land was high (cf. Annex 8).

64. Despite the fact that inflation has been under control in more recent years, and the fact that land prices have increased very rapidly⁴⁶ in recent years, the mind-set to have 'as large an herd as possible' and avoid investing in improved technology still persists amongst small and medium farmers. As a result, the productivity of livestock raising in Uruguay is significantly lower than observed among other major beef exporters (cf. Annex 8).

65. Overall economic productivity per hectare in small farms is low, with average annual income per hectare in the range USD-7 to +36⁴⁷ The factors causing low productivity are most notable on small and family farms, which typically have lower rates of adopting new technologies, and also on medium sized farms. This is partly a result of dramatic changes in the scale and cost of production over the past years in Uruguay. Increasing production costs have squeezed margins and farm profitability, therefore making the management of small farms more economically challenging. In this context of economic stress, most small farmers have responded by attempting to *further* expand the herd size without concomitant efficiency gains. This ultimately further reduces productivity per livestock unit (or per hectare).

⁴¹ However, most farms will have a small area, around 5-10 hectares, of rangeland with some improvements in terms of seeding or nutrition or fodder species. Mostly, this means at some time some improvement was made, but there is no regular rangelands improvement programme.

⁴² Nabinger et al., 2011; García et al., 2011; Soca et al, 2007; Ruggia et al., 2015.

⁴³ Soca and Orcasberro, 1992; Soca et al., 2014; Scarlato et al., 2014.

⁴⁴ Soca et al., 2014.

⁴⁵ Soca and Orcasberro, 1992.

⁴⁶ Due mostly to the opportunity to convert land to soya bean production

⁴⁷ Adaptation Fund Project "Building resilience to climate change in vulnerable smallholders" 2011, page 16.

1.2.1 Threats to Global Environmental Benefits

66. **GHG emissions.** The agriculture (including livestock and forestry) sector accounts for 73.8% of national GHG emissions in Uruguay (expressed in CO_{2e}) according to the PCA accounting method. The livestock sector is responsible for more than 86.7% of total methane emissions and 93% of the agriculture sector emissions.⁴⁸ The main pathways in Uruguay for the livestock sector to contribute to GHG emissions are as follows:⁴⁹

67. Livestock contributes 692.7 Gg of enteric methane. The large 'breeding overhead', the high stocking rates, the slow growth and poor diets mean that these emissions, both per animal and per hectare, are very high by global standards;

68. Animal manure contributes with 2% of the national total of methane emissions and with 47% of the N₂O emissions of the agriculture sector. The national emissions of methane were 799 Gg in 2012, and the N₂O emissions were estimated 46 Gg, 98.4% corresponding to the agriculture sector. This can be reduced through improved feeding, improved animal management (reducing the 'over-breed'), and improved manure management. Again, large decreases in the GHG emitted *per unit of economic production* are possible;

69. Reduced CO₂ sequestration by land. Healthy rangelands are a natural carbon sink and globally the organic matter in rangelands is a major reservoir of carbon.⁵⁰ Uruguay's millions of hectares of natural rangelands therefore make an important contribution to reducing atmospheric CO₂ levels. However, as the land is degraded, it releases carbon and the degraded land is less able to sequester carbon. The high stocking rates are the main cause of this land degradation.

70. Currently, the inefficient systems lead to high CO_{2e} emissions per unit of production. The factors negatively affecting GHG emissions are more significant in the small and medium-sized farms that have not been able to adopt improved practices and technologies.

71. **Land degradation:** Unsustainable management of cattle production over large rangelands areas has led to ongoing land degradation. Traditionally, herd management ignored the impact of animals on the vegetation, soil or land. Continuous stocking, high stocking rates and high cattle-to-sheep ratios has led to compaction, loss of fertility, erosion and loss of some native species. It also causes losses of soil organic matter and thereby the release of CO₂ in the atmosphere. One indicator of this degradation is the increase of forbs and stoloniferous grasses (that are better adapted to such grazing conditions) and the reduced frequency of bunch grasses, as well as a reduction in the number of species present. Such changes in botanical composition have been observed to result in a 12% reduction in annual forage production.⁵¹

⁴⁸ "Uruguay's Fourth National Communication to the UNFCCC". Uruguay, 2016.

⁴⁹ Ibid.

⁵⁰ Historically, attention on soil organic matter (SOM) focused on the central role that it plays in ecosystem fertility and other relevant soil properties. In the last 20 years the role of carbon sinks and soil organic carbon in the mitigation strategies has emerged as a critical research area and the ecosystem services related to the carbon cycle are seen as a huge potential. Rangelands have a particular interest as potential C sinks. Natural organic matter in soils is the largest carbon reservoir in rapid exchange with atmospheric CO₂, and is thus important as a potential source and sink of greenhouse gases over time scales of human concern (Fischlin and Gyalistras, 1997).

⁵¹ FAO, 2006 (ibid).

72. In quantitative terms, 30.1% (almost 5 million ha) of the pasture land is considered degraded, and 400,000 ha are considered severely degraded.⁵² Although the rates of land and pasture degradation could be reduced in the last 25 years, many of the activities that make up the current production systems present new environmental challenges that need to be addressed within a context of sustainable development.

73. Importantly, land degradation and the related loss of pasture productivity and nutritional quality causes productivity losses in animal production. The productivity loss over the past decade was of ca. 20 to 25%. This has not only eroded farmers' income but also contributed to higher GHG emissions per unit of product, given the inverse relationship between herd productivity and GHG emission intensity (FAO, 2013).

74. **Biodiversity.** Natural rangelands cover more than 70% of Uruguay. This is a significant portion of one of the last extensive temperate rangeland ecoregions in South America. To date, in Uruguay, 2,750 higher plant species have been registered in 140 families, and more than 553 species of grasses (native and naturalized). Uruguay is one of the richest areas in Gramineae worldwide. The above-mentioned land degradation on rangelands is directly contributing to the loss and reduction of this globally significant biodiversity.

75. **Climate and economic vulnerability.** Finally, the small farms and *rangelands* in Uruguay are highly vulnerable to climate variability and change. Nationally, droughts and floods already severely affect the livestock sector. For example, in 2008-2009, droughts caused an estimated USD 400 million of on-farm losses.⁵³ Climate change is expected to further affect livestock production and productivity, through reduced water availability, increased heat stress and reduced feed and fodder quality and availability. This also undermines ecosystem health and integrity. Since livestock production is an important part of many farmers' livelihoods, climate change poses a risk to the sustainability of farmers, in particular to smaller ones.

76. To conclude, small and medium size cattle farms across Uruguay with mainly cattle mixed with sheep livestock systems, are caught in a downward spiral of old technology and inappropriate practices on predominantly natural rangelands. This yields little economic benefit, it causes land degradation including biodiversity loss, and it is contributing significantly to GHG emissions – as well as missing important opportunities to sequester GHGs.⁵⁴ This is a 'triple-lose' scenario. In the baseline, given the current context of rising land prices, it is likely that farmers will continue to intensify production and exacerbate the problems.

1.2.2 Baseline initiatives

77. The Government is committed to addressing livestock sector challenges through a holistic approach that addresses food security, economic competitiveness, sustainable land management, climate change adaptation and mitigation. The approach focuses on sustainably

⁵² FAO, 2006 (ibid).

⁵³ Paolino, Carlos. OPYPA Yearbook, 2010.

⁵⁴ Note, 'big' or large scale farmers are responsible for a significant portion of livestock production. It is the intention of the project to produce information that is also useful for them, and that could be deployed in the scaling up phase.

increasing productivity and efficiency. The GEF project builds on the experience and lessons of past projects, and is closely aligned with ongoing initiatives.

78. MGAP has been implementing several large projects on sustainable livestock through its UGP, and in cooperation with partners (IPA, INIA) in recent years, with funding and technical assistance from the World Bank, IDB, and New Zealand. Currently, MGAP is implementing the Sustainable Management of Natural Resources and Climate Change (DACC-2) project, which will support 5,000 family and medium livestock farmers in the transition to climate smart livestock management, focusing on improving resilience to climate-related shocks. DACC-2 will provide the main basis for scaling up and replication, as well as co-financing for the field activities of the GEF project.

79. MVOTMA, through DINAMA, is implementing several initiatives to strengthen the institutional framework on climate change adaptation and mitigation, with support from BID, GEF, and FAO. MVOTMA is also executing initiatives to better understand the dynamics of rangeland ecosystems and to improve rangeland management in buffer zones of protected areas.

80. INIA is undertaking applied research and providing training and support to farmers. This includes work on GHG emissions from cattle and the impact of rangeland management practices and co-innovation processes on productivity, income and sustainability.

81. Farmer organizations and farmer groups such as FUCREA and CNFR provide networks of support and technical guidance to farmers, and are a platform for providing extension services. FUCREA combines 28 farmer groups, 19 of them are livestock groups. CNFR includes 49 small-scale farmers' organizations in areas of extensive cattle and sheep production. These organizations gather and represent more than 9,000 cattle and sheep farmers, mostly small-scale/family farmers.

82. The Faculty of Agronomy of the National University (FAGRO), undertakes dedicated research on sustainable natural rangeland production systems and provides training and support to farmers.

83. The following table gives a detailed overview of past and ongoing initiatives which constitute the baseline of the project, and identifies synergies with and contributions to the present project. Some of these projects constitute co-financing of the project (see sections 1.3 and 3.3)

Table 3: Baseline and co-financing initiatives

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
Sustainable Management of Natural Resources and Climate Change (Desarrollo y Adaptación al Cambio Climático – DACC) MGAP	2012–2017 (DACC) 2018–2022 (DACC-2) Government of Uruguay (USD 6 million) World Bank loan (USD 49 million)	<p>The general objective of the DACC Project is to: support rural producers to develop a sustainable use of natural resources by generating greater adaptation to variability and climate change, promoting a modernization of MGAP management in area of information and services related to climate and natural resources.</p> <p>The DACC-2 will prioritise the following investments: (i) improving water management with the objective of improving the quantity and quality of water available for production and as a tool to reduce the vulnerability of production systems to variability and CC; (ii) the sustainable intensification of extensive livestock production, particularly of family and middle-income producers, as a way to improve the economic, environmental and social sustainability of the most vulnerable productive systems; and (iii) the sustainable management of biodiversity, with emphasis on the promotion of technologies to increase the productivity of the natural field in a sustainable manner, impacting on an eco-system that occupies about 10 million ha.</p> <p>DACC 2 will provide on-farm investments, technical assistance and training to some 2,500 family producers, some 500 medium-sized producers and more than 2000 producers through direct support to 40 producer organizations (an average of 50 producers per organization).</p>	<p>DACC-2 will provide the main cofinancing of component 2 of the GEF Project. It will provide support to the necessary investments at farm level, promoting the institutionalization of the CSLM strategy in the ecoregions, support for training activities for extension workers, and the production of materials for project dissemination. Through a joint implementation modality (see section 1.2.2), it will provide the basis for scaling up the GEF CSLM strategy to the farms under the DACC-2 project. It is expected that at least 650 farms covering 400,000 ha supported by the DACC-2 can thus indirectly benefit from the GEF project.</p> <p>It will contribute to the capacity building activities (outcome 1.2) as well as the farm-level strategies and extension and monitoring activities (outcome 2.1)</p>
Building Resilience to Climate Change and Variability in Vulnerable	2015-2018 USD 9.97 million	<p>The overall objective is 'to contribute to building national capacity to adapt to CC and variability focusing on critical sectors for the national economy, employment and exports'.</p>	<p>This project focuses on supporting livestock smallholders in two agro-ecological regions, the Basaltic Region and the East Hills, which are also areas of intervention of the proposed Project.</p>

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
<p>Smallholders (<i>Ganaderos Familiares y Cambio Climático</i> – GFCC) MGAP</p>		<p>The specific objectives include: (a) Reducing vulnerability and building resilience to climate change and variability in small farms engaged in livestock production (mainly rearing and complete closed cycle) located in extremely drought-sensitive Landscape Units of the Basaltic Cuesta and East Hills eco-regions; (b) Strengthening local institutional networks at the selected LU level targeting climate change adaptation (prevention) and response to extreme events (emergency) in highly drought-sensitive areas, and (c) Developing mechanisms for a better understanding and monitoring of the impacts and variability of CC, anticipating and assessing negative events and eliciting lessons learned and identifying and validating best practices and toolkits for adapting to increasing variability of CC.</p>	<p>The focus of the project is on adaptation to climate change, and the associated technological, institutional and information needs. It does not address GHG emissions or land degradation. As such, it is very complementary to the proposed Project.</p>
<p>Rural Development Program MGAP</p>	<p>2012 - 2017 Government of Uruguay (USD 3.6 million) IDB (USD 28.4 million)</p>	<p>The program's goal is to improve the income of small and medium agricultural producers. It seeks to increase their productivity through the adoption of new technologies. The program focuses on the following investment areas: (a) Production support; and (b) Institutional strengthening of the DGDR.</p>	<p>The project's experiences with the adoption of technologies contribute to Component 2 of the proposed Project.</p>
<p>Integrated Natural Resources and Biodiversity Management Project (Programa de Producción Responsable – PPR) MGAP</p>	<p>2005 - 2012 World Bank (USD 30 million), GEF Government of Uruguay (USD 4.6 million)</p>	<p>Objective of the project was to improve the management of biodiversity and natural resources and provide supporting services that included institutional strengthening, capacity building and communication.</p>	<p>The project targeted small and medium-sized farmers. It provided financial and technical assistance for improving natural resources management practices in livestock production systems, with special reference to improved management of natural pastures and biodiversity. The experience could therefore be relevant for Component 2 of the proposed project.</p>

