



United Nations Development Programme
Country: Argentina
PROJECT DOCUMENT

Sustainable Land Use Management in the Drylands of North-west Argentina

UNDAF Outcome	1.3 The country will have implemented strategies and policies for the management and sustainable use of natural and environmental resources.
Expected Outcome CPD	Outcome 2: Policies and strategies designed and implemented for the management and conservation of land, forests, water resources and biological diversity
Expected Output from the project	Capacities for implementation of SLM practices and enabling environment for reducing land degradation strengthened in priority dryland ecoregions.
Executing Entity:	Environment and Sustainable Development Secretariat (SAyDS)
Implementing Entity:	United Nations Development Program (UNDP)

Brief Description
<p>A total of 81.5% of the drylands of Argentina are degraded (based on the LADA evaluation). As a result, Argentina has given great importance to the implementation of the United Nations Convention to Combat Desertification through the National Action Program (NAP) to Combat Desertification and Mitigate the Effects of Drought. The project will promote the sustainable management of land in the arid and semi-arid and dry sub-humid ecosystems of the northwest of Argentina to address increasing loss of ecosystem functions and services in an area characterized by high land degradation and poverty levels. It will promote the incorporation of sustainable land management (SLM) into baseline investments to improve rural livelihoods by facilitating a shift from a more <i>ad hoc</i> sector specific approach to one of integrated natural resource management that implements SLM practices following land degradation (LD) mitigation hierarchy: prevention; adaptation; mitigation; and rehabilitation. It will define the appropriate mix of SLM practices through on-the-ground investment in targeted landscapes in at least three provinces of the dryland ecoregions and identify financial instruments to support SLM uptake. It will also set up multi-sector platforms to facilitate coordination among competing environmental, social and economic objectives in these landscapes. In doing so, it will improve coordination among different land uses and improve the sustainability of land management so as to maintain the flow of agro-ecosystem services to sustain the livelihoods of local communities. In parallel it will strengthen provincial and national capacities and governance frameworks for replication of SLM at the ecoregional scale. This will include developing SLM guides and protocols to strengthen planning of SLM and implementation in LD hotspots. Further it will develop an effective integrated planning information system based on GIS for monitoring and evaluation at the provincial and national levels providing critical information to influence SLM investment and increase efficiencies. The project thus will address the GEF land degradation focal area objective LD 1: "Maintain or improve flow of agro-ecosystem services to sustaining the livelihoods of local communities" and LD 3 "Reduce pressures on natural resources from competing land uses in the wider landscape".</p>

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Total allocated resources:

- Regular
- Other:
 - GEF US\$3,515,091
 - Government US\$20,305,854*
 - UNDP US\$500,000

* Parallel funding not channeled through UNDP

Agreed by (Government):

Agreed by (Executing Entity/Implementing Partner):

Agreed by (UNDP):

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ACRONYMS

AOPs	Annual Operational Plans
AWP	Annual Workplans
CO	Country Office
COFEMA	Federal Council on the Environment
CONAMI	National Commission on Microcredit
CONICET	National Council for Scientific and Technical Research
DCSyLCD	Department of Land Degradation and Combatting Desertification
EC	Ecoregional Consultants
FAO	Food and Agriculture Organization
GEB	Global Environmental Benefits
GEF	Global Environment Facility
GoA	Government of Argentina
GoP	Provincial Government
INRM	Integrated Natural Resource Management
IADIZA	Argentinian Institute for Dryland Research
INTA	National Institute for Agricultural Technology
IPAF	Institute for Research and Technological Development of Small Family Agriculture
IR	Inception Report
IW	Inception Workshop
LADA	Evaluation of Land Degradation in Drylands
LD	Land Degradation
LUS	Land Use System
M&E	Monitoring and Evaluation
MAGyP	Ministry of Livestock Management and Fisheries
MC	Microcredit
MDS	Ministry of Social Development
NAP	National Action Program to Combat Desertification and Mitigate the Effects of Drought
NPC	National Project Coordinator
NPD	National Project Director
ONDTyD	National Observatory on Land Degradation and Desertification
OTBN	Land Use Zoning of Native Forests
PAP	Provincial Action Program
PEU	Project Execution Unit
PIF	Project Identification Form
PRODERI	Program for Inclusive Rural Development
PRODERNOA	Project for the Rural Development of the Provinces of Northwestern Argentina
PROSAP	Program for Provincial Agricultural Services
PROVIAR	Program for the Integration of Small Wine Producers
PTC	Project Technical Coordinator
RF	Revolving Funds
SAyDS	Secretary for Environment and Sustainable Development
SDI	Spatial Data Infrastructure
SEI	Specific Intervention Areas
SGP	Small Grants Program
SLM	Sustainable Land Management
TPC	Tripartite Committee
UCAR	Rural Change Unit
UNCCD	United Nations Convention to Combat Desertification and Drought
UNDP	United Nations Development Program
UNDP/GEF RCU	UNDP/GEF Regional Coordinating Unit
WOCAT	World Overview of Conservation Approaches and Technologies

SECTION 1: ELABORATION OF THE NARRATIVE

PART I: SITUATION ANALYSIS

IA: Context and Global Significance

Environmental Context

1. Argentina is the second largest country in South America and the eighth in the world with 2.7 million km² of mainland. Its wide range latitudinal range is associated with a great variety of ecoregions and climates, making it one of the most environmentally diverse countries in Latin America. Its 18 recognized ecoregions include Antarctic environments, rainforests, mountain, coastal and marine environments, temperate grasslands and arid steppes.

2. Argentina is the Latin American country with the largest area of arid, semi-arid and dry sub-humid land. Drylands cover 70 % of the country and include dry forests, shrublands, grasslands, deserts and high Andean wetlands. Many of these drylands have been identified as areas of global importance for providing key ecosystem services to Argentina's productive sectors, including agriculture, livestock management and horticulture, which play a key role in the national economy. The positive contribution of these productive sectors to the economy has not been without its toll on the environment and land degradation. More than two thirds of the original 100 million acres of Argentina's forest land from Argentina have been lost or degraded in a span of less than 80 years since 1915 (First National Native Forest Inventory 2005-2007), mainly attributable to the expansion of the agricultural frontier (for crops and livestock).

3. Dryland ecosystems provide a wide range of goods and services that give rise to ecoregions, biodiversity, and to particular cultures and lifestyles that are highly dependent on ecosystem services. Climatic variations and low water availability typically place limits on the provision of these ecosystem goods and services. Pressure on resources without sustainable management reduces the resilience of dryland ecosystems, promotes land degradation and leads to desertification. It is for this reason that drylands are particularly vulnerable to land degradation.

4. The inappropriate use of drylands has led to significant detrimental impacts on the environment. The different forms of land degradation in the drylands of Argentina and their causes were evaluated in the LADA project¹, which first classified the land according to the land use systems in place and then applied the LADA / WOCAT methodology to these systems in the drylands. It was concluded that 81.5% of the percentage analyzed showed evidence of some degree of land degradation, generating significant adverse environmental impacts (FAO 2011). According to the National Action Program to Combat Desertification (1999), 60 million hectares have been affected by different desertification processes and to differing degrees out of the 276 million total hectares comprising the mainland of Argentina. Wind and water erosion and salinization have contributed to desertification problems for 40% of the irrigated land.

5. The classification used in Argentina (Burkart et al. 1999²) identifies five ecoregions within the

¹ The Evaluation of Land Degradation in Drylands (LADA) project (2003-2011) evaluated the trends in land use systems over a period of 10 years; the area of degraded lands; the level and speed of land degradation; as well as the direct and indirect causes. In addition, it identified the impacts of each type of land degradation and the impact of SLM on ecosystem services and provided recommendations for the different dry regions of the country.

² Eco -regions of Argentina, Ministry of Natural Resources and Sustainable Development, Buenos Aires.

drylands: Puna, Chaco Seco, Dry Valleys scrub (Monte de Sierras y Bolsones), Plains and Plateaus scrub (Monte de Llanuras y Mesetas), and the Patagonian steppe. This project will address the drylands in the three ecoregions that have not yet benefitted from prior GEF or Adaptation Fund interventions to prevent LD (see map of ecoregions in Annex 3), namely: Puna, Dry Valleys scrub, and the Plains and Plateaus scrub. These are located within the geopolitical regions of the Northwest (NOA) and Cuyo. These ecoregions account for about 40% of the drylands of the country, and are particularly sensitive to land degradation processes due to prolonged periods of low rainfall. Furthermore land clearing, overgrazing, and increasing water demand for irrigation are having a significant impact on the provision of goods and ecosystem services for the highly vulnerable populations who use them for their livelihoods. The levels of land degradation in these three ecoregions are high. A total of 48% of the Plains and Plateaus scrub, 62% of the Dry Valleys scrub, and 75% of Puna suffer from moderate to heavy land degradation. The governments of the provinces of Tucumán and Mendoza, which contain the Dry Valleys Scrub and the Plains and Plateaus scrub ecoregions, have identified 55,000 and 7.5 million hectares respectively of areas sensitive to land degradation and/or degraded lands.