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
Uruguay Family Farm Improvement Project (UFFIP) INIA, IPA	Beneficiaries contribution (USD 6 million) 2014-2017 USD 4,2 million by the Government of New Zealand	The focus of the project is on increasing profitability and resilience, specifically on monitoring economic variables, management systems and the adoption of good practices. The implementing entities work with small rangeland-based cattle farms and pursue a peer-to-peer learning approach.	The experiences from the UFFIP project can be valuable for the capacity development program of the proposed project (Output 2.1.2)
Landscapes and the National System of Protected Areas (SNAP) MVOTMA	2014-2019	The project aims to incorporate the landscape approach in the management of the National System of Protected Areas (SNAP). The project contributes to the development of planning and management modalities that allow the integration of protected areas with the surrounding landscapes, harmonizing their management with the surrounding productive activities, improving their connectivity and generating corridors between the core areas of protected areas and the remnants of natural ecosystems in buffer zones. The project is implemented in three areas on 789,119 hectares.	The project has generated information on rangeland ecosystems that can be an important reference for the information system (output 2.1.3)
Value Chains and Governance - FFEM MVOTMA	2017 -2020	The project is has three main objectives: 1) Formulate a strategy for the sustainable development of the selected value chains in protected areas and their territorial environments, taking into account the conservation of biodiversity and cultural heritage. 2) To strengthen governance and contribute, through the sustainable development of the selected value chains, to the improvement of living conditions in protected areas and their	Livestock has been selected as on of the value chains due to its importance in all three pilot areas. In all, will work with 950 family farms in the pilot areas) Synergies will be sought between the FFEM and GEF project to up-scale the CSLM approach. In turn, the FFEM project can yield important lessons on value chain insertion, contributing to the CSLM strategy development (output 1.1.1)

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
Climate and Clean air Coalition Reducing enteric methane for food security and livelihoods FAO - MGAP	2017-2018	<p>environment, in pilot sites.</p> <p>3) Capitalize and communicate the results, and promote peer learning in the region and in the framework of north-south cooperation with Mozambique.</p> <p>The specific aim of the project, implemented globally, with focus on Uruguay, Ethiopia and Bangladesh is to 'mainstream' enteric methane mitigation into a broad range of livestock sector investments and policies.</p>	<p>The CCAC funded activity will fund the detailed monitoring and evaluation of enteric methane emission reduction on the 60 farms selected for project implementation. It will further support the national capacity to address the issue of short lived pollutants, including enteric methane.</p>
Strengthening of the National Environmental Authority and environmental management BID (Proyecto URU/14/001) MVOTMA	2014-2019	<p>The overall objective of the project is to support the development of environmental management in Uruguay by increasing the efficiency and effectiveness of environmental management of MVOTMA.</p> <p>It focuses on two components: 1. Optimization of the environmental management: evaluation of impacts, control and performance, and evaluation of the environmental quality; and 2. Integration of the environmental management in the territory and of the hydrographic basins.</p>	<p>The project's technical team can collaborate in the definition of livestock practices to promote, and in the validation of the on-farm monitoring and MRV systems (outputs 2.1.3 and 1.1.2). On the other hand, the information and monitoring system generated by the GEF project will serve to strengthen the environmental management capacities of DINAMA.</p>
Participatory analysis of land degradation and sustainable land management in pasture and grazing systems. GEF (Proyecto FAO - GCP GLO 530)	2017-2020	<p>The global project is implemented in Africa (Niger, Burkina Faso and Kenya), Asia (Kyrgyzstan), and Latin America (Uruguay).</p> <p>The objective of the project is to strengthen the capacity of local and national stakeholders in rangelands and grazing areas to assess land degradation and make concrete decisions that promote land tenure management in a way</p>	<p>The project will generate information which will provide input to the national CSLM strategy (output 1.1.1) and fine-tune farm-level activities to halt land degradation (output 2.1.1).</p>

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
DINAMA/MVOTMA and DGRN/MGAP		that preserves the various services of the rangeland ecosystem. In Uruguay, the target zones will be in the same zones as the "landscape and SNAP" project.	
Integration of the agricultural sector into National Adaptation Plans (UNFA/GLO/616/UND) FAO Uruguay		The objective of the global project project is to advance in the integration of the risks and opportunities to the agricultural sector associated with climate change in sectoral planning and budgeting processes at national level	Synergies will be generated on capacity building in institutions related to national adaptation plans, development of roadmaps and strategies (output 1.2.1)
Natural Rangelands Project INIA	2017 – 2022 USD 400,000 (directo) USD 400,000 (scholarships)	Objective of this project is to develop tools to help make management decisions for sustainable livestock production on natural rangelands.	The project contributes methodological tools for the implementation of CSLM strategies on farm level (output 2.1.1) , farm-level monitoring system (output 2.1.3 as well as manuals and multimedia products for farmers and extensionists (output 3.1.1
Genetic Improvement of Pastures Project INIA	2017 – 2022 USD 400,000 (directo) USD 400,000 (scholarships)	Objective of this project is to cross and validate new varieties of forage grasses and legume species with greater persistence and nutritive value without compromising productivity	The project will contribute to implementation of farm-level CSLM strategies (output 2.1.1) by providing options for improved pasture that can be introduced to restore degraded natural rangelands.
Extensive Livestock Project INIA	2018 – 2022 USD 400,000 (directo) USD 400,000 (scholarships)	Objective of this project is to develop animal production systems integrating various intensification options to increase the production of meat and wool and reduce the intensity of greenhouse gas emissions.	The project contributes methodological tools for the implementation of CSLM strategies on farm level (output 2.1.1) , farm-level monitoring system (output 2.1.3 as well as manuals and multimedia products for farmers and extensionists (output 3.1.1)

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
Greenhouse gas emissions and carbón sequestration project INIA	2018-2022	Objective of this project is to quantify local methane and nitrous oxide emission factors and to determine carbon sequestration rates for different options for intensifying animal and plant production	The project contributes methodological tools for the development of farm-level monitoring system (output 2.1.3).
Innovation Platform to Improve the Management of Natural Rangelands and Sustainability of Livestock Systems in Uruguay and Argentina (FONTAGRO) FAGRO/UEDELAR – INIA and INTA Argentina		Objective of this project is to generate information on the production of grazing land and the sustainability of livestock systems in Uruguay and Argentina. Focusing on the Rio de la Plata region. Also it will to develop and evaluate indicators of environmental impact of livestock.	The project contributes methodological tools for the development of farm-level monitoring system (output 2.1.3).
Reseach Group Livestock Rearing on Natural Rangelands (CSIC-Udear) FAGRO/UEDELAR		This group develops research activities in several components of the pasture-animal system and in animal behavior in grazing, providing quantitative analytical information.	The project contributes information and analysis for the implementation of CSLM strategies on farm level (output 2.1.1) , and farm-level monitoring system (output 2.1.3)
Co-innovation in livestock and vegetable production on family farms (FPTA 290) FAGRO/UNDELAR - INIA		This project investigates the methodology of co-innovation applied in family and medium-size farms to improve the innovation in agricultural production systems	The project contributes methodologies for the capacity development activities for farmers and extensionists (output 1.2.2 and 2.1.2) well as manuals and multimedia products for farmers and extensionists (output 3.1.1)
Co-innovation + Technologies + Strategies: Inter-	Approved in 2015	This project aims to contribute to the improve planning and productivity of family farming systems in the South of the Department of Tacuarembó. The work will focus on the choice	The project contributes methodologies for the capacity development activities for farmers and extensionists

Project title / Institution	Implementation Period / Budget	Description	Relevance for the proposed project
<p>institutional work with Livestock Producers of the South of Tacuarembó to improve the socio-productive results of their properties (FPTA 348)</p> <p>UDELAR- FAGRO- FCien, IPA, SA Rural de Paso de los Toros.</p>		<p>of a group of "change producers" who do not employ clear planning strategies on their farms. A co-innovation approach will be used where producers, technicians and researchers discuss and contribute to generate a viable proposal for the family system, and compared to other extension approaches.</p>	<p>(output 1.2.2 and 2.1.2) well as manuals and multimedia products for farmers and extensionists (output 3.1.1)</p>

1.2.3 Remaining barriers

84. The above baseline initiatives are closely related to the present proposed project, both in terms of beneficiaries (i.e. the small and family farmers) and geographical coverage. They adopt a range of strategies in order to support the project targets. However, none of the projects include a comprehensive focus on the livestock sector and its interface with climate change, biodiversity and land degradation to propose both coherent policy frameworks, reporting tools, and validated practices at farm level.

85. In spite of the array of baseline projects, the vast majority of small-scale farmers continues to practice livestock management approaches that do not generate good economic returns, that lead to unnecessarily high GHG emissions, and that continue to degrade the land including decreasing carbon stocks and biodiversity loss.

86. A number of barriers stop small farmers and many medium sized farmers from adopting climate smart practices and technologies. These are:

87. **(1) Lack of awareness of low-cost sustainable alternatives to current management practices.** Although national government officials and experts understand that the current situation is a “triple lose”, local extension workers and farmers are not aware that low-cost alternatives exist and that the benefits of these alternatives are high, especially for small and middle size farms.

88. **(2) High perceived risk of new technologies and practices on part of the farmers.** The small farmers predominantly believe that the best way to minimize risk is to maximize the number of livestock. Further, small farmers are generally risk averse – hence, they are slow and reluctant to adopt new technologies or practices. This perceived risk is in part based on past issues with the adoption of novel practices. In the 1980s and 90s, the substitution of natural rangelands by improved pasture was advocated as an option to increase productivity on livestock farms. Many farmers took up loans to invest in improvement of pasture, but due to the economic situation (high inflation and low prices for land) had problems re-paying their debt.

89. **(3) Inadequate incentives and technical assistance to guide the transition to CSLM.** One reason for the lack of awareness and high perceived risk is the insufficient system of extension and technical assistance, especially for small and medium farmers. No programme offers long-term technical assistance to farmers to accompany the transition to sustainable production systems farmers based on the individual characteristics of the farm. There are little training and supervision opportunities for extensionists to update their knowledge.

90. **(4) Lack of an interinstitutional strategy on CSLM.** Despite high-level knowledge and understanding of the current productivity and climate change issues, in the public sector, academia and farmers’ organization, there are no national programs, plans or regulations to coordinate and promote the introduction and dissemination of CSLM. There is no agreement among the key actors on common criteria to define CSLM in the Uruguayan context, as well as a strategy to promote the adoption of climate-smart approaches of livestock management on natural rangelands. Likewise, there are no significant national budget allocations to these issues.

91. **(5) Lack of scientific knowledge and data on CSLM practices and its impacts on GHG emissions, soil conservation, and biodiversity.** Although the general processes linking livestock management, GHG emissions and land degradation are understood, the details of

the interactions are not well known, neither quantified. There is no primary data on (i) how different livestock management systems affect GHG emissions nor (ii) how different livestock management systems affect soil fertility, erosion and biodiversity. This lack of detailed data is a barrier to improving CSLM approaches and securing private or donor funding to new technologies and practices.

1.3 THE GEF ALTERNATIVE

1.3.1 Project strategy

92. The alternative scenario involves the development, introduction and upscaling of climate smart livestock management (CSLM) on small and some medium-sized farms based on extensive systems on natural rangelands. This will lead to fewer GHG emissions, reversal of land degradation and restoration of land and the decreased economic vulnerability of farmers (cf. Annex 8 for an overall introduction to the proposed farming system shift).

93. According to FAO⁵⁵, CSLM is based on two basic principles: (i) increased efficiency in the use of resources, and (ii) increased resilience and risk management at farm and systemic levels. Through the application of these principles, CSLM contributes to improved productivity and climate change mitigation; as well as to national food security and broader development goals. Research and experience in Uruguay (see section 1.2.1, baseline) suggests that there are many low cost, high impact, simple to implement technologies and practices that can lead to CSLM. Typical examples of measures which allow increased productivity while lowering GHG emissions and land degradation are provided in Annex 8.

94. The project will adopt the co-innovation approach which has been successfully proposed and applied in Uruguay in participatory processes of innovation of family production systems in horticultural, horticultural-livestock and livestock systems.⁵⁶ The co-innovation approach combines three fundamental elements i) A systems approach, ii) social learning, and iii) dynamic project monitoring. The interaction between these three domains constitutes the definition of 'co-innovation' that will be applied to the development of climate-smart livestock in small- and medium scale family farms in Uruguay.⁵⁷

⁵⁵ "Climate-smart Agriculture Sourcebook". FAO, 2013.

⁵⁶ Rossi et al., 2010; Dogliotti et al., 2004; Albicette et al., 2017

⁵⁷ Co-innovation is based on a vision of the farm as a complex adaptive system. It is a new way to operationalize technological change. The sustainability of family farms cannot be improved by adjusting or modifying isolated components of the system but requires adjustment of the production system as a whole. This in turn implies changes in the knowledge, attitudes, abilities and aspirations (of the people involved in the decision-making process. In this new paradigm changes in agricultural practices and in the organization of systems towards situations of greater sustainability (socio-economic and environmental) are seen as a result of a collective learning process called "co-innovation" (Botha et al. al., 2016; Coutts et al., 2016). The active participation of producers in the process of identifying problems and alternatives for improvement is considered fundamental to achieve the desired impacts.

MGAP's policy embraces the co-innovation approach as a comprehensive method for working with farmers and promote innovation. It covers the technological aspects but also the human relations and social aspects of innovation. The approach has been proven useful in Uruguay both in horticulture and livestock farmers, including small farms

95. The project strategy to mainstream CSLM into the livestock sector in Uruguay is based on 3 main pillars:

96. **Piloting, learning and building capacity at the local level:** The Project will work with 60 selected small, and medium farmers at key sites in four pilot regions with high concentration of livestock production based on natural rangelands across Uruguay (see section 1.2.1). Through a consultative co-innovation process with the farmers, the Project will support the adaptation and implementation of the technologies and practices, leading to the economic and environmental gains. The 60 reference farmers will adopt integrated pasture and livestock management approaches rather than focussing uniquely on 'animal management'. The results of the implementation of these technologies and practices will be monitored and evaluated in detail, against a range of economic and environmental criteria. Adoption rates, pathways of incremental changes in production practices and related constraints will be assessed with particular care to generate information and lessons learned in view of upscaling.

97. **Replication strategy at national level: from demonstrating effectiveness to achieving impact at scale.** The project will achieve impact at scale through the replication of CSLM over a larger proportion of farms including small, middle and large production units. The fact that the adoption of CSLM practices increases the profitability of farms is at the core of this strategy (cf. economic analysis presented in Annex 8). First, the project will build the groundwork to mainstream CSLM in policies and institutional programmes by facilitating the development of a national CSLM strategy with the involvement of key actors from public, private and academic sectors and farmers' groups. Second, it will create opportunities for funding of CSLM initiatives through the development of a NAMA for the livestock sector with low GHG emissions. Third, the development of the institutional and individual capacity required to disseminate and extend the improved technologies and practices. Because these practices are more profitable to farmers than current practices, the project will dedicate resources to their broad dissemination, through awareness raising, capacity development and extension work. Four, the project will partner with ongoing initiatives, notably the DACC project, to replicate the experience on other farms. Last, it will feed into the National Program of Technology Transfer and Diffusion, currently under development, which aims at upgrading management practices among agricultural producers.

98. **Climate Change Mitigation effect:** The mitigation effect will be achieved through a range of entry points, resulting in a reduction of emissions and carbon sequestration, as well as improvement of degraded pastures.

99. The following factors will contribute to a substantial reduction in emission intensities and overall emissions: (1) number of heads per farm will remain rather constant (in order to adequate the forage supply, number of heads cannot increase), (2) the proposal reduces the breeding overhead and increases the overall efficiency indicators of the herd (pregnancy, age at first mating, age at slaughter, etc.); (3) no nitrogen fertilizers are used to foster above ground net primary productivity (ANPP) (legumes may be introduced in the sward); (4) digestibility of diet increases significantly (due to the demonstrated impact of the increase in ANPP and the use of strategic supplementation with concentrates), which reduces acetic acid formation in the rumen as a precursor of methane; (5) even if there is a rebound effect, the increase in productivity is much larger, which means more food is produced with less emissions; (6) carbon sequestration will compensate a portion of gross emissions, contributing to a reduction in net emissions. This carbon is stored in soils that will remain as rangelands,

there is no risk of reversibility of the removals; (7) small afforestation (average 2 ha, each) for shadow and shelter in every farm, will sequester carbon in woody biomass. Many paddocks in farms do not have shadow and shelter which negatively affects productivity).

100. The project will intervene in a context of strong on-going land degradation. There is wide international scientific literature showing that when organic inputs to soils increase in such circumstances, organic matter increases and so does carbon. The speed of this process is slow (C in soils is “slow in” and “fast out”) particularly if the C/N ratio is high. MRV of soil carbon is not easy in the short term. The on-farm monitoring system implemented under the project will increase the understanding through: sampling and modelling of the particulate soil organic matter fraction and the change in below ground biomass. Monitoring this variable will provide an important proxy to determine how management practices address the soil organic matter pool.

1.3.2 Project objectives, outcomes and outputs

101. The **project objective** is to mitigate climate change and to restore degraded lands through the promotion of climate smart practices in the livestock sector, with focus on family farming.

102. The project objective will be achieved through 3 components which systematically address the barriers to adaptation of livestock management approaches on natural rangelands which are climate smart and attenuate degradation of land, both at national and local levels.

Component 1: Strengthening the institutional framework and national capacities to implement the climate smart livestock management (CSLM)

103. This Component establishes the capacity for rolling out and replicating the CSLM technologies and practices that are developed under Component 2. This includes the development of a National CSLM strategy with involvement of a wide range of actors to unify criteria on CSLM and mainstream CSLM into national and local development plans, sectoral policy and institutional programmes. Through the development of the NAMA and the MRV system, opportunities to mobilize finance and create economic incentives will be identified in order to address the barrier of limited finance to large-scale upscaling, notably within the framework of the UNFCCC. Furthermore, capacities to support CSLM implementation will be strengthened through a dedicated training in key institutions, as well as through a CSLM training programme for extensionists. Component 1 is divided in two Outcomes and three Outputs:

Outcome 1.1: Policy and planning frameworks have been strengthened to support CSLM implementation and national communications on livestock emissions

Targets:

Indicator 3 (CC): One MRV system for emission reduction in place and reporting verified data (for the large ruminant livestock sub-sector, as part of the NAMA development). Baseline: 4, Target: 8⁵⁸.

Indicator 5 (CC): Degree of support for low GHG development in the policy planning and regulatory framework. Baseline: 3; Target: 6⁵⁹.

The indicator provides a measure for the existence of the the national CSLM strategy, and the NAMA.

Output 1.1.1: A national climate-smart livestock management (CSLM) strategy, designed and validated with key stakeholders.

Targets:

1 CSLM strategy document presented to the Government and disseminated at regional and local level

104. This strategy will set out a framework for rolling out CSLM practices in the livestock sector across the country. It will stipulate the roles of all stakeholders – governmental and non-governmental, academia and the private sector. It will identify barriers, and it will identify costs and sources of funding.

105. The iterative process to prepare the strategy will be facilitated by the Ministry and will be fully participative and consultative, involving all members of the extended NGB, including FUCREA, INIA, and others. The extensive consultative process will facilitate agreement of the key actors in the public, private and academic sectors on a set of unified and agreed criteria on CSLM on which the strategy will be constructed. This process will facilitate the integration of the strategy into sector policy as well as institutional programmes.

106. The national strategy will include timelines and targets and monitoring requirements. Notably, it will include a component on monitoring GHG emissions, the implementation of which will directly complement and support ongoing efforts to improve the GHG inventory prepared under the UNFCCC, for example, by ensuring more accurate data on GHG emissions is available, and national communications and reports better reflect mitigation effect of CSLM.

⁵⁸ As per the scale in GEF-6 Programming Directions, page 81 (https://www.thegef.org/gef/sites/thegef.org/files/webpage_attached/GEF6_programming_directions_final_0.pdf). Baseline: 4 refers to "Measurement systems are strong in a limited set of activities however, analysis still needs improvement; periodic monitoring and reporting although not yet cost/time efficient; verification is rudimentary/non-standardized". Target: 8 refers to "Strong standardized measurements processes established for key indicators and mainstreamed into institutional policy implementation; reporting is widely available in multiple formats; verification is done for a larger set of information".

⁵⁹ As per the scale in GEF-6 Programming Directions, page 83-84 (https://www.thegef.org/gef/sites/thegef.org/files/webpage_attached/GEF6_programming_directions_final_0.pdf). Baseline:3 refers to "Policy/strategy proposed and consultations ongoing (quality is good and addresses the main climate change mitigation issues related to the relevant sectors)". Target: 5 refers to "Strong policy/strategy adopted and institutional capacity for implementing key policy directives strengthened with adequate budget allocations".

107. Activities under this output in year 1 will include the elaboration of an initial outline of the strategy and criteria for CSLM which will be validated by the extended NGB. Based on this draft, multi-actor working groups will be convened: (1) CSLM practices for GHG mitigation and restoration of degraded rangelands; (2) Ecosystem services, resilience and other co-benefits; (3) market entry, certification and value chains; (4) communication and dissemination. The groups will elaborate sections of the strategy facilitated by experts funded under the project. In year 2, based on the inputs of the working groups, a draft strategy document will be constructed by an expert and improved through inputs of actors a second series of validation workshops. In year 3, the final strategy will be published and disseminated at regional and local levels, for example, through the Rural Development Committees. (MDR)

108. Specific economic and institutional studies will be carried out to underpin the development of the CSLM strategy. They will look into the opportunities and requirements for a shift of the beef supply chain towards practices and management systems that mainstream climate change mitigation and adaptation. They will also support the development of a phased and targeted approach to implementation.

Output 1.1.2: A Nationally Appropriate Mitigation Action (NAMA), including a national measuring, reporting and validation (MRV) system for the livestock ruminant sector.

Target: 1 validated NAMA and 1 MRV system presented to the Government

109. The sub-sector to be targeted by the NAMA is the beef sector. The NAMA will help overcome the financial barriers to implement improved practices. A NAMA is a commitment by countries under the UNFCCC to implement a set of actions that reduce GHG levels in return for finance or other incentives.⁶⁰ NAMAs may be implemented at either the national, sector or project level. Given the importance of the livestock sector to GHG emissions in Uruguay, and given the potential GHG reductions from CSLM, the development of a sector NAMA for livestock is a priority. Ultimately, this NAMA may be supported by either the international community (notably through the Green Climate Fund) or from domestic sources.

110. Activities under the project will include development of a NAMA proposal for submission to the UNFCCC. The development will draw on specific studies that will assess the GHG mitigation potential in the beef sector and the private and public sector investments required to achieve such potential. Studies will also look into the design of incentive mechanisms to enable practice change at farm and supply chain levels. The process will also be backed by an inter-institutional validation process through 3 validation workshops of the extended NGB. An analysis of national and international funding opportunities will be carried out to support the efforts to obtain funding for the NAMA. The NAMA process will be led by MGAP and MVOTMA.

111. One component of the NAMA is the measuring, reporting and verification (MRV) system⁶¹. Drawing on the farm-level monitoring system established under Output 2.1.3 and

⁶⁰ Currently, UNFCCC negotiations have not precisely established the NAMA mechanism nor have they established a format or content for NAMA proposal.

⁶¹ As CSLM leads to reductions in GHG emissions and increased GHG sequestration, ultimately, it may be possible to generate other forms of carbon finance for CSLM. This MRV system will make available accurate,

based on guidance by UNFCCC, the Project will establish an MRV protocol and framework for CSLM in Uruguay. The MRV will be set up, concurrent with the roll-out of the farm-level monitoring system (output 2.1.3).

112. The MRV framework will be linked to (i) the overall framework for determining the GHG inventory in Uruguay in direct support of Uruguay's efforts to report to UNFCCC on GHG emissions; (ii) similar efforts to establish a MRV for in the forestry sector in Uruguay; and (iii) existing systems to monitor land and land degradation in Uruguay notably the the National Information System on Agriculture (SNIA). Preparation of the MRV will be led by the Climate Change Unit in MGAP and INIA.

113. Based on the MRV protocol, an estimate of the GHG emissions of the NAMA activities will be carried out.

Outcome 1.2: National capacities have been strengthened to support CSLM implementation.

Target: 6 national organizations with confirmed commitment to implement CSLM

Output 1.2.1: Capacities developed to effectively support the implementation of CSLM with a gender-sensitive perspective.

Target: 30 staff members from 6 institutions with enhanced capacities for mainstreaming CSLM at institutional level

114. Under this Output, the Project will support national institutions from public and private sectors, farmers' organizations and civil society in the building of capacity to implement CSLM approaches guided by the national CSLM strategy (output 1.1.1). Activities will include a series of 3 workshops for senior staff and managers in each of the selected institutions facilitated by the project. In year 1, a first workshop series will be held to raise awareness and provide information on the CSLM strategy process, components and benefits. A second workshop series (year 2) will facilitate the preparation of an institutional needs assessment. In the third workshop series (year 3) institutions will identify opportunities and develop action plans to mainstream CSLM into institutional work programmes.

115. Activities under this output will be mutually reinforcing with output 1.1.1. On the one hand, institutional capacities to implement the CSLM strategy will be strengthened. On the other hand, results from the needs assessment and institutional action plans will provide strategic inputs into the development processes of the CSLM strategy and NAMA.

Output 1.2.2: A training program in place, to supporting the rolling out of improved and climate- smart approaches to livestock management.

Target: 75 extensionists with improved knowledge and capacities on CSLM

updated, certified data on changes in GHG emissions and so should be of use for accessing all sources of carbon finance.

116. Under this output, 75 (seventy-five) extension workers will be trained in supporting the rolling out of climate smart livestock management using the co-innovation approach which will be implemented under Component 2. In year one and two, three training courses with 25 extensionists will be held. The courses will include 40 h of theory classes and 20 h of practical instruction on selected pilot farms. Box 1 shows the topics to be covered in the training course.

Box 1: Topics of the training course for extensionists

- 1) Family and middle livestock systems of Uruguay: Its structure, management and productive results. Relationship between management and technical approaches.
- 2) Productive processes that impact the physical and economic results on the farm
 - A) The production of forage under grazing.
 - B) The consumption of forage and the factors of the animal, pasture and behavior that affect it.
 - C) The efficiency of the use of natural field fodder.
- 3) Options for technical change to improve the physical economic results of livestock in Uruguay.
 - A) Strategic technologies in the management of livestock.
 - B) Strategies to assist sound and tactical decision-making
 - C) Impact on the productive and economic result of the cattle breeding
- 4) Resource management approaches in livestock production systems. Management of the variability, economy and distribution of cattle and sheep in grazing systems
- 5) Visit to pilot farms that apply good practices in livestock management. Estimation of physical and economic results of livestock on natural rangelands
- 6) Co-innovation approach to climate smart livestock management in Uruguay. Its conceptual bases, work tools and objective results by FAGRO-MGAP projects. Its relation to analytical research and operation of production systems
- 7) The international beef market and its relationship with climate change (concepts and examples of adaptation, mitigation, international policy framework)

117. Participants of the first course will include the 10 extensionists that will work with farmers of the 60 pilot farms on the implementation on CSLM practices under output 2.1.1. The other participants will be selected by the project executive committee in consultation with organizations offering extension services (CNFR, FUCREA, AUGAP, IPA etc.) to ensure equitable participation of institutions and territorial coverage. Participants will receive a certificate as accredited CSLM extensionists by MGAP, enabling them to work in programmes to replicate the approach. 20% of the trainees will be women.

118. **GEF incremental financing** of USD 372,263 will support the development and validation processes of the national CSLM strategy, the NAMA for the livestock sector, as well as an UNFCCC-accredited MRV protocol and framework. Furthermore, a study on opportunities and requirements along the value chain to improve market access of climate smart meat products, and a study on opportunities for international and domestic funding for NAMA actions will be funded.

119. GEF resources will further support the costs of workshops for building institutional capacity to mainstream CLSM into policies and work programmes, of training technicians, and of developing the CSLM strategy. Also, GEF funds will be used to co-fund 50% the training

programme for 75 extensionists. The remainder is covered by ongoing Government and Farmers Groups activities.