6. The Puna ecoregion covers 3.76 % of the national territory and in Argentina is located within the NOA and Cuyo regions (see Annex 3 for coordinates). It is found above the timberline (3,200 m) and below the limit of permanent snow cover. The Puna of Argentina represents the southern boundary of this ecoregion and is characterized primarily as "arid Puna", with rainfall below 300 mm per year, 8 months of a dry winter with a large daily temperature range, which can reach 30°C, annual averages below 8°C and minimum winter temperatures below -15 ° C. Soils are usually incomplete, sandy or rocky, with very low organic matter content. The arid Puna ecoregion is associated with unique flora and fauna adapted to the place. They are characterized by shrubs and bushes such as thola (*Paraestrepia* sp.) yareta (*Azorella Yareta*) and tough grasses in wetlands; grasses (*Pennisetum chilensis*) growing on protected slopes. Trees are very rare, and include *Polylepis crista-galli* (*Polylepis tomentella*) and *Prosopis ferox*. Typical animal species include the vicuña (*Lama vicugna*), used as a livestock resource, guanacos (*Lama guanicoe*), the dessert puna (*Pterocnemia pennatta garleppi*), the short-tailed chinchilla (*Chinchilla chinchilla*), the Andean cat (*Felis Jacobite*) and birds such as Andean flamingos (*Phoenicopterus andinus*).

7. The Plains and Plateaus Scrub ecoregion (Monte de Llanuras y Mesetas) extends east of the Andes, from the province of Mendoza, along the La Pampa and Neuquén provinces, to the Atlantic coast of Rio Negro and the northeast of Chubut. The plateaus or "table hills" are made up of hilly rocky bodies, depressions (occasionally with lagoons or saltbars), floodplains and river terraces. The dominant relief is between 0 and about 800-1000 meters above sea level. The climate is temperate-arid and the low rainfall (with rainfall of 100mm and occasionally 200mm per year) is distributed in the north over the course of the year, while the south is characterized by the influence of a Mediterranean-type regime (winter rains). Average annual temperatures are around 10-14°C, with a substantial temperature range. The vegetation is characterized by cacti and zigofilaceas; the cacti (*Larrea* spp.) predominates both in the highlands and on the banks of river terraces and in the lowland plains. The most characteristic animals are the Patagonian mara (*Dolichotis patagonum*), Southern mountain cavy (*Microcavia australis*), culpeo or Andean fox (*Pseudalopex culpaeus*), cougar (*Puma concolor*), guanaco (*Lama guanicoe*), greater rhea (*Rhea americana*), Patagonian canastero (*Asthenes patagonica*) and rusty-backed monjita (*Neoxolmis rubetra*).

8. The Dry Valleys Scrub ecoregion (Montes de Sierras y Bolsones) is an arid region with a wide geological, geomorphological and altitudinal range. It is associated with the Andes system and the highlands of the extreme western end of the country, from Jujuy to northern Mendoza. Along its western edge, the ecoregion has extensive and steep slopes that at certain altitudes connect it to the Puna in the north and the High Andes in the south. At the foot of the slopes are intermontane valleys of tectonic origin. These intermontane valleys plains result in slight inclines (depressions), in which closed watersheds with poor drainage can be found, known as "bolsones". The climate is subtropical-dry in the north. The entire region receives little rainfall, generally between 80-200 mm per year. In the valleys and

ravines of the north, rainfall is concentrated in the summer months, in the bolsones (subregion of jarillales of Bolsines and Valleys) of the south, rain is distributed throughout the year. The solar radiation is intense and the cloud cover is low. The summer temperature is relatively warm, while during the rest of the year the cold is quite intense throughout the region. Temperature changes are very pronounced, both during the day and between seasons. The soils are predominantly sandy, poor in organic matter and salty, with frequent rock outcrops and stoniness. The vegetation on the well-drained soils and the bolsones predominantly features jarillas (*Larrea* sp.), with retamo (*Bulnesia retama*), pichana (*Senna aphylla*), Palo brea (*Cercidium praecox*), Mesquite (*Prosopis torquata*) and others, which are typical of the jarillal community. Mountain and mountain flanks are characterized by columnar cacti or cactuses of 4-5 mm (subregion of los cardonales de Laderas). Due to strong water evaporation, the depths of the bolsones or "salt flats" contain halophytic communities (jumales and zampales). Along its edges algarrobales (*Prosopis* spp.) can be found due to groundwater supply, allowing the presence of gallery forests.

9. Water deficits and marked seasonality of rainfall characterize these three ecoregions, resulting in the need to manage water resources so that they are available for both human consumption and for agricultural and industrial production. There are several possibilities of storage dams and reservoirs. Water is captured by diversion dams, tanks, infiltration galleries and free running collection points. The most critical point in the region with relation to surface irrigation corresponds to the province of La Rioja, where all surface runoff combined leads to a total flow of approximately 13 m³/ sec., which is the lowest of all the provinces in the country. To aggravate the situation, the groundwater basins have a high degree of conductivity (salinity). In contract, Mendoza has an irrigation surface that totals 3% of the provincial area (approximately 360,000 ha) arising from the use of five rivers in a typical mountain system that provides the highest flow in the spring and summer from the melting of the high peaks. As a result, three oases have been formed, namely, the North, Central (or Central West) and South, based on their geographic location within the province. San Juan has a similar structure of oases, with the most important being the Tulum Valley in terms of availability of soil and water, with an area of 1,625 km², which forms an economic unit with nearby Ullum and Zonda valleys. The availability of water in the province of San Luis depends solely on rainfall, as the province lacks glaciers and/or snow-covered peaks as in the above cases. In the province of Tucuman, water resources in the Calchaquies valleys correspond to the upper basin of the Juramento river- Salado. The river flow is typical of mountain areas with the highest flow during the summer period, while during the rest of the year most of the tributaries have meager or no inputs, such as the Santa Maria River, in which the current is fully exploited for irrigation.

10. The following table lists the eight provinces found within the NOA and Cuyo geopolitical regions and describes the area of each province that is found within the three ecoregions described above.

Table 1: Areas and percentages corresponding to provinces and ecoregions involved in the project

Provinces	Ecoregions	Area (km ²)	% A	% B
CATAMARCA		52534	17.0	
	<i>Dry Valleys scrub</i>	29724		56.6
	<i>Puna</i>	22811		43.4
JUJUY		28368	9.2	
	<i>Dry Valleys scrub</i>	1500		5.3
	<i>Puna</i>	26868		94.7
LA RIOJA		40734	13.1	
	<i>Dry Valleys scrub</i>	36835		90.4
	<i>Puna</i>	3899		9.6
MENDOZA		87598	28.3	
	<i>Plains and Plateaus scrub</i>	83859		95.7
	<i>Dry Valleys scrub</i>	3739		4.3
SALTA		37964	12.3	

Provinces	Ecoregions	Area (km ²)	% A	% B
	<i>Dry Valleys scrub</i>	9315		24.5
	<i>Puna</i>	28649		75.5
SAN JUAN		54250	17.5	
	<i>Plains and Plateaus scrub</i>	8573		15.8
	<i>Dry Valleys scrub</i>	34849		64.2
	<i>Puna</i>	10828		20.0
SAN LUIS		7187	2.3	
	<i>Plains and Plateaus scrub</i>	7187		100
TUCUMAN		1200	0.4	
	<i>Dry Valleys scrub</i>	1200		100
TOTAL		309,835	100	

Based on information from: SIG-250 Instituto Geográfico Nacional- IGN y Ecoregiones de la Argentina. Sistema de Información de Biodiversidad. APN-SAyDS (1997). Ing. Carlos C. Brieva

%A corresponds to the proportion of each province in relation to the total project area. % B corresponds to the percentage of each ecoregion within each province.

Socio-economic context

11. Administratively, the Republic of Argentina is a federal government comprising 23 provinces and the Autonomous City of Buenos Aires (CABA). The country is organized into six geopolitical regions, which group together provinces that share similar geographical or historical affinities and/or similar features. Usually national sectoral and/or poverty reduction programs take a regional approach based on this grouping, but resources are then channeled to each of the provinces. This project focuses on the NOA and Cuyo regions, which are made up of eight provinces and take up 19% of the country's area. The drylands that are the target of this project cover about 310,000 km² or 31,000,000 ha (42% of the provinces and 8% of the total national territory or 11% of the mainland) within the two regions of NOA and Cuyo.

12. Argentina is one of the world's largest agricultural producers and is characterized as being among the most important producers of most of the following items: beef, fruit, grapes, honey, corn, sorghum, soybeans, squash/zucchini, sunflower seeds, wheat, and yerba mate. It is also an important producer of walnuts, grapes, wine and olives. Agriculture accounted for 9% of GDP in 2010, including processed products and was responsible for 54% of export revenues. Due largely to this sector, the economy emerged from the recession in 2008/2009, and in 2010 stood out in the region in terms of growth.

13. The population of these regions totals 6.9 million with a density of 9 inhabitants per km², which is below the national average of 14.4/km². The rural population is approximately 1.3 million people³, which represents 18.4% of the population of NOA and Cuyo, and includes the poorest inhabitants living at a subsistence level and dedicated to agricultural production and to the breeding of sheep, goats and cattle. A total of 3,185, 936 people live in the Cuyo region, which corresponds to 8% of the national total. Of this number, 18% inhabits rural areas, with 73% of the population living in a dispersed fashion and 27% living in agglomerations. A total of 51% of the population is female and 49% male. In the NOA region, the population is 3,703,764, representing 9% of the national total. Of this population, 19% can be found in rural areas, with 68% dispersed and 32% living in agglomerations. A total of 51% of the population is female and 49% male. The NOA and Cuyo regions include 45% of the total number of "family agriculture" households, which represents the producers with the fewest resources (*see Main Land Uses section for more details*).