120. **Co-financing of Component 1** (3,015,692 USD) will be provided by MGAP, MVOTMA, INIA, CNFR and FAO. MGAP will provide logistical support for the formulation and validation of the CSLM strategy. MGAP will also fund the institutional workshops for capacity building and CSLM, and provide support to the training of extensionists.

121. MGAP, MVOTMA and INIA will provide co-financing to the development of NAMA and MRV through the use of existing structures in Uruguay to monitor land, land-use and the livestock sector within the. MVOTMA - as the UNFCCC Focal Point - will provide in-kind co-financing (staff time) to coordinate activities and monitoring under the UNFCCC.

122. FAO will provide co-financing through the Project *Supporting Developing Countries to Integrate the Agricultural Sectors into National Adaptation Plans (NAPs)* (UNFA/GLO/616/UND), currently under implementation. One of the components of this project will support the strengthening of capacities of the Ministry of Agriculture and Livestock to integrate climate change adaptation concerns in adaptation planning at the sub-national and local levels. This FAO project will also support adaptation mainstreaming into national planning and budgeting, and will provide a potential model for the agriculture sector.

123. CNFR will provide co-financing to the validation process of the CSLM strategy as well as to the training programme through logistical support and use of installations. FAGRO will contribute staff time of trainers.

Component 2: Development and deployment of CSLM technologies and practices at field level

124. Component 2 is the field intervention of the project proposal and is divided in one outcome and three outputs:

125. Under output 2.1.1, CSLM strategies will be implemented based on the co-innovation approach on 60 small-and medium-scale farms covering 35,000 ha from the Basalt, Gondwanic Sedimentary Basin, Eastern Hills and Central regions. See Annex 8 for details on the approach and practices that will be applied.

126. Under output 2.1.2, at least 120 farmers in the pilot regions will receive continuous training on CSLM practices and approaches through a blended training programme. This includes yearly evaluation and planning workshops as well as field days organized on pilot farms on a rotational basis, enabling exchange of experiences and encouraging farmer-to-farmer extension. The field days will be targeted to farmers which are not part of the 60 pilot farms, and jointly organized with the DACC-2 project, which will increase the indirect coverage of the project.

127. Under output 2.1.3, an on-farm monitoring system will be developed and implemented on 60 farms, to determine the results on the CSLM strategies in terms of global environmental benefits (GHG emissions, carbon sequestration, and land degradation) and on-farm income, and gender aspects. The system will combine remote-sensing information with data derived from soil, vegetation, and feces sampling. The results and lessons will feed into the development of the MRV system at national level (output 1.1.2)

128. To ensure the upscaling of and mainstreaming of the CSLM approach, the field activities will be closely aligned with the DACC-2 project through a joint implementation

arrangement (see Annex 9). Through this arrangement, all farms participating in the DACC-2 project will be indirectly targeted by the GEF project. Also, this arrangement ensures direct engagement of farmers' associations such as CREA, FRU and AUGAP.

Outcome 2.1: Sustainable climate-smart livestock management (CSLM) has been implemented in degraded/degrading lands.

Targets:

Indicator LD 1.1: Land area under effective rangeland management practices and/or supporting climate-smart agriculture: 35,000 hectares of rangelands under CSLM.

Indicator 1 (CC): 379,000 t CO_{2eq} tons of GHG reduced or avoided

Indicator 4 (CC): Deployment of low GHG technologies and practices: 35,000 has under low GHG (CSLM)⁶² management practices.

At least 80% of participating farms achieve a minimum of% increase of farm-level incomes.⁶³

Output 2.1.1: Farm level CSLM strategies, implemented with a gender perspective.

Target: 60 CSLM strategies with improved practices and technologies, implemented by farmers based on a co-innovation approach.

129. This output will consist of 60 farm level CSLM strategies which will be developed with the participation of the farmer families and the locally-based technical advisor. The implementation of these strategies will serve to reduce GHG emissions, restore degraded areas, and to prevent or avoid further land degradation, as well as improving farm-level income. Activities under the output include:

130. *Selection of the farms.* The selection process will be led by the executive committee of the project in close consultation with local organisations, based on the following criteria: i. Membership in farmers organization and Networks, ii. Representativeness, iii. Potential for improvement, and iv. Gender equality.⁶⁴ 20 percent of selected farms will be women-headed.

131. *Implementation of a co-innovation process in the selected pilot farms.* The process will follow three steps: (1) Characterisation and diagnostic: (i) mapping the farm; (ii) surveying farm technical and financial parameters; (iii) the identifying degraded areas; (iv) identifying basic infrastructure barriers; (v) assessing the biodiversity condition of rangelands at paddock level and native forests that provide protection, shelter and shade; (vi) participatory assessment of constraints and opportunities, (2) Formulation of proposals for an adaptation of CSLM practices, (3) Implementation of the strategy based on yearly plans. The development

⁶² Selected from GEF-6 Programming Directions, page 82
(https://www.thegef.org/gef/sites/thegef.org/files/webpage_attached/GEF6_programming_directions_final_0.pdf)

⁶³ Target will be quantified at project inception

⁶⁴ See Annex 8 for a description of the criteria and steps for the selection process.

and implementation will be supported by extensionists trained in CSLM practices and co-innovation approaches (output 1.1.2). On average, each extensionist will dedicate one day per month over the whole project period. Each extensionist will be responsible for up to 10 farms.

132. *Continuous monitoring and evaluation.* Farmers and extensionists will record their activities as well as relevant information such as farm-level income and expenditures in field journals. To review progress on the farms, discuss experiences and lessons, the multidisciplinary CSLM expert team (Co-innovation, animal production, farm management and ecosystem services specialists) ⁶⁵ will hold 3 workshops each year with all extensionists (12 workshops in total over the whole project period). One workshop per year will be held in each region.

Output 2.1.2: A capacity development program focused on the application of the CSLM technologies and practices.

Target: At least 120 farmers and farm employees with enhanced knowledge and capacities on CSLM.

133. At least 120 farmers and farm employees will be trained in the application of the CSLM technologies and practices, to enable farmers to implement the CSLM strategies based on the co-innovation approach (output 2.1.1). Activities include yearly planning and evaluation workshops for all participating farms in each of the three eco-regions (12 workshops in total). The annual evaluation and planning workshops aim to critically evaluate the progress achieved during the year in relation to the project goals and the annual plan, and to develop a new annual plan for the following year. They serve to detect and correct problems in the operation of work teams and to correct them, and to deal with unexpected emergencies. They are also instances of meeting among the producers of the pilot farms to share experiences and evaluate together the lessons learned. These workshops are planned and moderated by the multidisciplinary CSLM team. External experts will be invited as required to give inputs at the workshops. These workshops will be held in cooperation with the local farmers' groups supported by the DACC programme on CSLM.

134. Furthermore, 4 field days per year will be held in each ecoregion, on some of the pilot farms, with a wide invitation to extension technicians and producers in the area, in close coordination with local farmers groups (42 field days in total). The objective is twofold: to look at the production system as a whole; and demonstrate some specific technology or practice important for that moment of the year. The day includes a presentation and discussion of results and a final instance of sharing food and drink that allows informal exchange between participants fostering social bonds. Farmers of pilot establishment and neighboring farms will have the opportunity to participate in at least 10-12 field days throughout the project. They are important as instances of outreach and scaling-up. At least 30 percent of trainees will be women.

Output 2.1.3: On-farm monitoring system, in place (to monitor GHG emissions, adaptation strategies, financing, land degradation and biodiversity).

⁶⁵ See Annex 6 for the ToR of the experts.

Target: 60 farms integrated into the monitoring system.

135. On the 60 pilot farms, on-farm monitoring of variables related to GHG emissions, adaptation, finances, land degradation and biodiversity will be developed. To determine the impact of CSLM practices, monitoring activities will be extended to one control farm with similar characteristics which is not part of the programme. Activities include (i) Establishment of a GIS covering the 60 pilot farms and control farms; (ii) Definition of protocols for sampling and analysis in the monitoring system; (iii) Monitoring of variables by remote sensing (vegetation cover, net primary productivity, albedo), (iv) Sampling and analysis of animal feces, soils and above-ground and below-ground vegetation, (v) analysis of GHG emissions based on sampling data, and (vi) Monitoring of socioeconomic variables and gender aspects, based on field journals.

136. A web-based module will be developed to allow data input by qualified personnel to facilitate the recording of information and automated calculation of GHG emissions. This will allow an upscaling of the monitoring system to other farms, and linking the data to the MRV system at national level (output 1.1.2).

137. **GEF incremental financing** of component 2 amounts to USD 1,229,350 The funds will cover (i) honorariums of experts and extensionists, transport and workshops to implement the farm-level CSLM strategies, (ii) honorariums of experts, local transport and workshop costs for the training programme on CSLM, and (iii) expert honorariums, transport, materials for sampling and lab analysis, and equipment to implement the on-farm monitoring programme.

138. **Co-financing for Component 2** (10,100,697 USD) will be provided by MGAP and DGDR, CCAC, and by CNFR (through extension provided to farmers support in project intervention regions). Co-financing at field level will notably be provided by the project *Sustainable Management of Natural Resources and Climate Change* (DACC) funded by the Government and a World Bank loan, which will finance investments in the pilot farms, for example to water storage and paddocks. The DACC project will also provide transport for project staff and extensionists, as well as costs for workshops and field days.

139. INIA and the FAGRO will provide cofinancing to the development and implementation of the on-farm GHG monitoring system through staff time, laboratory facilities and transport. The CCAC provides 100,000 USD cofinancing in cash toward the set-up of the monitoring system. MVOTMA will provide resources to monitor biodiversity and other environmental services.

Component 3: Monitoring, evaluation and knowledge-sharing

140. Under this Component, a monitoring and evaluation system will be put in place to support results-based adaptive project management. In addition, extension materials on CSLM practices and the co-innovation process will be developed, to be used and validated by farmers and extensionists on the pilot farms, and for replication activities. A communication strategy will be developed and implemented to ensure a fluid information flow and dissemination of products and results among farmers, extensionists, and institutions at a national level. Finally, under the component, the project will establish and maintain links with international networks on CSLM to share lessons and results, and to benefit from international experiences in the field. There are one outcome and five outputs under this Component:

Outcome 3.1: Project implementation based on RBM and lessons learned/good practices documented and disseminated

Output 3.1.1. A set of manuals and media products, for use by extension workers and producers, that capture and describe the improved practices, measures and technologies.

141. Under Output 2.1.2, the project, through its consultative and research-action approach, will have developed an affordable package of measures, practices and technologies that have been, tested, refined and implemented over 35,000 hectares under diverse socio-economic and ecological conditions. This experience will be transformed into a set of products for use by extension agencies, including an information leaflet, a technical manual and four videos where farmers share their CSLM experiences. The manual will be developed in year one and a preliminary version published for use at the pilot farm. This version will be revised during project implementation, and a final version will be published in year 4. The extension workers which have been trained in CSLM (Output 1.2.2), will thus have a validated material available to start disseminating the approach to new farms.

Output 3.1.2: Project Monitoring & Evaluation Plan and system, in place.

142. Under this output, a database tool will be developed to allow monitoring and evaluation of project outcomes, outputs and activities in compliance with GEF and FAO standards, including the GEF tracking tools. The system is backed by regular reporting to the Executive committee to ensure transparency and timely information flow. Progress will be evaluated in monthly meetings of the project team and six-monthly meetings of the executive committee to be able to assess problems and adapt the course of action to achieve the planned results, if necessary. At inception, a grievance mechanism will be defined, a focal point designated and communicated to the stakeholders to ensure that people affected by the project can file a complaints, in accordance with FAO operational procedures.

Output 3.1.3: Knowledge-sharing with other countries and dissemination of verifiable data and tested methodologies.

143. The project will implement novel approaches to the simultaneous improvement of productivity, adaptation to and mitigation of climate change. It is thus of critical importance to ensure strong linkages with teams carrying out similar work (e.g. FAO/GEF Ecuador project # 4775) and a proactive dissemination of results through the Global Agenda for Sustainable Livestock (GASL), the Livestock Environmental Assessment and Performance (LEAP) Partnership and the Global Alliance for Climate Smart Agriculture (GACSA). Furthermore, the project will seek to link its actions with the Livestock Research Group of the Global Research Alliance on GHG in Agriculture.

144. Activities under this output will include the publication of at least three journal articles on project results, and the presentation of the results at two international conferences related to Climate-Smart Agriculture. Furthermore, the project will facilitate the participation of project staff in three events of international research and practitioners' networks, and the organization of a webinar series on CSLM through one of the networks to connect with peers from other countries in the region.

Output 3.1.4: Project Mid-term Review and Final Evaluation.

145. After 24 months of project implementation, a Mid-term Project Review will be launched under the responsibility of the project team and in close coordination with FAO Office of Evaluation (OED) and the FAO-GEF Coordination Unit. The Mid-term Review will be conducted by an external evaluation team. Six months before the end of project implementation, a final project evaluation will be launched. The evaluation will be managed by OED and designed in consultation with all relevant stakeholders, including the FAO-GEF Coordination Unit, the LTO and other partners. The evaluation will be led by an external team leader and carried out by an external team under the overall responsibility of OED.

Output 3.1.5: A Communication Strategy, implemented

146. Under this output, a communication strategy will be developed and implemented to ensure fluid information flow with farmers, extensionists and institutional partners, in support to the activities under components 1 (strategy and NAMA development processes) and component 2 (implementation of farm-level strategies, field days). The strategy will ensure that information on project results and lessons are disseminated to a wide audience through appropriate communication channels. Activities include the preparation of communications materials such as posters and leaflets, presence in local media (TV, AM radio, newspapers), as well as the set-up and maintenance of a project website and dedicated social media accounts over the whole project period.

147. **GEF incremental financing** of Component 3 of USD 390,558 will be used to develop and maintain the M+E system, organization inception and final workshops, and mid-term and final evaluations in accordance with FAO and GEF standards. It will provide funds to produce the technical manual and audiovisual material on CSLM. Furthermore, it will cover travel costs of project staff to international conferences and knowledge-sharing events of international CSLM networks. Finally, project funds will cover the production of communication materials and set up and maintenance of the project website and social media channels.

148. **Co-financing of Component 3 (1,015,178 USD)** will be provided by the FAO Representation in Uruguay that will fund a Communications Specialist to support implementation of the communications and outreach strategy. Furthermore, support will be provided to disseminate project results and lessons through GLEAM, LEAP, and other CSA livestock related initiatives. MGAP and MVTOMA will also provide co-financing through institutional monitoring systems, knowledge management, awareness raising and communication personnel. The DACC project will provide printing costs of extension and communication material.

1.3.3 Project Stakeholders

Primary stakeholders

149. Primary stakeholders are small and medium livestock farmers and farm workers in the four pilot regions which will strengthen their capacities to implement climate-smart livestock management strategies on their farms. The farmers will help identify the optimal approach to CSLM, including specific practices and technologies. They will also be involved in the deployment of the farm-level monitoring system. The project will directly target 60 farmers, and others indirectly through the parallel implementation of the DACC-2 project (see component 2).

150. Furthermore, the project targets technical advisors (extensionists), both associated with farmers' organizations and independent who will improve their knowledge and skills to advise farmers on the implementation of climate-smart livestock approaches through the co-innovation approach. 75 extensionists will directly benefit from capacity building activities under the project.

151. Finally, the project targets decision makers and technical staff of public and private institutions in the livestock sector which will improve capacities to develop strategies and projects to mainstream climate-smart approaches into their policies and work programmes at national and institutional levels.

Table 4: Project stakeholders

Stakeholder (group)	Expected role in project implementation
Public sector	
Ministry of Livestock, Agriculture and Fisheries (MGAP)	
Ministry of Livestock, Agriculture and Fisheries (MGAP)	<ul style="list-style-type: none"> • Overall project coordination • Chairs executive committee • Provide technical and logistical support • Contribute to assessing impact of the project; • Benefit from capacity building activities. • Co-financing of project
Office of Programming and Agricultural Policy (OPYPA)	<ul style="list-style-type: none"> • Strategic guidance for the project • Mainstreaming of CSLM strategy into policy and strategies at national level
Agricultural Sustainability and Climate Change Unit (UASCC)	<ul style="list-style-type: none"> • Technical guidance of the project; • Benefit from capacity building
Rural Development Directorate of MGAP (DGDR)	<ul style="list-style-type: none"> • Technical support at territorial level; • Benefit from capacity building; • Promotion of upscaling and replication;
Directorate for Natural Resources (DGRN)	<ul style="list-style-type: none"> • Technical guidance of the project; in particular with regard to soil and water management • Benefit from capacity building.
Agricultural development councils at Department level (CDA) and at local level (MDR).	<ul style="list-style-type: none"> • Responsible for ensuring participatory approach at local level; • Responsible for advertising and rolling out project activities at local level; • Will benefit from capacity building and training.
Ministry of Housing, Land Planning and Environment (MVOTMA)	
Ministry of Housing, Land Planning and Environment (MVOTMA)	<ul style="list-style-type: none"> • Overall policy guidance to Project; • Facilitate coordination with all other activities under the global conventions, especially the UNFCCC (e.g. inventories).

	<ul style="list-style-type: none"> • Part of project steering committee
Climate Change Division (DCC) of MVOTMA.	<ul style="list-style-type: none"> • Coordination with other CC initiatives in Uruguay; • Participate in development and validation of national CSLM strategy • Technical guidance to the MRV and NAMA outputs, to ensure they are in line with UNFCCC expectations and developments.
National Directorate of Environment (DINAMA)	<ul style="list-style-type: none"> • Coordination with other initiatives on rangelands and grasslands ecosystems and buffer zone management; • Participate in development and validation of national CSLM strategy
Public-private institutions	
The National Institute for Agricultural Research (INIA).	<ul style="list-style-type: none"> • Scientific back-up of the project and in the monitoring activities and in the development of the tools for the MRV system • Participate in development and validation of national CSLM strategy • Co-financing o project activities • Part of Advisory committee (MGCN)
The Institute of Livestock Technology Transfer (IPA)	<ul style="list-style-type: none"> • Scientific back-up and provision of information • Participate in development and validation of national CSLM strategy • Support in rolling out Project activities at local level • Will benefit from capacity building and training. • Part of advisory committee (MGCN) • Co-financing o project activities
National Meat Institute (INAC)	<ul style="list-style-type: none"> • Participate in development and validation of national CSLM strategy • Will benefit from capacity building and training.
Uruguayan Wool Secretariat (SUL)	<ul style="list-style-type: none"> • Participate in development and validation of national CSLM strategy • Will benefit from capacity building and training.
Academic institutions	
Faculty of Agronomy (FAGRO) of the University of the Republic (Udelar)	<ul style="list-style-type: none"> • Participate in development and validation of national CSLM strategy • Major methodological inputs to the design of the farmed intervention strategies and the farm-level monitoring system • Support of capacity building and training activities • Support in rolling out Project activities at local level • Part of advisory committee (MGCN)
Farmers' organizations	
Uruguayan Federation of Regional Centres of Agricultural Experimentation (FUCREA).	<ul style="list-style-type: none"> • Coordination of farmers; • Participate in development and validation of national CSLM strategy • Support in rolling out Project activities at local level

	<ul style="list-style-type: none"> • Will benefit from capacity building and training. • Part of advisory committee (MGCN)
National Commission for Rural Development (CNFR)	<ul style="list-style-type: none"> • Coordination of farmers; • Participate in development and validation of national CSLM strategy • Support in rolling out Project activities at local level • Will benefit from capacity building and training. • Part of advisory committee (MGCN)
Other Farmers Organizations and Farmers Groups	<ul style="list-style-type: none"> • Beneficiaries of capacity building; • Delivery of training and other support to farmers.
Advisory board	
Extended Natural Rangelands Board (MGCN)	<ul style="list-style-type: none"> • Designated by MGAP as Advisory Committee to the project. For roles, see section 3, implementation arrangements
International partners	
FAO	<ul style="list-style-type: none"> • Implementing agency • Provides technical backstopping, advisory services and logistical support • Support to dissemination of project results at regional and global levels • Provides Cofinancing
Climate and Clean Air Coalition (CCAC)	<ul style="list-style-type: none"> • Provides cofinancing to the establishment of the on-farm monitoring system • Provides technical advice and forum to disseminate project results at international level

152. A Project Steering Committee consisting of representatives of MGAP, MVOTMA and FAO will be established to oversee the project implementation. Furthermore, a Project Advisory Committee will be established consisting of the members of the extended National Rangelands Board (MGCN). For further details on the governance structure, please see section 3 – implementation arrangements.

Incorporation of gender considerations

153. Based on the assessment of the different roles of women and men on family livestock farms (see section 1.3.3), the project will strengthen the participation of women in the implementation of the project activities, both at local and national levels. At the level of the pilot farms, 20% of the farms will be female-headed households. In all capacity-building activities of the project, 20% of the participants will be women. Training activities, workshops and field days will be designed in a way to enable active participation by women. In designing and implementing the farm-level CSLM strategies, special emphasis will be taken to ensure the active participation of the woman, including an analysis of the roles and responsibilities and labour required by male and female household members in the implementation of the strategy optimize the participation of women in livestock management and their economic benefit.

154. At the national level, in all capacity-building activities, 20% of the participants will be women. The gender perspective will be reflected in the policy documents, such as the CSLM strategy, as well as the implementation at institutional level.

155. Furthermore, special consideration will be given to involve young farmers in the project activities, as they generally are particularly open to innovation.

1.3.4 Expected global environmental and adaptation benefits

Climate Change Mitigation – Reducing GHG Emissions and Increasing Carbon Sequestration

156. Efficiency gain is the main GHG mitigation approach proposed at the animal level (cf. above and Annex 8). This will both greatly increase meat production and reduce direct emissions, resulting in greatly lower GHG emissions per unit of meat production. The overall meat production will increase around 53% (from 3,131 tons yr⁻¹, in the baseline to 4,811 tons yr⁻¹, in the project scenario), and the gross GHG emissions are expected to slightly decrease (see Table 5).

157. A complementary pathway to reducing net GHG levels is through increasing carbon sequestration of soils and biomass. The project aims at reverting land degradation, rebuilding soil organic matter, which sequesters carbon, and aims at sequestering carbon in small patches of forests (e.g. 0,5 ha each) planted for shadow and shelter in several paddocks of each project farms. Based on the national and international information available and given the local climate and current degradation levels, it is estimated that the improved grassland management to be applied on the the project farms could lead to an increase in soil organic carbon, at rates raging from 0.2 t C ha⁻¹ year⁻¹ to 0.7 t C ha⁻¹ year⁻¹. The conservative estimate of 0.2 t C ha⁻¹ year⁻¹ was used in computations of the potential climate change mitigation benefits of the project.

Table 5 summarizes the anticipated effects of the Project (as compared to the baseline scenario without the Project) on meat production, gross GHG emissions and CO₂ removals, over two time scales: 1. the project lifetime (4 years) and 2. the timeframe recommended by IPCC for LULUCF projects (20 years). In the direct intervention area (35,000 ha on 60 farms) the total reduction in GHG emissions is estimated to be 119,000 t CO_{2eq.} (4 years) and 775,000 t CO_{2eq.} (20 years). In the indirect intervention area (400,000 ha, ca 680 farms supported by the DACC-2 project) the reduction is 260,000 t CO_{2eq.} (4 years) and 5,135,000 t CO_{2eq.} (20 years). The total mitigation effect of the project is 379,000 t CO_{2eq.} (4 years) and 5,911,000 t CO_{2eq.} (20 years).

Reducing Land Degradation

158. The project intervenes on farms which practice livestock production on degraded and severely degraded land. The current management practices aimed at maximizing herd size increase degradation processes including compaction and erosion. Through the project, this trend will be reversed on 60 farms covering 35,000 ha through measures such as a reduction in herd size while maintaining productivity, introduction of paddocks, improvement pastures through paddocks. This leads to a build up of organic carbon, improvement of soil biodiversity and to a recuperation of degraded areas. Indirectly, 400,000 ha will be targeted on about 680 farms which are participating in the DACC-2 project.

159. For a description of the methodology and assumptions about the global environmental benefits, please refer to Annex 10.

Table 5: Project Global Environmental Benefits - CC Mitigation

Time frame	4 years		20 years	
	Baseline	Project ^{*,#}	Baseline	Project ^{*,#}
Direct impact (60 farms, 35,000 ha, 4 years)				
Meat production (t live weight)	12.524	17.397	62.620	94.381
GHG gross emissions (t CO ₂ eq yr ⁻¹) [*]	306.536	295.846	1.532.680	1.463.012
GHG gross emissions reduction (t CO ₂ eq yr ⁻¹)	0	10.690	0	69.668
C sequestration (rangelands) (t CO ₂ yr ⁻¹) [*]	0	71.456	0	465.696
C sequestration (afforestation) (t CO ₂ yr ⁻¹) [*]	0	36.804	0	239.859
GHG net emissions (t CO ₂ eq yr ⁻¹)	306.536	187.586	1.532.680	757.457
GHG emissions reduced – direct impact (t CO₂ eq)		118.950		775.223
GHG emissions intensity - C sequestration excluded (kg CO ₂ eq per Kg live weight)	24	17	24	16
Net GHG emissions intensity - C sequestration included (kg CO ₂ eq per Kg live weight)	24	11	24	8
Indirect impact (ca. 680 farms, 400,000 ha)[*]				
GHG emissions reduction (t CO ₂ eq) ^{*,#}	0	23.381		461.512
C sequestration (rangelands) (t CO ₂ yr ⁻¹) ^{*,#}	0	156.288		3.084.928
C sequestration (afforestation) (t CO ₂ yr ⁻¹) ^{*,#}	0	80.497		1.588.904
GHG emissions reduced – indirect impact (t CO₂eq)		260.166		5.135.344
Total mitigation effect - direct and indirect GHG emissions reduced (t CO₂eq)		379.115		5.910.567

Notes:

* The following assumptions for incorporation of CSLM practices have been made:

20% year 1, 80% year 2, 90% year 3, 100% year 4; for the 35,000 ha of direct intervention
 5% year 1, 20% year 2, 60% year 3, 100% year 4; for the 400,000 ha of indirect intervention

#: In the 400,000 ha of indirect intervention, an attenuation factor has been considered which takes into account that the efficacy of the measures adopted in these areas is lower than in the areas of direct intervention and increases over time. The attenuation factor is as follows:
 30% for the first 4 years; 50% for the period 5 to 8, and 70% from year 9 to 20.

Environmental Co-Benefits

160. The Project will have co-benefits in terms of biodiversity conservation and increasing adaptation to climate change and resilience.

161. **Biodiversity:** Uruguay's grasslands are in general rich in biodiversity and are considered unique by many experts⁶⁶. Uruguay contains remnants of the original *Argentine Mesopotamian Grasslands*. Habitats in Uruguay are varied and interspersed, with series of localized geographic features, each including rocks, hills, small ravines and rivers. There are also rich and diverse soil types with high activity clays, which is important to build carbon in the mineral associated fraction of the soil organic matter (MaOM). These mosaic patterns underlie and define the uniqueness and importance of the grasslands biodiversity. From a botanical perspective, Uruguay has over 2,500 species of which the great majority are herbaceous species or shrubs corresponding to the grasslands savanna ecosystems⁶⁷. The Uruguayan grasslands have undergone systematic decline and deterioration, mostly due to the unsustainable grazing practices (overgrazing) on *grasslands*. This Project aims to stop and reverse this, thereby helping considerably to stop the loss of biodiversity and recover it.

162. **Adaptation to climate change:** The Project interventions will increase the adaptive capacity of small farmers and improve ecosystem resilience over the concerned grasslands, thereby contributing to adaptation to climate change. This is due to the combined effects on soil health, water storage capacity, biodiversity and animal body score, as well as on better decisions and risk management.