³ National Census of Population and Housing. 2010.

14. The age of workers involved in family farming in the NOA region includes a large proportion of young people and children; 17% are children between 10 and 14 years of age and 14% are in the range of 15-24 years. In the Cuyo region, 14% of the workers are between 8 and 12 years of age and 11% between 13 and 19 years. For NOA and Cuyo regions, 16% and 21% respectively of young people between 15 and 24 years only studies, 45% and 35% respectively only works, and 28% and 32% study and work on the farm. This age distribution indicates that many adults are engaged in activities outside of the farm, to the point that over 83% of family farming units receive income from elsewhere (83% in Cuyo and 86% in NOA). A total of 78% of this additional income comes from public transfers (pensions, retirement plans, employment assistance, unemployment insurance, universal child allowance, or others)

15. In the regions of NOA and Cuyo, 48% of the family farming work is carried out by women. Single women own or have possession of 41% of the farms in NOA and 45% in Cuyo. Two-headed households own or have possession of 59% of the family farms⁴ in NOA and 55% in Cuyo.

16. These geopolitical regions (NOA and Cuyo) have among the highest poverty rates nationwide. In NOA, 5% of the population lives below the poverty line, while in Cuyo 4.3% of the population is in this position⁵. In fact, the NOA region contains the second highest national poverty rates after the NEA (Northeastern) region.

17. Information on the level of schooling of the owners of family farms indicates that 4% has not received any instruction at all in the two regions of NOA and Cuyo. In NOA, 34% did not complete primary school while 49% did so without pursuing additional studies (the remaining percentages either received no schooling or went beyond primary school in their studies). In Cuyo 28% of the population did not complete primary school, while 45% did.

18. The largest group of indigenous peoples in the Cuyo region are the Huarpe (in San Juan, Mendoza and San Luis) and Diaguita (in La Rioja). Their total population is 60,917 people who are recognized as descendants or members of an indigenous group in the region, representing 6.38% of the total national indigenous population. The male-female ratio is even. In the NOA region, the main indigenous groups are the Kolla, Omaguaca, Atacama, Guarani, Quechua, Diaguita, Chane, Carote, Chupui, Tapiete, and Wichita. They are recognized as indigenous descendants, or belonging to one of the indigenous groups, and number 157,993 persons, representing 16.54% of the national indigenous total. In total, 51% of the population is male and 49% female.

Main Land Uses

19. Most of the smallholder production can be grouped within the category of family farming, which includes agricultural, livestock, forestry, fisheries and aquaculture production, but which, despite its significant diversity, shares several features. It is characterized by limited access to land and capital resources and by the predominant use of family labor, with the head of the family directed involved in the productive activities. The farming activity represents the main source of household income, though it may be complemented by other non-agricultural activities that take place within or outside the family unit (such as services related to rural tourism, handicraft production, small agribusinesses, casual jobs, and/or public sector transfers). The median size of family agriculture households is 7 ha in NOA and 3 ha in Cuyo. A total of 46% of agricultural establishments are smaller than 5 ha.

⁴ The family agriculture households (called "núcleos de la agricultura familiar" (NAF) in Spanish), consist of an average of 3.8 members or larger sizes in the NOA region where there are more children and/or adolescents less than 18 years compared to the rest of the country.

⁵ INDEC: Information on the second semester of 2012. http://www.indec.gov.ar/nuevaweb/cuadros/74/pob_tot_2sem12.pdf

20. The NOA region contains more than 82,000 family farmers, making up 34% of the total number of family farmers in Argentina, while the Cuyo region has 30,668 members representing 12.6% of the national total. The NOA region contains 31% of the total family farming productive units and Cuyo has 14% of the national units. In the NOA region, the family farming households carry out the following activities: animal production 82%, agriculture 66%, gathering 20%; agribusiness 15%; and handicrafts 14%. In the Cuyo region, the main activities are: animal production 72%; agriculture 57%; agribusiness 34%; crafts 8%; and gathering 3%. In addition to the family farmers, there are an estimated 49,039 agricultural units/families that do not fall into the family farming category in the eight target provinces of NOA and Cuyo.

21. The agricultural production in the region has three distinct origins, the first related to ancient customs associated mainly with Andean crops (in the Puna region), featuring grains, roots, fruits, vegetables and tubers adapted to altitudes exceeding 4000 meters, which are resistant to drought, frost and soils with saline features. They include maize (*Zea mays*), the Andean potato (*Solanum tuberosum* spp. andigena), quinoa (*Chenopodium quinoa*), amaranth (genus *Amaranthus*), kañiwa (*Chenopodium pallidicaule*) and fruit. In addition, the oca (*Oxalis tuberosa*) and ulluco (*Ullucus tuberosus*) are grown in the Quebrada de Humahuaca and the high valleys. Also linked to the customs of these people is the farming of native species such as llamas and guanacos for the production of fiber and wool, meat, and crafts.

22. The second origin of agricultural production activities is linked to the period of colonization leading to livestock production, involving the introduction of cows, sheep, and goats in extensive livestock systems with undefined limits, contributing to high stock loads. Production of different types of livestock often coexists on the same sites, or is based on transhumance (especially sheep, goats, and South American camelids). The larger production units usually have defined limits and adopt management measures, and these correspond to the ecoregions of the Dry Valleys scrub and the Plains and Plateaus scrub. The extractive forestry industry also has its origins in the colonization period and takes place in these ecoregions, primarily involving algarrobo trees, and production of walnut (including varieties that are more productive than the native ones). The third factor that has pushed regional agricultural production corresponds to government tax incentives (National Law 22.021), leading to the development and intensification of wine, olive, and walnut production. This is particularly relevant to the Dry Valleys scrub and Plains and Plateaus scrub ecoregions (Catamarca, La Rioja, San Juan, and San Luis provinces).

Main types of agricultural production

23. Goat production: The NOA and Cuyo regions contain more than 1,635,000 heads of goat. Goat production is typically subsistence-based and is carried out in family-based small holdings, with limited technology and little investment in infrastructure. These are mainly extensive systems with nocturnal enclosure, with foraging activities taking place in areas without delineated limits, without a guaranteed source of water, without sanitary or reproductive control and with precarious land tenancy. In addition to the production of meat for family consumption, milk extraction and cheese manufacture are also carried out. In some cases, goat pastoral systems have incorporated exotic pasture grasses, such as "pasto cubano" (*Tithonia tubaeformis*), in Catamarca and Jujuy, and megathermic pastures, such as Buffel Grass (*Brachiaria* spp, *Panicum* spp, *Chloris* spp) that accumulate forage in the spring and summer (in Salta, La Rioja, Catamarca, San Luis and Tucumán). Some are particularly susceptible to field fires.

24. Camelid ranching: The provinces of Jujuy, Catamarca and Salta have 96% of the national camelid production, with an estimated 153,650 head. Camelid production is based on extensive livestock management and linked to large extensions with undefined limits, with nocturnal enclosure commonly practiced. The activity is concentrated in the Puna ecoregion and is focused on the production of fibre,

wool, meat and artisanal products. Most holdings correspond to small producers, with over 5000 smallholders. The management system is precarious with very low productive indicators and severe water restrictions. There are significant economic, technological and infrastructure limitations.

25. Cattle production: The province with the most cattle ranching within the project area is Mendoza. The main system employed is production on natural pastures, mountains and scrub. Some feedlot undertakings have been initiated on irrigated areas with alfalfa production in San Juan province. In general, cattle ranching is carried out by small producers with permits to graze their animals. They generally do not employ appropriate management practices, leading to overgrazing, which has led to erosion and deterioration of the natural forage resource. A smaller percentage of cattle production is undertaken by medium-sized producers who may own the land or work on public or leased lands. Production is low and the profitability of the activity is limited. Many areas, especially in the provinces of Jujuy and La Rioja do not have delimited holdings and there are deficiencies in terms of land titling. The establishment of pastures for beef production (but also to a lesser extent for goat and sheep production), is often carried out using the "rolado y siembra" practice, which is a technique for the recovery of sites with poor forage conditions with high signs of degradation, such as sites near watering holes where vegetation cover is very low or absent. This practice is also used to expand pastures in areas of scrub.

26. Horticultural production: The horticultural production in the area is heterogeneous in terms of the types of products, the size of holdings and destination of the produce. Crops include, among others, garlic, carrots, lettuce, corn, tomatoes, broccoli, peppers and celery. The vegetables are generally produced under irrigated systems.

27. Andean crops: The main Andean crops being cultivated are corn, Andean potato, quinoa, kiwicha, kañiwa, oca, and ulloco. Most of the production is for consumption and trade, with the rest being commercialized.

28. Grapes: Grape production is an important productive activity in the NOA and Cuyo regions. Mendoza is the province with the largest production, with 156,570 ha and over half of its cultivated area dedicated to vineyards. This is followed by mainly small scale producers in San Juan and La Rioja of 5 to 10 ha, with Catamarca, Salta and Tucuman also involved on a smaller scale. It is a crop that uses water resources through irrigation systems that are generally inefficient.

29. Olives: A total of 68,000 ha is dedicated to olive production in the NOA and Cuyo regions, including for olive oil and canned olives. La Rioja, Catamarca, San Juan and Mendoza are the provinces within the project area with the largest production, with 15,000-25,000 ha each. The smallest producers are found in San Juan with plots of 5 to 20 ha and the largest producers are in Catamarca with establishments ranging in size from 100 and 1,200 ha (making up 20,000 ha provincially). In all cases, the productive systems are under irrigation. Tax incentives have led to the growth of commercial producers with high use of technology and increased areas planted, but there remain traditional producers, typically associated with low use of technology, low productivity and inefficient use of water.

30. Walnuts: Walnut production is also typical of NOA and Cuyo, with 12,600 tons produced (95% of the total national production). It is a crop that requires 1000 to 2000 mm of water per year and is found in sites with only a third of that amount, which is why it is associated with irrigation systems in the provinces of Catamarca, Mendoza, La Rioja and San Juan. Small producers in Catamarca and La Rioja have 0 to 5 hectares planted, medium-sized producers 5.1 to 25 hectares, while agricultural entrepreneurs have areas larger than 25 hectares. A total of 85% of the productive units are farmed by small producers with traditional planting techniques associated with low yield, while the rest corresponds to commercial producers who incorporate management practices and technology and have significantly higher yields.

31. Fruit production: Besides grape, walnuts and olives, most of the fruit production in NOA and Cuyo corresponds to stone fruits (peaches, cherries, plums, etc.), fruits with seeds (apple, pear, etc.) and strawberries.

32. Regional agribusiness: The agroindustrial activity in the provinces of Mendoza, San Juan, La Rioja and Catamarca is linked primarily to the processing of grapes and olives. It is carried out by families, microenterprises, medium and large producers. It involves warehouses, and includes the production of preserves and oils at different scales from household to commercial production.

Main land uses for the Puna Ecoregion:

33. Livestock management (subsistence, extensive mixed and nomadic) is the major land use/productive activity in the ecoregion, followed by horticultural production and small-scale crops. Animal husbandry is oriented primarily toward consumption and the market, providing a source of income to small producers in the region. Although sheep farming generally predominates, there is also goat and to a lesser extent cattle production. The farming of camelid species (llamas and vicuñas) is gaining ground. The levels of stock are high and above the recommendations of National Institute for Agricultural Technology (INTA). Overgrazing (*see Threats section for more details*) combined with very limited precipitation and the fragility of the system reduces vegetation cover and exposes the soil to wind degradation. The combination of sheep farming with cattle and goat also has the potential to have a very significant impact on the natural vegetation, which has a low biomass production capacity and slow recovery rates. However, it is possible that strong degradation processes (and even desertification) are somewhat masked by the high mobility of the livestock, which includes seasonal transhumance.

34. The production of crops takes place primarily in small irrigation areas (irrigation "oases"), which cover 1.3% of land area, with the main crops being corn and alfalfa both for human and animal consumption, and main vegetable species being those adapted to altitudes. The latter include potatoes, beans, carrots, corn and Andean crops.

Main land uses for Dry Valleys Scrub Ecoregion

35. Extensive livestock management (silvopastoral, mixed and subsistence) represents the most widespread land use, covering approximately 81.5% of the ecoregion (92,729 hectares), primarily involving cattle in the highland valleys and goats. The irrigation oases represent 4.1% of the area and are focused on vegetable and fruit production (in Quebrada de Humahuaca, Calchaquies Valley, Central and the high Valleys of Catamarca and La Rioja). Olive and walnut productions are also important in this ecoregion.

Main land uses for the Plains and Plateaus Scrub Ecoregion

36. This ecoregion has two main land uses, extensive livestock management and agricultural production in small irrigation areas. Cattle production predominates, both in terms of the number of farms and the amount of stock. There is also goat and sheep production, in particular in La Rioja and Catamarca, with goats being the predominant species in the department of Malargüe (in Mendoza). The irrigation oases of Mendoza and San Juan are mainly dedicated to fruit cultivation (especially grapes, but also olives, walnuts, and some stone fruits such as peaches, plums and apricots) and vegetable production (with a variety of species, such as tomatoes, leafy vegetables, onions, garlic, globe squash and carrots).

37. In both the Dry Valleys scrub and the Plains and Plateau scrub ecoregions, overgrazing of livestock and removal of tree and shrub coverage as a result of fires, logging and fuelwood collection, represent the greatest threats (*See Threats section for more details*). These are resulting in significantly reduced vegetative cover, loss of forests and biodiversity, soil salinization and desertification.

Table 2: Main Land Uses and Threats within each AGI

AGI	Main Land Uses (*)	Location within AGI	Threats
PUNA	Extensive seasonally migratory livestock management. Alto Andino	West of the departments of Cochinoca, Susques and Rinconada	<p>1 . Overgrazing and poor management of pastures. Deforestation for fuelwood. These are the main threats for LD in this ecoregion. Deforestation as well as overgrazing from poor management of pastures increase soil exposure, which favours wind and water erosion</p> <p>2. Natural wind and water erosion. Natural erosion leads to the loss of productive lands. In this erosion water erosion is an issue, principally landslides originating the geological fragility of the soils and seasonal torrential rains.</p>
	"Circunlacustre" livestock management. Miraflores and Pozuelos	In the area around Pozuelos laguna and the basin of the Miraflores river.	
	Pockets of irrigation and livestock management Quebrada	Western hillsides of the Western border of the Quebrada de Humahuaca	
	Extensive livestock management. Western semiarid Puna	Small sector in the Department of Valle Grande	
	Extensive livestock management. Quebrada	East of the Department of Tilcara	
	Extensive livestock management. Western semiarid Puna	Northern sector of the Puna in Jujuy, principally in the departments of Yavi, Santa Catalina, Rinconada and Cochinoca	
	Extensive livestock management. Arid and hyperarid Puna.	Southern sector of the Puna in Jujuy, principally in the departments of Susques, Cochinoca, Tumbaya, Humahuaca.	

(*) Based on the national evaluation of the LADA project in Argentina.

AGI	Main Land Uses (*)	Location within AGI	Threats
DRY VALLEY SCRUB	Extensive livestock management. Lower Catamarca	Departments of Andalgala, Poman and East of Santa Maria	<p>1. Poor management of rangelands (overgrazing). Overgrazing results in exposure of soils, which favours wind and water erosion.</p> <p>2. Poor management of water (salinization). The salinization of soils as a result of the poor application of irrigation reduced the productive capacity through changes to the physical, chemical and biological properties of the soils.</p> <p>3. Deforestation, increasing the exposure of soils, which favours wind and water erosion, which reduces the quantity and quality of productive soils.</p>
	Extensive livestock management in Catamarca	Western limit of the Department of Santa María, Northwest of Belén and small sector of the Northwest and extreme Southwest of Tinogasta	
	Extensive seasonally migratory livestock management	Western limit of Department of Santa María	
	Extensive livestock management.	Most of the Departments of Tinogasta and Belen	
	Pockets of irrigation. Central valleys	Central valleys of Tinogasta	

AGI	Main Land Uses (*)	Location within AGI	Threats
	Pockets of irrigation.	Eastern border of the Department of Pomán	4. Climate change. Climate variability and change affect productive activities and the efficiency and applicability of SLM practices. Climate change must be taken into consideration and analyzed in order to include adaptive measures to address this variability and change.

AGI	Main Land Uses (*)	Location within AGI	Threats
PLAINS AND PLATEAU SCRUB	Extensive livestock management. Goats in foothills of Mendoza	Western border of the Department of Las Heras	1. Poor management of water (salinization). Soil salinization due to the poor application of irrigation reduces the productive capacity through changes to the physical, chemical and biological properties of the soils. 2. Alteration of the hydrological cycle (infiltration, watercourses, water table rise), the construction of dams and modification of natural channels, and the transportation by pipes and use of irrigation in areas far from the sources, change the hydrological cycle of the water bodies, leading to water table rise in certain sectors and water shortages in others. Changes to surface runoff and the course of the rivers affect the recharge of lagoons and the ecosystems dependent on them.
	Extensive livestock management. Goats in saline areas	Northern Sector of Lavalle Department	
	Extensive livestock management. Goats in flood-prone areas. Mendoza	Northern Sector of Lavalle Department	
	Extensive livestock management. Less in plain of NE of Mendoza	Departments of Lavalle, Santa Rosa and North of La Paz	
	Extensive livestock management. Oil exploitation in Central zone	Departments of San Carlos, San Rafael, Rivadavia, West of Santa Rosa, and Eastern sectors of Tupungato and Luján de Cuyo.	
	Extensive cattle livestock management in Mendoza	Departament of Gral. Alvear, East of San Rafael, South of La Paz, and Southeast of Santa Rosa	
	Subsistence livestock management.	Eastern sector of Department of Malargüe	
	Pockets of irrigation	Northern Oasis: Maipú, Junín, Guaymallén, San Martín, Luján de Cuyo, centre of Santa Rosa and small sector in the Centre-west of La Paz. Central Oasis: Tupungato, Tunuyán, San Carlos. South Oasis: San Rafael and Gral. Alvear.	