1.4 LESSONS LEARNED

163. In the design of the project, the following lessons from previous initiatives have been taken into consideration:

164. **Focus on knowledge management and transfer:** The adoption of innovative management and technologies is generally rather low, especially among smallholders⁶⁸. Experiences from past projects indicate that a key barrier is the lack of conscience and knowledge, which are necessary for managing complex systems such as small and medium livestock farms that are facing climatic and economic vulnerability. The project will explicitly highlight the linkages between climate change mitigation and agricultural production. It is important to raise awareness among farmers and create a common understanding of climate change as this is a precondition for adopting CSA practices. A peer-to-peer learning approach, as it is currently applied in several projects in Uruguay, enhances the dissemination of new technologies among farmers and facilitates mutual learning from experiences.

165. **Strategies individually tailored to the context of each farm:** In the second half of the 20th century there was a trend in Uruguay towards the improvement of natural rangelands with often non-native plant species and fertilizers in order to increase the levels of productivity. Such innovations were associated with high initial investments (e.g. interseeding

⁶⁶ See, for example, Dinerstein, E. et al in "A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean" (1995).

⁶⁷ Sources: "Estudio Ambiental Nacional" and "Propuesta de Estrategia Nacional para la Conservación y Uso Sostenible de la Diversidad Biológica del Uruguay".

⁶⁸ Pereira, 2003; Oyhançabal, 2003; Gómez Miller, 2011.

of pastures) and entailed maintenance costs (e.g. use of fertilizers and pesticides), which diminished the net gains of the increased productivity. Additionally, some of the introduced species were also more vulnerable to extreme climatic events, e.g. droughts, which caused additional costs and instable fodder production. This caused financial losses for farmers and a widespread misconfidence of technical assistance programs. For the proposed project it is therefore important to identify and implement measures carefully tailored to the socioeconomic and ecological conditions of each farm, instead of offering ready-made technical solutions.

166. **Co-innovation is a promising approach to adapt climate-smart livestock management strategies.** The project will apply the co-innovation approach and provide focus farms with technical assistance so that they can adopt comprehensive and individually adjusted solutions, based on an approach of mutual learning between farmer and extensionists. This approach enhances the learning of all the actors involved and can provoke changes in the knowledge, attitudes, skills and aspirations of the participants. Experience from the EULACIAS Project and the Project "Co-innovating for the sustainable development of Rocha family production systems" shows that impacts which can be measured in sustainability indicators such as: economic and physical productivity, environmental impact, and quality of life, can be achieved in a relatively short time.

167. **Strengthening inclusion of remote farmers.** While it is important to make use of existing networks of farmers, e.g. in FUCREA or CNFR groups, the proposed Project will make efforts to reaching out to farmers that were not yet involved in previous projects and programmes. A problem that was common to many projects and programs in the past was the concentration of activities in relative proximity to settlements and highways due to the limited travel expenses for extensionists. This will be taken into account in the implementation process.

168. **Adoption of technologies can be part of an improved management system, but is not an end in itself.** Experience shows that adoption of technologies should not determine the participation in a project on a "take it or leave it" basis. Rather, the proposal for technical change under the co-innovation approach is based on process technologies, where the investment component is not prioritized.

169. **Instances for social learning should be integrated along the whole project cycle.** The design of the Project from a perspective of co-innovation will include: i) the organization of forums of social learning (workshops and field days) between the different actors (institutional, farmers, farm workers, and technicians), ii) Monitoring and follow-up activities designed for joint reflection and all the participating actors, and incorporating the lessons learned in real time. This will facilitate the result based management.

170. **The role of the extensionist is more that of a facilitator than a purely technical advisor.** Experience in technical assistance projects in the livestock sector in Uruguay confirms that a lasting transition to more environmentally sustainable and economically viable production systems is more likely to happen if it is based on a farm development strategy elaborated in a process of dialogue and negotiation between farmer and extensionist. This is advocated by the co-innovation approach which is based on a detailed and participatory assessment of the production system, the accumulated experience of the producers, enriched by the technical perspective of the extensionist, and continually updated along the implementation process. To guide this process, the extensionist needs solid facilitation and

negotiation skills. These capacities will be reinforced during the capacity building activities, as well as the regular supervision meetings with the project staff.

171. **To ensure upscaling and replication, farmers' organizations need to be involved in all stages of project implementation.** Farmers' associations are powerful allies in spreading the message about CLSM among their members and peer Groups. Experience shows that their involvement from the very beginning of the project interventions. The project design takes this into account. The selection process of farms and extensionists will involve local farmers associations. Associations will also be closely involved in trainings and workshops in the pilot regions. At national level, farmers' organizations (FUCREA, CNFR, AUGAP) will participate in the elaboration and validation of the CLSM strategy, and will be invited to participate in the programme to build institutional capacities for CLSM.

1.5 STRATEGIC ALIGNMENT

1.5.1 Consistency with national development goals and policies

172. The Project is in line with and supportive of national development strategies and plans, climate change strategies and land degradation strategies. In particular, the project is integrated with the following policies:

173. **Strategic agricultural policy framework (2015).** The project contributes to all five goals of the strategic framework, in particular goal 2 (Sustainable intensification and care for the environment), and goal 5 (Institutional strengthening and coordination).

174. **National Plan for Adaptation to Climate Change and Variability for the Agricultural Sector (PNA-Agro).** The project is supportive of strategic area of sustainable natural resource management in the agricultural sector with a view of enhancing resilience and adaptive capacity to climate change.

175. **National Plan on Climate Change (PNRCC).** The project directly supports implementation of the PNRCC in three priority areas identified for the agriculture and livestock sector. (i) Sustainable land management, prioritizing the adequate use of crop sequences to minimize erosion, livestock production systems in environmentally sound grazing systems and the conservation of natural rangelands and native forests; (ii) Animal breeding programs and usage of adapted species, prioritizing the knowledge of breeding resources adapted to our environments. (iii) Mitigation of climate change through abatement of methane emissions from livestock.

1.5.2 Consistency with national communications and reports to the United Nations Convention to Combat Desertification, Convention on Biological Diversity, Stockholm Convention on POPs, United Nations Framework Convention on Climate Change (as applicable).

176. **Climate Change Mitigation:** the project is consistent with Uruguay's Intended Nationally Determined Contribution (INDC) to the UNFCCC submitted in 2015. According to the INDC the country intends to reduce with domestic resources the emission intensity of beef production by 33% (CH₄) and 31% (N₂O) per kilogram of beef by 2030. With additional means of implementation, the reduction of emission intensity in this sector could be increased to 46% (CH₄) and 41% (N₂O). The proposed project would not only contribute to the reduction of

emission intensity in the livestock sector, but also improve carbon sequestration in degraded rangelands, which is considered an important contribution to CO₂ removal⁶⁹.

177. In 2016 the SNRCC submitted Uruguay's Fourth National Communication (FNC) to the UNFCCC. The FNC acknowledges the National Climate Change Policy (PNCC) that is currently developed in order to strengthen Uruguay's structural transformation until 2050. The PNCC covers different sectors and seeks to include climate change related topics into public policies, especially development policies including the agriculture and livestock sectors.

178. Uruguay's Third National Communication (TNC) to the UNFCCC validates the priorities established in the PNRCC. The TNC specifically promotes climate change mitigation actions related to land use, land use change and forestry (LULUCF) and agriculture. It recognizes that the agricultural sector is the biggest emitter of direct GHGs in Uruguay, representing more than 80% of total emissions, followed by Energy. In particular, grazing cattle explains as much as 76% of all the emissions of Uruguay. The TNC identifies livestock as key sources of CO₂ emissions. The TNC notably identifies the following strategies for climate change mitigation: (i) increasing carbon sequestration in rangeland; and (ii) reducing methane emissions from enteric fermentation. Both strategies are supported through the GEF Project.

179. **Land Degradation:** Uruguay submitted its second national report to the United Nations Convention to Combat Desertification (UNCCD) in 2002 and finalized its National Action Plan in 2004. This Project is in line with the priorities established in these documents. The results will provide important inputs to shape the soil conservation policies on natural rangelands. Since 2012, MGAP has put in place a policy that requires farmers planting more than 50 ha of crops to present a medium term soil use and management plan that aims at minimizing erosion measured through the Universal Soil Losses Equation. MGAP is dedicated to expand conservation policies to rangelands, mainly through the promotion of good practices of rangeland management that, among other co-benefits, avoid naked soils and sward degradation. These actions are aligned with UNCCD.

1.5.3 Consistency with GEF focal area

180. The Project contributes to two GEF focal areas: climate change mitigation and land degradation.

181. ***Climate change mitigation:*** the Project contributes to focal area objective 2 (Demonstration of systemic impacts of mitigation options). It is fully consistent with Program 4 (Promote conservation and enhancement of carbon stocks in forest, and other land-use, and support climate smart agriculture) by promoting climate-smart livestock management approaches.

182. Contributions to the strategic goals of GEF will be measured through the following indicators from the GEF monitoring framework: CCM indicators 1 (GHG reduced or avoided directly and indirectly), 3 (MRV system in place), 4 (Area under climate smart practices) and 5 (Degree of support low GHG development in the policy planning and regulatory framework). The Project management unit will directly monitor the types and numbers of low GHG technologies and practices, the number of hectares over which they are deployed, and their

⁶⁹ INDC 2015.

adoption at the national level through policies, plans or programmes, notably the national CSLM strategy developed under the project.

183. **Land degradation:** The Project will contribute to focal area objective 1 (Maintain and improve flow of agro-ecosystem services to sustain food production and livelihoods). It is fully consistent with Program 2 (SLM for Climate Smart Agriculture), particularly area g (Rangeland management and sustainable pastoralism focusing on SLM options climate change adaptation and for grazing management to reduce GHG emissions).

184. Contributions to the strategic goals of GEF will be measured through LD Indicator 1.1 (Land area under effective rangeland management practices and/or supporting climate-smart agriculture). The Project management unit will directly monitor the area of land that adopts climate smart agriculture as both direct and indirect result of the Project interventions.

1.5.4 Consistency with FAO's Strategic Framework and Objectives

185. The project is in line with the FAO Strategic Framework at corporate, regional and country levels. In particular, it contributes to the following objectives and initiatives:

186. **Corporate level:** the project is in line with Strategic Objective 2: Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner. It contributes to Organizational Outcome 201: Producers and natural resource managers adopt practices that increase and improve agricultural sector production in a sustainable manner, and specifically Organizational Output 20101 - Innovative practices for sustainable agricultural production (including traditional practices that improve sustainability, such as those listed as Globally Important Agricultural Heritage Systems) are identified, assessed and disseminated and their adoption by stakeholders is facilitated.

187. Furthermore, the project is in line with Strategic Objective 5: Increase the resilience of livelihoods from disasters, contributing to Organizational Outcome 503: Countries reduce risks and vulnerability at household and community level.

188. **Regional level:** The project contributes to the following regional priorities defined at the last Regional Conference (ii) Transformation of the rural sector, (iii) Social and economic inclusion and innovation, and (iii) Sustainable use of natural resources. Furthermore, it is in line with the following two regional initiatives: R2: Family Farming, Food Systems and Sustainable Rural Development, and Sustainable use of natural resources, adaptation to climate change and disasters risk management

189. **Country Level:** The project is in line with the FAO Country Programming Framework for Uruguay. It contributes to the Priority Area 2 Environmental sustainability of agricultural production, and agricultural systems less vulnerable and more resilient. Specifically, it contributes to Result 2.1 Improvement of policies and programmes for sustainable intensification of agricultural production in order that farmers and natural resources managers adopt practices that increase and improve the delivery of goods and services of the agricultural sector in a sustainable way reducing risks.

SECTION 2 – FEASIBILITY

2.1 ENVIRONMENTAL IMPACT EVALUATION

190. Appendix 5 provides the environmental and social analysis and screening of the project following FAO's Environmental and Social Guidelines (ESMG). The project has been rated as *Low risk*.

2.2 RISK MANAGEMENT

2.2.1 Risks and mitigation measures

191. Please refer to Appendix 4 for a list of risks and mitigation measures.

2.2.2 Analysis of fiduciary risks and mitigation measures (only for OPIM projects)

192. Not applicable.

SECTION 3 – IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

3.1 INSTITUTIONAL ARRANGEMENTS

193. In addition to FAO as GEF Implementing Agency, the main institutions involved in the project are the Ministry of Livestock, Agriculture and Fisheries (MGAP) with its Office of Programming and Agricultural Policy (OPYPA) Directorate for Natural Resources (DGRN), Directorate for Rural Development (DGDR), and Unit for Project Management (UGP). Also, the Ministry of Housing, Territorial Planning and Environment is involved through the National Directorate of Environment (DINAMA)

194. The **Agricultural Sustainability and Climate Change Unit (UASCC)** of OPYPA will be the project implementing partner. The UASCC will be responsible for ensuring the overall coordination of the project's implementation, as well as coordination and collaboration with partner institutions, local community organizations and other entities participating in the project, and for managing at the national level the cofinancing agreed during the formulation of the project.

195. FAO and the implementing partners will collaborate with the implementing agencies of other programs and projects in order to identify opportunities and mechanisms to facilitate synergies with other relevant GEF projects, as well as projects supported by other donors. This collaboration will include: (i) informal communications between GEF agencies and other partners in implementing programs and projects; and (ii) exchange of information and outreach materials between projects.

196. In Uruguay the project will develop synergies with the following initiatives:

- *Sustainable Management of Natural Resources and Climate Change (DACC-2)* This project will be implemented in close coordination with the GEF project and will be an important avenue for replication and scaling up. (see Annex 9)
- *FFEM/GEF(UNDP): Sustainable production and consumption in the protected areas and their adjacent territories.* This project fits into the search of the balance between growth and preservation of natural and cultural heritage, in specific territories, identified for their environmental value and for three sectors having direct impacts on the environment: beef production on natural pasture, eco-tourism and fishing in lagoon. In this regard, the proposed FAO/GEF project will articulate specifically with the activities related to beef production in natural pastures, having significant opportunities for synergies (e.g. in relation to land restoration and replacement of practices that induce degradation of rangelands by good practices).