(*) Based on the national evaluation of the LADA project in Argentina.

Institutional Context

38. The main actors of relevance to this project include the SAYDS, the environmental authorities of the eight target provinces, MAGyP, INTA, the National Observatory of Land Degradation and

Desertification (ONDTyD) and the provincial branches of the sectoral programs (PROSAP, Goat Law, Native Forest Act).

39. The Environment and Sustainable Development Secretariat (SAyDS) is the national authority responsible for environmental issues. Within this Secretariat, the Under-Secretariat of Planning and Environmental Policy includes the Department for Soil Conservation and Combating Desertification (DCSyLCD), which is the National Focal Point of the UN Convention to Combat Desertification and Drought (UNCCD) and plays a key role in addressing the issue of LD. DCSyLCD promotes strategies related to combating desertification, and coordinates the work of different institutions and stakeholders, through the National Action Program to Combat Desertification. This includes the provincial governments and national institutions such as the Ministry of Agriculture (MAGyP), the National Agricultural Technology Institute (INTA), the National Council of Scientific and Technical Research (CONICET) and the Faculty of Agronomy of the University of Buenos Aires (FAUBA), among others. It also chairs the National Observatory of Land Degradation and Desertification. In addition, DCSyLCD has coordinated and continues to coordinate various soil/land management projects, including the completed LADA project, which provides the technical foundation for much of the work proposed in this project. It also participates in relevant flora on desertification issues in the international sphere. The same Under-Secretariat also coordinates the implementation of the Native Forest Act (26.331), the development of the National Biodiversity Strategy, and wetlands-related work. The Sub-secretary recently developed the Third Communication on Climate Change, which includes new scenarios as well as information on tools for adaptation to, and mitigation of, climate change. In addition, it is responsible for the coordination of the Mountains Committee which provides follow-up to the Global Mountain Partnership.

40. The Ministry of Agriculture, Livestock and Fisheries (MAGyP) is charged with the development and implementation of plans and programs associated with production, commercialization and food security, livestock, forestry and agroindustry. Several other decentralized organizations depend on MAGyP, including INTA, SENASA (National Service for Health and Quality Agricultural Food), INV (National Grape and Wine Growing Institute) and INASE (National Seed Institute). MAGyP provides resources from the national budget to smallholders in the framework of the Goat Law, Sheep Law and other programs linked to "Family Agriculture", "Development of Regional Economies" and the "Strategic Agrofood and Agroindustrial Plan". These programs all coordinate with, and provide training for producers. In addition, MAGyP administers other sectoral programs with external financing (which are managed under MAGyP's Unit for Rural Change- UCAR), such as PROSAP, which provides training on water management and efficient use, among other topics, and PRODERI. Of relevance to this project are also the Sub-Secretary of Family Agriculture, which develops and coordinates the implementation of policies, plans and programs linked to family agriculture; the Secretary of Political/Institutional Coordination and Agricultural Emergencies, which deals with the prevention and mitigation of agricultural emergencies and disasters; and the Subsecretary for the Development of Regional Economies, involved in the management, promotion and commercialization of the production of small and medium-sized producers.

41. The National Institute of Agricultural Technology (INTA) is the technical executing organization of MAGyP and carries out agricultural research, technical assistance and extension over a significant territory. It has under its structure the Natural Resource Research Centre (CIRN), which studies climate, water, soil and biological resources (flora and fauna). This generates information and technological tools to assist the productive sector in decision making. It also provides training and assistance to smallholders in the NOA and Cuyo regions through the Research and Technological Assistance Centre for Small Family Farming (CIPAF) and its Institute for Research and Technological Development for Small Family Farming (IPAF). Through the Network for National Agricultural Information (RIAN), INTA monitors productive systems, information from the climate and rain network, and monitors the hydrological situation on a monthly basis. However, RIAN has limited coverage in NOA and Cuyo.

INTA thus maintains various GIS in layers, based on the information generated from its National Programs and Institutes, which are linked to different agricultural production types. Several of the layers are of utility for the issues of LD and SLM, such as those linked to biodiversity and agroecological zones. They include spatial information on the main long-term variables, including biophysical, socio-economic and political/institutional. INTA has the advantage of having updated information that has been developed by trained personnel in a uniform manner throughout the area covered by the project.

42. The National Observatory of Land Degradation (ONDyD) is in inter-institutional network that coordinates the different activities carried out in relation to monitoring and evaluation of desertification by different research and technical institutes and academic centres. Its objective is to coordinate the management of land degradation and desertification issues using a participatory and scientific approach to the problem, in order to increase the efficiency of processes and facilitate the development of new concepts for the prevention, control, adaptation and restoration of environments. It also provides a platform for information exchange. It will contribute to institutional sustainability by facilitating the continuity of project activities once it is completed. The Observatory is chaired by SAYDS and is physically located in Mendoza within IADIZA.

43. In accordance with the guidelines of the National Constitution, environmental issues as well as the administration and management of natural resources falls to the entities created for this purpose at the level of each provincial jurisdiction. The authorities charged with land use management, soil and water resources tend to be vary substantially depending on the administrative structure of each province, and even within the same province as a result of institutional changes over time (*see Annex 5, Stakeholder Involvement Plan, for details on the relevant authorities in the eight target provinces and Annex 6 for a summary of their institutional capacities*). In general, these mandates fall to the provincial environment authorities, agricultural production authorities and those responsible for water management. Provincial environmental authorities are responsible for conservation and sustainable use of the natural resources and the environment, development of related policies and norms, and supervision of their implementation. Most provincial environmental authorities also manage environmental information systems. The provincial agricultural authorities are generally charged with promotion of the development of the agricultural and livestock management sectors in a sustainable manner, socio-economic development of producers and identification of appropriate practices. In terms of native forests, the environmental authorities of each provinces are responsible for land use planning. In general, land use planning may be the responsibility of the environmental authority, as in the case of Mendoza, or be dependent on some other administrative area (as in Jujuy and La Rioja). In addition, depending on the type of productive activity carried out, the Ministries of agriculture and livestock or of production (however they are denoted in each province) also have relevant plans and programs.

44. Various national and provincial sectoral programs exist to channel funds and assistance to producers in the target ecoregions. These include: the Family Agriculture Program (IPAF); PROSAP, which provides agricultural services to provinces; PROVIAR, which assists grape and wine producers; and PRODERI/ PRODERNOA, which are focused on rural development, among others. More details on relevant sectoral programs can be found in the Baseline Programs section. Resources and assistance are also channeled to agricultural producers under the framework of three relevant laws, namely, the Goat Law, focused on improving goat production and commercialization capacities in a sustainable manner; the Sheep Law, which mandates an analysis of the state of forage resources and the carrying capacity and sustainability as part of its credit and grant provision mechanism; and the Native Forest Act, which categorizes forests according to their value, orients permitted activities based on this classification, and provides resources to producers engaged in forestry activities.

45. The Ministry of Social Development (MDS) of the GoA works with microcredit institutions and in this context is associated with a network of non-governmental, governmental and mixed organizations

that work in a coordinated fashion with the National Commission on Microcredit (CONAMI) in the provision of technical and financial assistance for various undertakings, including agriculture. This assistance is especially for producers who do not have collateral or do not qualify for access to traditional bank loans. This network has offices in the provinces involved in the project.

46. The project will also work with relevant institutions to ensure that gender and social inclusion are mainstreamed into all project elements. This will entail interaction with the National Institute for Indigenous Affairs (INAI), which provides support to indigenous groups and is one of the key actors for the implementation of activities in the field, as well as with the National Council of Women. Both organizations have representative provincial bodies.

Legal Context

47. The Republic of Argentina is a federal state, with the provinces having jurisdiction and competency⁶ over the natural resources within their territories (art. 124 of the National Constitution). The national level is responsible for developing norms for minimal standards of environmental protection and sustainable development, and these are to be implemented by the provinces. This context has led to the development of minimal standard laws, in accordance with the General Environmental Law, Law 25,675, which establishes these minimum standards that should exist and be applied throughout the country and that relate to the adequate and sustainable management of the environment, the conservation and protection of biodiversity and sustainable development.

48. Various laws are in place based on this principle of minimum environmental standards or promotion of basic levels of environmental protection. Law 25,688 establishes minimum environmental measures for the conservation and rational use of water. Law 25,831 outlines the minimum standards for environmental protection to ensure the right of access to environmental information held by the State, at the national, provincial and municipal levels and for Buenos Aires, as well as by municipal bodies and private public service providers. Law 26,331 sets out the minimum environmental protection measures for the enhancement, restoration, conservation, use and sustainable management of native forests and of the environmental services they provide to society. Finally, Law 26,562 establishes minimum environmental protection standards related to pasture burning activities throughout the national territory, in order to prevent fires, environmental damage and risks to public health and safety.⁷

49. The general environmental laws of the provinces make mention of soils, land degradation, sustainable use, and pollution prevention to varying degrees of depth. In the provinces of Catamarca, San Juan and Mendoza, the existing laws contain general information without detail. In the provinces of La Rioja, Jujuy, and Salta, the laws go into more detail with sections dedicated to the issue of soils. The provinces of San Luis and Tucuman have specific laws on soils, whose enforcement resides in the Ministry of Progress through the Agriculture and Forestry Production Program in San Luis, and in the Ministry of Agriculture and Livestock for Tucumán. In other cases some administrative units have soils included in their mandate and functions, such as the Soil Department of the Ministry of Production and Development of the province of Catamarca.

50. Land use planning laws exist in one province included in the target ecoregions of this project. Through Law 8051 of Land Use Planning and Soil Use, the province of Mendoza establishes the Provincial Land Use Planning Agency within the scope of the Environment and Sustainable Development

⁶ In Spanish, this is termed "dominio originario".

⁷ There are other laws on minimum budgets designed to the industrial waste management and services activities (25,612); disposal of PCBs management (25,670), and household waste management (25,916).

Secretariat, a decentralized body of the Provincial Executive Powers. Among its functions the law states the need to establish a Provincial Land Use Plan, which "will provide the systemic and specific framework for the formulation and management of public and private actions", and which states the need to "promote specific legal policies to combat desertification, salinization, erosion and degradation of provincial soils, and combat water and air pollution, actions which should be coordinated, as applicable with the actions contained in other plans".

51. National programs that directly affect specific types of production are integrated in public policies and therefore represent the executive part of these policies. These programs incorporate different environmental protection instruments to avoid LD, such as the Sheep and Goat Laws or the Law of Minimum Standards for Native Forests. In addition, various sectoral programs with external funding are also associated with other environmental protection tools, but these do not specifically promote SLM or LD reduction. For example, EIAs are required for PRODEAR and Environmental Safeguards for PROSAP.

Land degradation: levels, causes, and threats to ecosystem functions

52. Based on the evaluation carried out during the LADA project in Argentina, four different categories of land degradation were identified in the country: extreme, strong, moderate and mild (FAO, 2011). A fifth category refers to areas for which no information is available. The target ecoregions under this project suffer particularly high levels of land degradation, with higher percentages in the categories of moderate to strong (see Table 1).

Table 3: Intensity of land degradation in the project ecoregions

Ecoregions	% Area with Different Degrees of Land degradation*				
	Without degradation	Light	Moderate	Strong	Extreme
Puna	10%	15%	47%	28%	0%
Dry Valleys Scrub (Monte de Sierras y Bolsones)	6%	23%	33%	29%	8%
Plains and Plateaus Scrub (Monte de Llanuras y Mesetas)	1%	51%	33%	15%	0%
Average	4%	22%	29%	19%	3%

**Light*. There is some indication of degradation but the process is still in an initial stage and can be easily halted and the damage can be repaired with a minor effort; *Moderate* degradation is obvious but control and complete rehabilitation are still possible with considerable effort; *Strong*: clear signs of degradation. The changes in the land properties are significant and very difficult to restore in a reasonable timeframe. *Extreme*: degradation is beyond restoration. Based on LADA Argentina/ FAO 2011.

Causes of land degradation

Increased stocking and overgrazing

53. Increasing stocking of sheep, goats, cattle, as well as camelid species, without adequate management in areas with already low levels of vegetation cover causes overgrazing. This has resulted in loss of natural forage and associated species, bare ground, soil erosion, and increased soil compaction, especially near watering places. Studies in the province of Mendoza, for example, have shown how extensive grazing significantly reduced vegetative cover in areas with high stock loads without regular rotation. Increased stocking also contributes to greater wind erosion, runoff and dune movement, as a result of reduced vegetation cover, as well as a loss of wetlands and associated ecosystems, affecting the production and regulation functions of ecosystems.

Expansion of the agricultural frontier, associated fires and poorly managed irrigation practices

54. The expansion of the agricultural frontier has led to various consequences, including the loss of natural biodiversity, land degradation and soil salinization. Agricultural practices have been associated with the use of fires to remove native vegetation from the fields. Unfortunately, these fires often go out of control as a result of high levels of wind and drought, causing further damage. Fires also reduce the coverage of both grasses and woody species. Between 1993 and 2003 there were more than a thousand fires that affected about 9,000,000 ha of the low forest in the Dry Valleys scrub ecoregion and the Plains and Plateaus scrub ecoregion⁸.

55. In addition agriculture has increased the demand for already scarce water resources in this region. Increased irrigation in these ecoregions, particularly in the riparian areas of the valleys, is resulting in higher water deficiencies in a region where the water deficit is already significant (- 1,000 - 1,500 mm per year). In many cases this is also increasing salinization and alkalinization of soil. The control and redistribution of water for irrigation through the construction of dams and reservoirs has also resulted in desertification across vast areas, and the drying of lakes, as has occurred with the Lagunas del Rosario on the border between Mendoza and San Juan provinces.

Natural phenomena and climate change

56. Natural phenomena, such as strong winds and changes in rainfall distribution, are accentuating the human-induced land degradation processes that affect the project's ecoregions. The region is experiencing increased natural disasters, including landslides and sandstorms. These phenomena are taking place to differing degrees across the three ecoregions. In addition, climate projections forecast reduced precipitation in the Northwest of Argentina, combined with higher temperatures, which will increase pressures on resources, particularly water, and may also exacerbate land degradation trends.

Logging and fuelwood gathering

57. Another cause of degradation is logging and the removal of firewood for use as fuel in an area with high levels of poverty. Given the scarcity of native forests, this practice has led to high rates of deforestation, causing already fragile soils to be more exposed to erosion by wind and water and contributing to the scarcity of native forests. Fuelwood collection as well as logging have been carried out throughout the region for over a century (for use as fuelwood, railway ties, charcoal for the production of gas, for the transport of grapes and for the furniture industry) and has primarily affected forests of algarrobo trees (species of *Prosopis* in the Mimosoideae sub-family).

Emerging threats

58. Other emerging threats, which pose threats to the drylands, include migration to cities and suburban areas, which is associated with a loss of traditional knowledge and increased pressure on natural resources. Precarious land tenancy is also an issue that undermines adoption of SLM practices.

59. These causes of land degradation are leading to a variety of negative environmental impacts on water, vegetation and soil resources, ecosystem goods and services, as summarized in the following table.

⁸ Informe Geo-Argentina 2004

Table 4: Land degradation in the targeted dryland ecosystems

Land Degradation Causes (following LADA)		Importance/ Ecoregions*			Impacts
		Puna	Dry Valleys Scrub	Plains and Plateaus Scrub	
General	Biodiversity loss	4	3	2	Loss of goods (fibre, food fuel) and provisioning ecosystem services
	Alkanisation; salinization	4	3	2	Increasing desertification (38-40% of the areas under cultivation ⁹); reduction of wetlands due to fast capillary rise; soil and water degradation; loss of fertility.
	Human Pressure	4	3.5	2.5	Increased pressure on water resources, increasing water deficits
	Animal Pressure	4	2.5	2	Increased pressure on natural pasture leading to overgrazing
	Water Erosion	4	3	3	Increased soil erosion, gulleys and canyons; loss of water regulation function
	Eolic Erosion	4	3	3.5	Increased soil erosion; reduced productivity & water regulation
Specific	Fire	4	2	1.5	Loss of ecosystem goods; changing soil composition.
	Agriculture expansion	4	4	2.5	Loss of vegetation; increased water demand for irrigation; water and soil contamination from fertilisers
	Overgrazing	4	3	2.75	Alterations in plant composition and productivity of natural pasture; increasing exposure and erosion of soil
	Irrigation	4	4	2.5	Increased salinization; increase water deficits; high indices of inefficient soil-water-plant management (36% efficiency)
	Mining (rocks; lime; gold; oil)	4	1	2.3	Increased soil alkalinization and salinization; decreased quality and quantity of water, groundwater contamination.
Emerging	Climate change	4	3	2	Increase in extreme events; increased water and soil erosion and loss of fertility

* Puna includes arid and semi arid areas but excludes the extremely arid areas

Scale used: 4 Severe, 3 Moderate, 2 Light, 1 No degradation.

Source: Preliminary inventory LADA project LADA (2003)

60. The increasing and high levels of land degradation in the NW and Cuyo regions are also leading to negative socio-economic impacts. This includes a reduction in the biological and economic productivity of land and significant changes in ecosystem functions. This is contributing to increasing migration to cities and suburban areas, disrupting the social structure of communities. It is also resulting in a lack of coordination among different land uses. The uptake of new production models and generation of trade surpluses and profit in the more fertile areas has also led to a high degree of exclusion of small farmers, peasants and indigenous people in the local workforce. Collectively this is contributing to increased acculturation and abandonment of ancestral ways of cultivation. This is particularly evident in the high Puna regions.