Following Uruguay's institutionality, the coordination between both projects will be conducted by the Ministry of Housing, Land Planning and Environment (MVOTMA, through the DINAMA) and the MGAP. FAO and UNDP will support this process whenever required, and if such participation adds value to the institutional tasks performed by both ministries. FAO will provide staff time and will periodically request information from the MGAP to duly report this coordination process to the GEF.

197. At global level, the project will develop mechanisms for collaboration with the following initiatives:

- GEF Project # 5724: *Participatory assessment of land degradation and sustainable land management in grasslands and pastoral systems*
- GEF Project #4775 Ecuador: *Promotion of climate-smart livestock management integrating reversion of land degradation and reduction of desertification risks in vulnerable provinces*

3.2 IMPLEMENTATION ARRANGEMENTS

198. The Food and Agriculture Organization (FAO) is the GEF implementing agency responsible for monitoring and providing technical backstopping during project implementation. Technical backstopping will be provided in coordination with MGAP-UASCC. FAO's role and responsibilities is described in sub-section 3.2.2 below.

199. For strategic decisions a Project Steering Committee (PSC) will be established, which will consist of representatives of MGAP, MVOTMA and FAO. Its main function is to guide the implementation of the project, check and approve the annual work plans, approve the financial and technical reports, and provide strategic guidance to the driving general project (section 3.2.3 describes features of the PSC).

200. The MGAP will designate a National Project Director (NPD). The NPD will be a MGAP staff and will have the responsibility of supervising and guiding the National Project Coordinator (see below) on the government policies and priorities. He/she will also be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. He/she will be responsible for requesting FAO the timely disbursement of GEF resources that will allow the execution of project activities, in strict accordance with the Project Results-Based Budget and the approved AWP/B for the current project year.

201. The **National Project Director (NPD)** will be a senior officer seconded to the Project by MGAP during full project lifetime. His/her main tasks will be: i) To assume overall responsibility for the successful execution and implementation of the project, as well as accountability to the Government and FAO for the proper and effective use of project resources; ii) Serve as a focal point for the coordination of projects with other Government agencies, FAO and outside implementing agencies; iii) Ensure that all Government inputs committed to the project are made available; iv) Supervise the work of the NPC and ensure that the NPC is empowered to effectively manage the project and other project staff to perform their duties effectively; v) Supervise the preparation of project AWP/Bs, updating, clearance and approval, in consultation with FAO and other stakeholders and ensure the timely request of inputs according to the project work plans; vi) Represent the Government institution (national counterpart) at the tripartite review project meetings, and other stakeholder meetings; v) Build and strengthen synergies and collaboration with other countries and contribute to the regional collaboration component to ensure knowledge exchange and benefits at national level.

202. A GEF-financed **Project Team (PT)** will be established. The main responsibility of the PT, following the directives and decisions of the Project Steering Committee and under the supervision of the NPD, is to ensure coordination and execution of the project through the rigorous and effective implementation of the AWP/B.

203. Under the supervision of the NPD, the PT will be headed by a full-time **National Project Coordinator (NPC)** (financed by GEF funds) who will be in charge of project daily management

and technical supervision including: i) coordinate and closely supervise the implementation of project activities; ii) day-to-day project management; iii) coordination with related initiatives; iv) ensuring collaboration between the participating national, regional and local institutions and organizations; v) implement and manage the project M&E plan and its communication program; vi) prepare the Project Progress Reports (PPRs), containing information on the activities carried out and the progress in the achievement of outcomes and outputs; vii) organize annual project workshops and meetings to monitor project progress and will prepare the Annual Work Plans and Budgets (AWP/B); viii) submit PPRs together with the AWP/B to the Project Management Committee (PMC) for approval and presentation to the Project Steering Committee (PSC) and FAO; ix) act as secretary to the PMC and PSC; x) prepare the draft version of Annual Project Implementation Reviews (PIRs); xi) support the mid-term review and final evaluation.

204. Moreover, following FAO rules and regulations and in accordance with the Project Document and the AWP/Bs, the PC will assist the NPD in the identification of targeted expenditures and disbursements that should be requested to FAO for timely project execution.

205. The NPC will supervise the work of, provide technical backstopping, and assess the reports and outputs produced by project national consultants (financed by GEF funds).

206. The Budget and Operations Officer will be responsible for the day-to-day financial management and operation of the project including raising contracts and procure other needed inputs in accordance with the approved budget and annual work plans. The Budget and Operations Officer will work in close consultation with the NPD, NPC, Budget Holder (BH, see below), Lead Technical Officer (LTO, see below) and project executing partners, and will take the operational responsibility for timely delivery of needed inputs to produce project outputs.

3.2.2 FAO's roles and responsibilities

FAO's role in the project governance structure

207. FAO will be the the GEF Implementing Agency of the Project.

208. At the request of the Government of Uruguay, FAO will also be the GEF Project Executing Agency.

209. The administration of GEF grants will be in accordance with FAO rules and procedures and in accordance with the agreement between FAO and the GEF Trustee. As the GEF Executing Agency for the project, FAO will be responsible for financial management, procurement of goods and contracting of services, including:

- Administration of GEF funds;
- Overseeing project implementation in accordance with the Project Document, Project Budget, approved annual Work Plan and Budget(s) (AWP/Bs), agreements with co-financiers;
- FAO will provide to the Project Steering Committee (PSC) semi-annual reports including a financial statement of project expenditures.

210. In accordance with the present Project Document and the AWP/B(s) approved by the PSC, FAO will prepare budget revisions to maintain the budget updated in the financial

management system of FAO and will provide this information to the PSC to facilitate the planning and implementation of project activities. In collaboration with the PT and the PSC, FAO will participate in the planning of contracting and procurement processes. FAO will process due payments for delivery of goods, services and products upon request of the PT and based on the AWP/B and Procurement Plans that will be annually approved by the PSC.

FAO's roles in internal organization

211. The roles and responsibilities of FAO staff are regulated by the *FAO Guide to the Project Cycle, Quality for Results, 2015*, Annex 4: Roles and Responsibilities of the Project Task Force Members, and its updates.

212. The FAO Representative in Uruguay will be the **Budget Holder (BH)** and will be responsible for the management of GEF resources. As a first step in the implementation of the project, the FAO Representation in Uruguay will establish an interdisciplinary Project Task Force (PTF) within FAO, to guide the implementation of the project.

213. The PTF is a management and consultative body that integrate the necessary technical qualifications from the FAO relevant units to support the project. The PTM is composed of a Budget Holder, a Lead Technical Officer (LTO), the Funding Liaison Officer (FLO) and one or more technical officers based on FAO Headquarters (HQ Technical Officer).

214. In consultation with the LTO, the FAO Representative in Uruguay will be responsible for timely operational, administrative and financial management of the GEF project resources, including in particular: (1) the acquisition of goods and contracting of services for the activities of the project, according to FAO's rules and procedures, in accordance with the approved AWP/B; (2) process the payments corresponding to delivery of goods, services and technical products in consultation with the PSC; (3) provide six-monthly financial reports including a statement of project expenditures to the PSC; and (4) at least once a year, or more frequently if required, prepare budget revisions for submission to the FAO-GEF Coordination Unit through the Field Programme Management Information System (FPMIS) of FAO.

215. The FAO Representative in Uruguay, in accordance with the PTF, will give its non-objection to the AWP/Bs submitted by the PT as well as the Project Progress Reports (PPRs). PPRs may be commented by the PTF and should be approved by the LTO before being uploaded by the Funding Liaison Officer (FLO) in FPMIS.

216. The **Lead Technical Officer (LTO)** for the project will be the Senior Livestock Officer, AGA. The role of the LTO is central to FAO's comparative advantage for projects. The LTO will oversee and carry out technical backstopping to the project implementation. The LTO will support the BH in the implementation and monitoring of the AWP/Bs, including work plan and budget revisions. The LTO is responsible and accountable for providing or obtaining technical clearance of technical inputs and services procured by the Organization.

217. In addition, the LTO will provide technical backstopping to the PT to ensure the delivery of quality technical outputs. The LTO will coordinate the provision of appropriate technical support from PTF to respond to requests from the PSC. The LTO will be responsible for:

- Review and give no-objection to TORs for consultancies and contracts to be performed under the project, and to CVs and technical proposals short-listed by the PT for key project positions, goods, minor works, and services to be financed by GEF resources;

- Supported by the FAO Representation in Uruguay, review and clear final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;
- Assist with review and provision of technical comments to draft technical products/reports during project execution;
- Review and approve project progress reports submitted by the NPC, in cooperation with the BH;
- Support the FAO Representative in examining, reviewing and giving no-objection to AWP/B submitted by the NPC, for their approval by the Project Steering Committee;
- Ensure the technical quality of the six-monthly Project Progress Reports (PPRs). The PPRs will be prepared by the NPC, with inputs from the PT. The BH will submit the PPR to the LTO for technical clearance. The PPRs will be submitted to the PSC for approval twice a year. The FLO will upload the approved PPR to FPMIS.
- Supervise the preparation and ensure the technical quality of the annual PIR. The PIR will be drafted by the NPC, with inputs from the PT. The PIR will be submitted to the BH and the FAO-GEF Coordination Unit for approval and finalization. The FAO/GEF Coordination Unit will submit the PIRs to the GEF Secretariat and the GEF Evaluation Office, as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The LTO must ensure that the NPC and the PT have provided information on the co-financing provided during the year for inclusion in the PIR;
- Conduct annual (or as needed) supervision missions;
- Review the TORs for the mid-term review, participate in the the mid-term workshop with all key project stakeholders, development of an eventual agreed adjustment plan in project execution approach, and supervise its implementation; and
- Provide comments to the TORs for the Final Evaluation; provide information and share all relevant background documentation with the evaluation team. Participate in the final workshop with all key project stakeholders, as relevant. Contribute to the follow-up to recommendations on how to insure sustainability of project outputs and results after the end of the project

218. The FAO-GEF Coordination Unit will act as **Funding Liaison Officer (FLO)**. The FAO/GEF Coordination Unit will review and approve budget revisions based on the approved Project Budget (Appendix 3) and AWP/Bs. The FAO/GEF Coordination Unit will review and provide a rating in the annual PIR(s) and will undertake supervision missions as necessary. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the FAO GEF Coordination Unit. The FAO GEF Coordination Unit may also participate in the mid-term review and final evaluation, and in the development of corrective actions in the project implementation strategy if needed to mitigate eventual risks affecting the timely and effective implementation of the project. The FAO GEF Coordination Unit will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed.

219. The FAO Financial Division will provide annual Financial Reports to the GEF Trustee and, in collaboration with the FAO-GEF Coordination Unit, request project funds on a six-monthly basis to the GEF Trustee.

3.2.3 Decision-making mechanisms of the project

220. The **Project Steering Committee (PSC)** will take decisions on the overall project management and will be in charge of ensuring the project strategic approach for the operational tasks. The PSC will be composed of 8 representatives. Four from MGAP: (DGDR, DGRN, UAS&CC and UGP), two from MVOTMA (DINAMA and DCC) and two representatives from FAO (LTO and BH). Each organization / unit shall nominate a representative and an alternate. The PSC will be chaired on a rotating basis by one of the representatives of MGAP, who is responsible to convene the meetings. The PSC may invite other representatives of stakeholders as needed. The PSC will meet at least twice a year and its responsibilities will include: (i) overall oversight of project progress and achievement of planned results as per the project document; (ii) take decisions in relation to the practical organization, coordination and implementation of the project; (iii) facilitate cooperation between (national and local institutions) and project participating partners and project support at the local level; (iv) advise on other on-going and planned activities facilitating collaboration between the Project and other programmes, projects and initiatives; (v) facilitate that co-financing is provided in a timely and effective manner; and (vi) review and approve the six-monthly Project Progress Reports and the AWP/B. vi) advising on other on-going and planned activities facilitating collaboration between the Project and other programmes, projects and initiatives. The PSC may also be involved in technical evaluation of project progress and outputs, and eventual development of an agreed adjustment plan in project execution approach, if needed.

221. Responsibilities: Approve annual work plans, budgets and progress reports prepared by the NPC and FAO. All PSC decisions must be taken under consensus. If members consider it necessary, the PSC may convene extraordinary meetings. One of these meetings of the PSC must be carried before 10 December of each year, where the PSC must approve the annual work plan and budget of the project, for the following year.

222. Furthermore, a **Project Advisory Committee (PAC)** will be established which is formed by the members of the extended National Rangeland Board (ENGB). Its membership comprises the main institutions from the public sector, academia, private sector and farmers' associations (see section on institutional framework).

223. The main function of the PAC is to advise the PSC on technical matters regarding implementation of project activities. It will regularly meet twice a year, back to back with regular sessions of the ENGB. In particular, the responsibilities of the PAC include:

- Advise the PSC, the NPC and the Project Team (PT) on technical issues regarding project implementation
- Analyze project progress and advise the project team
- Coordinate activities of its members in support to the project;
- Validate the CSLM strategy (output 1.1.1) to be adopted by its members
- Validate the NAMA to be developed under the project (output 1.1.3)

224. At the level of the four ecoregions, **Territorial CSLM Clusters** will be established under the leadership of the NPC and participation of the M&E Coordinator, extension technicians

and senior experts of the GEF project. The Clusters will meet quarterly under the leadership of the NPC and will have the following tasks: 1- Assess the progress and results achieved at the farm level in the pilot farms and DACC farms, in the corresponding ecoregion. 2- Coordinate the training activities in CSLM practices for rural producers and workers and extension technicians in the ecoregion, in addition to awareness activities, such as field days. 3- Exchange technical information in order to meet possible demands that arise in the territories of private technicians or producers.