61. The increasing land use pressures in northwestern region of Argentina began in the colonization and post-colonization period as a result of the introduction of livestock and deforestation for the production of railway ties, as well as for firewood. In the 1980s and 1990s, regional agricultural production was driven by National Law 22.021 which relates to tax incentives and which promoted the

⁹ Secretariat of Environment and Sustainable Development, LADA FAO, 2005; IADIZA, 2010

development and intensification of wine, olive and walnut production in the Dry Valleys scrub and the Plains and Plateaus scrub ecoregions (Catamarca, La Rioja, San Luis, y San Juan). This was mainly related to large integrated agribusiness enterprises, with small producers being relegated to local craft production. The expansion of agriculture in Argentina led to a redistribution of cattle from the Pampas region where the stock decreased, coupled with an increase in stock in previously marginal areas. This was associated with an increase in demand for water (and of course a reduction in its availability for other uses). This also promoted the expansion of the agricultural frontier in these formerly marginalized areas. The stock in the NOA region had averaged 2 million (M) head over the last 60 years. Since 2002, continuous growth was observed, reaching 3.56 million head in 2009. Then, as a result of severe drought the stock declined in the following two years (- 9%) In 2012 the region had 3.26 M head of cattle. This growth occurred in all regions except the La Rioja region. The most significant increase occurred in the province of Salta which almost doubled the number of head between 2003 and 2012. The NOA region saw an average increase of 30%. In systems with improper management, increased stock can lead to overgrazing, loss of species, bare soil and soil compaction.

PART IB: Baseline Programs

62. The baseline has been estimated as US\$ 436.363 million over the five years of project implementation. It consists of three broad categories of programmes and resources namely:

- a) Programs planned and funded as part of relevant national laws;
- b) Sectoral investments at the federal and provincial level many of which form part of the country's quest to increase sustainable production and fight against poverty.
- c) Institutional support for desertification-related work

a) Programs planned and funded as part of relevant national laws

63. Some US\$23.328 million will be available in the baseline through two regulatory-linked funding sources coming from the national budget: Law 26,141 (Goat Law) and Law 26.331 (Native Forests Act). Law 26,141 targets the recovery, promotion and development of goat rearing (US\$ 9.16 million in total, of which about US\$7.328 million is for NOA and Cuyo) by adapting and modernizing production systems in a sustainable manner in order to maintain and increase sources of work and reduce emigration from rural areas, and ultimately improve quality of life. It provides resources to improve infrastructure and manage pastures so as to reduce the number of animals per unit area. It also promotes improvements in production (meat, fibre, milk and its derivatives). Focusing primarily on the NW region, the "Goat Law" provides an opportunity to reduce overgrazing and hence land degradation, however, it was designed from a purely sectoral standpoint and does not take into account other potential land uses nor does it have tailored practices for areas where land degradation requires differentiated practices and/or animal loads. The Native Forests Act (Law 26.331) (US\$ 80 million nationally, of which US\$16 million is for the NOA and Cuyo regions over the 5 years of the project) sets minimum standards for the conservation and sustainable use and management of native forests and their ecosystem services. The law establishes a temporary moratorium of land clearing activities until Provinces elaborate land zoning plans for native forests and these are approved by the SAyDS. It also includes monetary compensations to private landowners for the conservation of high value forests that should not be transformed, and for medium conservation value forests as established by provincial laws. The latter category permits land uses (such as sustainable use, tourism, gathering and scientific investigation) but there is no specific guidance for SLM in these areas, beyond what is established in forest management plans. The Gran Chaco project (GEF) will determine SLM practices in that region but given the differences in climate; vegetation and land degradation processes already underway these are not all suitable for the Andean drylands targeted in this project.

64. National Law 26,509, "National system for the prevention and mitigation of agricultural disasters and emergencies" is associated with a fund of approximately US\$ 90 million per year for the prevention and mitigation of agricultural emergencies and disasters throughout the Argentine territory. It is estimated that 10% of the total national investment will be allocated to the project area over the five years of the project (US\$9 million).

b) Sectoral investments

65. At the sectoral level, the Rural Development Project in the Provinces of Northwest Argentina (PRODERNOA- entitled PRODERI as of 2013) seeks to reduce rural poverty, including among indigenous people, by diversifying production among rural farmers below the poverty line, improving farm productivity, agribusiness and other rural non-agricultural economic activities. Funds are delivered through projects developed by small farmer organizations and private sector actors with technical support provided through the Ministry of Agriculture and Livestock (MAGyP) and the provincial agricultural sector. The project manual to guide investments, including those that may require EIAs, incorporates the concept of environmental protection, with a particular emphasis on mitigating local impacts and climate change adaptation measures, such as through improved agricultural practices and mitigation of environmental impacts in Business and Project Plans, development of pilot climate insurance systems, contingency funds and early warning systems. It will be executed until 2018, with US\$116 million provided in equal parts by IFAD, GoA and the GoPs, with a focus on the NOA region. In the Scrub of the Plains and Plateaus ecoregion, the Agricultural Services Program (PROSAP), which is MAGyP's public investment tool, seeks to increase and improve the rural infrastructure and agriculturally-based economies of small and medium farmers and micro, small and medium agro-industrial businesses. It includes actions that could provide direct benefits to combating land degradation, including regularization of rural land (mainly in Mendoza and San Juan). PROSAP is also involved in activities to address the poor efficiency of water irrigation, conduction and distribution network. In the entire NOA and Cuyo regions it promotes the management and conservation of natural resources, improving efficiency of irrigation and drainage; and animal/plant health, among others. Collectively, the baseline that MAGyP will have available to operate PROSAP-III is estimated at US\$500 million, of which US\$180 million are estimated to be invested in the project's target intervention area.

66. MAGyP's National Family Agriculture Program provides assistance to small producers through its local network of extensionists, which are key stakeholders due to their connections with the local level and direct experience promoting techniques and carrying out training. The baseline investment in the project area is difficult to quantify as it is based on political decisions and responds to specific problems, however, based on investments over the previous 5 years in the NOA and Cuyo ecoregions, a value of US\$15.32 million is estimated for the five years of the project.

67. The Programme to Integrate Small Wine Producers (PROVIAR) is intended to promote the process of association, by forming small groups of primary wine producers and industrial or commercial establishments, with contracts for a period of 10 years. So wineries that set up contracts with these grape growers receive technical and financial assistance (US \$2,000 per associated producer) to improve their facilities. Program support for improving marketing and integration can help reduce LD and enable the incorporation of SLM techniques by freeing up the limited financial and human resources of smallholders. After completion of the first phase in March 2014, "PROVIAR II" will provide continuity through an IDB contribution of US \$ 80 million, of which it is estimated that US\$70 million will be for the project's target provinces.

68. The Socio-Economic Inclusion Project in Rural Areas (PISEAR), represents the continuation of the Small Agricultural Farmers Development Project (PROINDER) and will have funding of U.S. \$ 52.5 million for all of Argentina. Based on previous investments in the projects target provinces, it is estimated that US\$12 million will be available as baseline funding. The project aims to reduce poverty among small

farmers through increased productivity, organization and access to markets.

69. The Econormas" program - supporting greater economic integration and sustainable development within MERCOSUR - includes among its objectives "Combating desertification and the effects of drought" to limit desertification and land degradation processes and mitigate the effects of drought. Actions for prevention, adaptation, mitigation and rehabilitation are carried out on a demonstration basis in selected areas in order to generate information on good practices, disseminate them and carry out training. The program promotes the convergence of national plans related to LD and desertification through a Subregional Program of MERCOSUR, which is based on the participatory design of intervention plans in selected areas. The areas selected to implement the actions are Valles Calchaquies: Municipal Commission of Colalao del Valle in the province of Tucumán and the department of Cafayate in Salta province, as well as the arid valleys in Salta and Tucumán provinces. The program is scheduled for completion in December 2016 and has a budget of €18 million for the Mercosur Block Countries, €2 million of which is allocated for the component to combat desertification, which for the NOA region corresponds to US\$ 0.316 million.

70. Under the purview of MAGyP, there are several programs that allocate revolving funds that were initiated with contributions from this Ministry. These include: the Rural Economy Development Program; the program of assistance for the beekeeping chain; the peri-urban development program; and the strengthening and increased production of quinoa. The latter also provides technical assistance and training to producers of the Northwest of Argentina to increase production of high-quality and value-added quinoa. The scope of the program includes the provinces of Salta, Jujuy, Catamarca, Tucumán, La Rioja, and involves 100 small producers in the amount of \$ 1.8 Million ARG (US\$ 0.353 million) over the five years of the project.

c) Institutional support for desertification-related work:

71. In the SAYDS, the Department on Soil Conservation and Combat Against Desertification (DCSyLD), which is the National Focal Point Office to implement the UNCCD through the NAP will continue to provide oversight of SLM activities and provide technical knowledge over the five years of the project. In addition, it will provide policy advice and ensure coordination with other SLM GEF funded projects under its mandate, including the projects in Patagonia and the Gran Chaco (see section B6). SAYDS includes under its remit various programs and projects of relevance to this project, including the Native Forest Act, the National Fire Management Plan, the Land Use Planning Directorate, the National Biodiversity Observatory, and the Federal System of Protected Areas, which will provide geographical information of use for the establishment of a GIS system. This baseline is estimated at US\$1.4 million which covers the recurrent costs of staff over the five years of the project for regions of NOA and Cuyo.

72. The National Observatory on Land Degradation and Desertification is being set up and generates information at different scales for sound decision-making on combating desertification, land degradation and drought, and monitoring of SLM practices. The baseline funding provided by the Observatory during project implementation is estimated at US\$ 0.286 million which includes the provision of harmonized data sets for all dryland ecosystems.

73. The Provincial Governments have personnel and equipment to develop GIS to monitor the status of LD and level of adoption of SLM. Four of the provinces have Spatial Data Infrastructure (SDI) at different stages of development. The existence of an SDI, linking national and provincial nodes, ensures the availability and incorporation of data that is easy to access for the monitoring and replication of actions and for the integrated management of natural resources. This baseline contribution is estimated at US\$ 5.36 million.

74. INTA carries out agricultural research and extension in the entire country and maintains various updated GIS layers, including layers related to biodiversity and to agroecological zones. The baseline contribution of INTA over the five years of the project in terms of provision of relevant spatial information and extension for SLM implementation is estimated at US\$3 million

Long-term Solution

75. Despite the considerable investments and resources that the GoA is spending on improving the livelihoods of the Cuyo and NOA geopolitical regions these fall short of their potential as they do not take into account the degree of land degradation that is already high in the associated ecoregions. Moreover as they are designed from a unisectoral stance, they do not address the growing pressures and competition for land and water. The result is that under the baseline the already high levels of land degradation will increase with ensuing loss of ecosystem goods and services (see Incremental reasoning section). The long term solution is thus to build a framework for SLM tailored to the drylands of these ecoregions- notably the arid, semi- arid and semi-dry humid ecosystems of the Puna; the Dry Valleys scrub; and the Plains and Plateaus scrub (the associated transition to the scrub land of the plains in the foothills). This framework would include a suite of SLM practices adjusted to each ecoregion, which cover the range of prevention, adaptation, mitigation and rehabilitation practices needed to halt land degradation at the ecoregional level. These practices will be promoted through extension and training and will be upscaled through the development of guides, protocols, Provincial Action Programs and possibly additional provincial norms (besides the PAPs), facilitated by the coordination of multisectoral committees. These will be fully mainstreamed in the baseline programmes and will be complemented with revised financial instruments to provide incentives for SLM adoption. The framework to be developed will also result in provincial and national institutions with sound and coordinated decision making processes and systems that will guide investments to SLM in drylands so as to reduce negative environmental impacts.

76. The long-term solution can be described in accordance with the concept of IFAD's sustainable livelihoods framework, in terms of changes to the "natural", "social", "human", "physical" and "financial and productive" capitals. The *natural capital* will be increased through improvements to soil and water resources, as well as to biodiversity as a result of the implementation of SLM practices. The *social capital* will increase with institutional strengthening and intersectoral coordination for the implementation of SLM. The establishment of multisectoral committees, protocols and Provincial Action Programs will facilitate provincial and interprovincial coordination in order to achieve ecoregional impacts. At the same time, the project will contribute to increased efficiency in the implementation of actions and allocation of resources, which will help strengthen the links between institutions and local communities, producer groups and indigenous populations. Practical training for producers and 'learning by doing' will help develop the capacities to implement sustainable practices, increase productivity and reduce poverty. The *human capital* will increase as a result of the training of professionals dedicated to SLM within the provincial structure and increased coordination with the national level. The *physical capital* will result from the increased implementation of SLM practices in the field. Erosion protection structures, irrigation systems, channeling, fencing, wells and other productive infrastructure may be established. The *financial and productive capital* will increase as a result of changes in productive methods which will increase productivity, combined with the development of incentives for the implementation of SLM and the mainstreaming of SLM criteria in large sectoral programs.

Barrier Analysis

77. This long term solution is impeded by two main barriers: (i) Few ground-tested approaches to apply SLM practices to scale in the context of integrated ecosystem management and (ii) Weak systemic and institutional capacities for controlling land degradation and upscaling SLM at national and provincial levels.

Barrier 1: Few ground-tested approaches to apply SLM practices to scale in the context of INRM

Inadequate planning¹⁰ of SLM practices at scales required to reduce LD

78. The LADA project carried out a diagnosis of the levels of land degradation in Argentina. It also developed strategies, tools and evaluation methods to determine and quantify the type, extent, severity, and impact of LD and helped build capacities for the design and planning of interventions to reduce LD. Through the LADA project, demonstration sites were established in each of four of Argentina's ecoregions to test promising SLM practices and to pre-identify the most suitable practices for the different drylands regions in the country. However, these were not classified in terms of the most appropriate practices to implement according to different degrees of land degradation.

79. Best practices have also been identified for different production systems through other programs and projects; however, these have been based on a unisectoral vision and not one of SLM and INRM. For example, some programs are focused only on the production and do not take into consideration the natural resources needs of other sectors. Other programs focus on social issues and on small-scale solutions with individual producers, without taking into consideration the wider ecoregion.

80. This underscores the lack of experiences in the planning of SLM practices in land degradation hotspots in the context of multiple land uses and pressures. There is a lack of guidelines on the balance between different SLM practices and their optimum location based on levels of land degradation, land use patterns and other factors, and this serves as a constraint to effectively channelling SLM interventions to conserve important patches throughout the larger landscape. In addition, the roles and responsibilities of different stakeholders in the promotion of SLM are not clear. This absence of guidance to orient the implementation of SLM practices undermines the replication of the SLM practices validated with LADA and other projects and interventions.

Insufficient inter-sectoral coordination

81. At the national level during the development of the NAP, an inter-sectoral commission was set up to identify measures for combating desertification and land degradation, define an action plan, and coordinate its implementation. However, this was not mirrored at the provincial level and there is little sectoral coordination to facilitate an integrated approach to management or to addressing SLM needs.

82. In each province, there are various different institutional administrative structures in place with responsibility over land use issues, such as environment, agriculture, livestock management, forests, and hydrological resource management authorities. In most cases, these administrative structures with jurisdiction over the land resource adopt a unisectoral perspective. For example, the agricultural authorities are often focused on the improvement of productive and socio-economic indicators. The administration of water resources often falls to public works, infrastructure, with little or no participation of provincial environment authorities. The approach used is often based on the provision of the water service without taking into consideration the prevention of LD or promotion of SLM.

83. In the majority of provinces, there is little collaboration and coordination between the public institutions, sectoral programs, the academic sector, the productive sector and the communities for the sustainable management of natural resources and prevention of LD. In many provinces, the spaces for inter-sectoral participatory processes or coordination do not exist. This holds true for the environmental

¹⁰ In the Argentinean setting and in the context of SLM, planning is not referring to land use or territorial zoning, but rather to the planning and management of SLM practices in appropriate areas and in ways to facilitate upscaling. In addition, management plans refer to plans that identify appropriate SLM practices for different degrees of degradation and not to zoning or land use plans.

authorities, which generally do not exchange, update or share information with other provincial authorities, national organization, research centres and/or universities. Collaboration between different provincial government authorities with academic or research centres, scientific or technologies institutions (e.g., CONICET, INTA) is also rare in the region and there is a lack of participatory mechanisms to facilitate this.

84. This lack of coordination and institutional links undermines integrated natural resource management and the development of policies that would reflect multiple land uses and impacts on soil and water resources. Insufficient intersectoral participatory mechanisms result in an absence of technical multidisciplinary teams to carry out office or field work and to address the multidimensional aspects of LD (social, economic and environmental). This leads to overlap in effort and resources and more critically, gaps that are not addressed. The lack of intersectoral structures also means that relevant geographical information that is generated is not used to develop integrated or ecoregional policies, nor to create incentives for SLM or to substantiate the need for interventions with the rural population.

Insufficient experience with application of SLM practices in sites that would facilitate upscaling

85. Different technologies have been identified and developed for the sustainable management of soil and water resources at the farm level, through initiatives led by INTA, IADIZA and PROSAP, among others. The LADA project, for example, identified the most promising SLM practices for Argentina's drylands and systematized the available information. However, the LADA project focused on assessing LD and identifying best practices and not implementing the practices on the ground.

86. SAYDS has also promoted, and continues to promote, technologies to mitigate the effects of desertification, drought and poverty. This work has focused primarily on other regions of Argentina (Patagonia, Chaco and South West of Buenos Aires) through large projects funded by GEF and the Adaptation Fund. SAYDS has carried out few direct interventions in the ecoregions of the Puna, the Dry Valleys scrub and the Plains and Plateaus scrub.

87. Another factor limiting the adoption of SLM practices is that extensionists have not received sufficient training opportunities on SLM, with the result that farmers do not have access to adequate technical assistance and have insufficient knowledge of appropriate SLM practices. For example, producers on irrigated land could benefit from more technical guidance on how to conserve water and implement appropriate land irrigation technologies. Furthermore, provincial agricultural and environment authorities have insufficient specific expertise in SLM and SLM-related criteria are not generally incorporated in large sectoral programs. The capacity constraints in the extension services and in relevant provincial authorities involved in land use issues, result in limited information sharing with producers and community groups on SLM, and inadequate mainstreaming of SLM into sectoral programs and projects, are therefore limiting the uptake of appropriate SLM practices.

88. As a result of these factors, SLM practices that are appropriate for different land uses and degrees and types of degradation are not being sufficiently promoted or implemented and the upscaling required to achieve global environmental benefits is not occurring.

Financial constraints

89. Financial constraints present a further barrier to upscaling SLM across ecoregions at the level required to successfully arrest land degradation and combat desertification. The different financial instruments available to smallholders and to medium-sized producers from public and private financial entities (including banks, government institutions, associations and cooperatives) do not include environmental or SLM criteria in their systems of approvals.

90. Although a number of micro-credit and revolving fund programs exist in Argentina, these are not

linked to requirements to put in place SLM practices (see Annex 8 for more details). These funds come mainly from the Ministry of