3.3 PLANNING AND FINANCIAL MANAGEMENT

3.3.1 Financial plan (by components, outcome and co-financiers)

Institution/ Component	MGAP	INIA	FAO	MVOTMA	FAGRO	CCAC	CNFR	IPA	Total CoFin by Outcome	% Cash	GEF	Total Project by Outcome	% CoFin by Outcome
Component 1													
Outcome 1.1	2,460,000	-	30,000	35,500	-	-	6,194	-	2,531,694	12%	257,029	2,788,723	91%
Outcome 1.2	400,000	-	64,000	-	16,000	-	3,998	-	483,998	96%	115,235	599,233	83%
Component 2													
Outcome 2.1	8,200,000	585,000	127,804	103,650	654,000	100,000	32,243	298,000	10,100,697	83%	1,229,350	11,330,047	89%
Component 3													
Outcome 3.1	550,000	211,000	128,198	39,100	-	-	6,880	80,000	1,015,178	14%	390,558	1,405,736	72%
PMC	-	-	110,000	-	-	-	-	-	110,000	-	99,609	209,609	52%
Total	11,610,000	796,000	460,002	178,250	670,000	100,000	49,315	378,000	14,241,567	66%	2,091,781	16,333,348	87%

Table 3.2: Financial plan (by components, outcome and co-financier).

Table 3.3 Confirmed sources of co-financing

Source of cofinancing	Cash/In Kind	Amount of Cofinancing (USD)
MGAP	Cash	8.950.000
	In Kind	2.660.000
INIA	In Kind	796.000
FAO	Cash	360.002
	In Kind	100.000
MVOTMA	In Kind	178.250
FAGRO	In Kind	670.000
CCAC	Cash	100.000
CNFR	In Kind	49.315
IPA	In Kind	378.000
Total		14.241.567

3.3.2 GEF Contribution

225. The GEF contribution of USD 2,091,781 will finance inputs needed to generate the outputs and outcomes under the Project. These include: (i) local and international consultants to support development of the CSLM strategy at national level, NAMA and MRV systems, background studies, capacity development and project M&E; (ii) technical support to implement farm-level CSLM strategies; (iii) support to information and knowledge management; (iv) LoA/contracts with technical institutions to develop and implement the on-farm monitoring system for GHG emission and carbon sequestration; (v) international flights and local transport and equipment; and (vi) training and awareness raising material.

3.3.3 Government Contribution

226. MGAP will provide USD 8,950,000 in cash, notably through the DACC-2 project, and 2,660,000 USD in kind contribution. It will provide staff time of the National Project Coordinator. Under component 1, MGAP will provide staff and logistical support, support to the institutional workshops for capacity building and CSLM, and the training of extensionists. Under component 2, MGAP will fund investments on pilot farms to strengthen implementation of the CSLM strategies. Also, it will provide transportation for project staff and costs for workshop and field days. Under component 3, MGAP provides staff time and materials in support of training, dissemination and M+E activities,

227. MVOTMA will provide USD 178,250 in kind. Under Component 1, Staff time to support NAMA and MRV development will be provided. Under components 2 and 3, MVOTMA will provide staff to support development and validation of the on-farm monitoring system, as well as dissemination of CSLM strategy through its projects.

228. INIA will provide USD 796,000 in-kind in staff and laboratory resources in support of the development of the on-farm monitoring system (Component 2). Also, staff time and materials will be provided to support production and dissemination of training materials through its regional network of field stations.

3.3.4 FAO Contribution

229. FAO will provide USD 360,002 in cash and 100,000 in-kind resources. In particular, FAO will provide staff resources to support the organization of the CNFL strategy and NAMA development process, as well as logistical support to capacity building activities (component 1). Staff resources from the “Integration of the agricultural sector into National Adaptation Plans” will be provided to support the integration of the results from the MRV and on-farm monitoring system into national monitoring and reporting systems. Under component 3, FAO will provide a part-time communications specialist, office space and materials to support implementation of the project’s communication strategy. Finally, staff resources of the FAO representation in Uruguay to support overall project management.

3.3.5 Inputs from other co-financiers

230. FAGRO will provide USD 670,000 in-kind in staff and logistical support. Under component 1, staff to support the development and implementation of the capacity building programme for extensionists will be provided. Under Component 2, FAGRO will provide staff and transport to provide advice to extensionists on the design and implementation of farm-level CSLM strategies and capacity building activities. Also, staff, logistics and laboratory resources will be provided in support to the on-farm monitoring system. Finally, FAGRO will contribute staff in support of dissemination of project results.

231. IPA will provide USD 378,000 in-kind in staff time and to organize complementary capacity building activities. Under Component 2, IPA will fund trainings to farmers and extensionists in the use of the methodology to monitor socio-economic indicators on the farms (carpeta verde). Under component 3, IPA will provide resources to disseminate information through its dedicated communication and media channels.

232. FUCREA will provide USD 49,315, supporting the participation of staff and associates in the development and validation of the CNFL strategy and capacity building activities (Component 1), logistical support and participation of local CREA group staff in training activities and field days (component 3), and dissemination of project results through its national network of farmers’ groups (component 3).

233. CCAC will contribute USD 100,000 in cash toward to fund consultants and laboratory services for the development and implementation of the farm level monitoring system of GHG emissions.

3.3.6 Financial management and reporting on GEF resources

234. Financial management and reporting in relation to the GEF resources will be carried out in accordance with FAO’s rules and procedures, and in accordance with the agreement between FAO and the GEF Trustee. On the basis of the activities foreseen in the budget and the project, FAO will undertake all operations for disbursements, procurement and contracting for the total amount of GEF resources.

235. **Financial records.** FAO shall maintain a separate account in United States dollars for the Project’s GEF resources showing all income and expenditures. Expenditures incurred in a currency other than United States dollars shall be converted into United States dollars at the

United Nations operational rate of exchange on the date of the transaction. FAO shall administer the Project in accordance with its regulations, rules and directives.

236. **Financial reports.** The BH shall prepare six-monthly project expenditure accounts and final accounts for the project, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the un-liquidated obligations as follows:

237. Details of project expenditures on outcome-by-outcome basis, reported in line with Project Budget (Appendix 3 of this Project document), as at 30 June and 31 December each year.

238. Final accounts on completion of the Project on a component-by-component and outcome-by-outcome basis, reported in line with the Project Budget (Appendix 3 of this Project Document).

239. A final statement of account in line with FAO Oracle Project budget codes, reflecting actual final expenditures under the Project, when all obligations have been liquidated.

240. **Financial statements:** Within 30 working days of the end of each semester, the FAO Representation in Uruguay shall submit six-monthly statements of expenditure of GEF resources, to present to the Project Steering Committee. The purpose of the financial statement is to list the expenditures incurred on the project on a six monthly basis compared to the budget, so as to monitor project progress and to reconcile outstanding advances during the six-month period. The financial statement shall contain information that will serve as the basis for a periodic revision of the budget.

241. The BH will submit the above financial reports for review and monitoring by the LTO. Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

242. Responsibility for cost overruns: The BH shall utilize the GEF project funds in strict compliance with the Project Budget (Appendix 3) and the approved AWP/Bs. The BH can make variations provided that the total allocated for each budgeted project component is not exceeded and the reallocation of funds does not impact the achievement of any project output as per the project Results Framework (Appendix 1). At least once a year, the BH will submit a budget revision for approval of the LTO and the FAO/GEF Coordination Unit through FPMIS. Cost overruns shall be the sole responsibility of the BH.

243. **Audit.** The Project shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

244. The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the Governing Bodies of the Organization and reporting directly to them, and an internal audit function headed by the FAO Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the terms of reference of each. Internal audits of imprest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

3.4 PROCUREMENT

245. At the request of the Government of Uruguay, FAO will procure the equipment and services foreseen in the budget (Appendix 3) and the AWP/Bs, in accordance with FAO rules and procedures.

246. Careful procurement planning is necessary for securing goods, services and works in a timely manner, on a “Best Value for Money” basis, and in accordance with the Rules and Regulations of FAO. It requires analysis of needs and constraints, including forecast of the reasonable timeframe required to execute the procurement process. Procurement and delivery of inputs in technical cooperation projects follow FAO’s rules and regulations for the procurement of supplies, equipment and services (i.e. Manual Sections 502 and 507). Manual Section 502: “Procurement of Goods, Works and Services” establishes the principles and procedures that apply to procurement of all goods, works and services on behalf of the Organization, in all offices and in all locations, with the exception of the procurement actions described in Appendix A – Procurement Not Governed by Manual Section 502. Manual Section 507 establishes the principles and rules that govern the use of Letters of Agreement (LoA) by FAO for the timely acquisition of services from eligible entities in a transparent and impartial manner, taking into consideration economy and efficiency to achieve an optimum combination of expected whole life costs and benefits (“Best Value for Money”).

247. The FAO Representation in Uruguay will prepare an annual procurement plan for major items which will be the basis of requests for procurement actions during implementation. The plan will include a description of the goods, works, or services to be procured, estimated budget and source of funding, schedule of procurement activities and proposed method of procurement. In situations where exact information is not yet available, the procurement plan should at least contain reasonable projections that will be corrected as information becomes available.

248. Before commencing procurement, the NPC will prepare the project’s Procurement Plan for approval by the Project Steering Committee. This plan will be reviewed during the inception workshop and will be approved by the FAO Representative in Uruguay. The NPC will update the Plan every six months and submit the plan to the FAO Representative in Uruguay for approval.

3.5 MONITORING AND REPORTING

249. The monitoring and evaluation of progress in achieving the results and objectives of the project will be based on targets and indicators in the Project Results Framework (Appendix 1 and descriptions in sub-section 1.3.2). Project monitoring and the evaluation activities are budgeted at USD 131,651 (see Table 3.4). Monitoring and evaluation activities will follow FAO and GEF policies and guidelines for monitoring and evaluation. The monitoring and evaluation system will also facilitate learning and replication of the project’s results and lessons in relation to the integrated management of natural resources.

3.5.1 Oversight and monitoring responsibilities

250. The monitoring and evaluation roles and responsibilities specifically described in the Monitoring and Evaluation table (see Table 3.4 below) will be undertaken through: (i) day-to-day monitoring and project progress supervision missions (PT); (ii) technical monitoring of

indicators to measure a reduction in land degradation (PT in coordination with partners); (iii) mid-term review and final evaluation (independent consultants and FAO Evaluation Office); and (v) monitoring and supervision missions (FAO).

251. At the beginning of the implementation of the GEF project, the PT will establish a system to monitor the project's progress. Participatory mechanisms and methodologies to support the monitoring and evaluation of performance indicators and outputs will be developed. During the project inception workshop (see section 3.5.3 below), the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project Results Framework with all project stakeholders; (ii) review of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will be required for inclusion in consultant contracts, to ensure compliance with the monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders in the project. The M&E Expert (see TORs in Appendix 6) will prepare a draft monitoring and evaluation matrix that will be discussed and agreed upon by all stakeholders during the inception workshop. The **M&E matrix** will be a management tool for the NPC, the PT and the Project Partners to: i) six-monthly monitor the achievement of output indicators; ii) annually monitor the achievement of outcome indicators; iii) clearly define responsibilities and verification means; iv) select a method to process the indicators and data.

252. The **M&E Plan** will be prepared by the M&E Expert in the three first months of the PY1 and validated with the PSC. The M&E Plan will be based on the M&E Table 3.4 and the M&E Matrix and will include: i) the updated results framework, with clear indicators per year; ii) updated baseline, if needed, and selected tools for data collection (including sample definition); iii) narrative of the monitoring strategy, including roles and responsibilities for data collection and processing, reporting flows, monitoring matrix, and brief analysis of who, when and how will each indicator be measured. Responsibility of project activities may or may not coincide with data collection responsibility; iv) updated implementation arrangements, if needed; v) inclusion of the tracking tool indicators, data collection and monitoring strategy to be included in the mid-term review and final evaluation; vi) calendar of evaluation workshops, including self-evaluation techniques.

253. The day-to-day monitoring of the project's implementation will be the responsibility of the NPC and will be driven by the preparation and implementation of an AWP/B followed up through six-monthly PPRs. The preparation of the AWP/B and six-monthly PPRs will represent the product of a unified planning process between main project stakeholders. As tools for results-based-management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output and outcome targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output and outcome targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with all stakeholders and coordinated and facilitated through project planning and progress review workshops. These contributions will be consolidated by the NPC in the draft AWP/B and the PPRs.

254. An annual project progress review and planning meeting should be held with the participation of the project partners to finalize the AWP/B and the PPRs. Once finalized, the AWP/B and the PPRs will be submitted to the FAO LTO for technical clearance, and to the Project Steering Committee for revision and approval. The AWP/B will be developed in a

manner consistent with the Project Results Framework to ensure adequate fulfillment and monitoring of project outputs and outcomes.

255. Following the approval of the Project, the PY1 AWP/B will be adjusted (either reduced or expanded in time) to synchronize it with the annual reporting calendar. In subsequent years, the AWP/Bs will follow an annual preparation and reporting cycle as specified in section 3.5.3 below.

3.5.2 Indicators and sources of information

256. Please see Appendix 1 (Results Framework) for a description of indicators and sources of information.

3.5.3 Reporting schedule

257. Specific reports that will be prepared under the monitoring and evaluation program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) Annual Project Implementation Review (PIR); (v) Technical reports; (vi) Co-financing reports; and (vii) Terminal Report. In addition, the GEF-6⁷⁰ tracking tools for Climate Change Mitigation (CCM) and Land Degradation (LD) focal areas will be completed and will be used to compare progress against the baseline.

258. **Project Inception Report.** After FAO internal approval of the project an inception workshop will be held. Immediately after the workshop, the NPC will prepare a project inception report in consultation with the FAO Representation in Uruguay and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix (see above). The draft inception report will be circulated to FAO, and the PSC for review and comments before its finalization, no later than three months after project start-up. The report will be cleared by the FAO BH, LTO and the FAO/GEF Coordination Unit. The BH will upload it in FPMIS.

259. **Annual Work Plan and Budget(s) (AWP/Bs).** The NPC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project outcomes and outputs and divided into monthly timeframes and targets and milestone dates for output and outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO Representation in Uruguay will circulate the draft AWP/B to the FAO Project Task Force and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the PT will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection. The BH will upload the AWP/Bs in FPMIS.

260. **Project Progress Reports (PPR).** The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators

⁷⁰ GEF CCM and LD Tracking Tools

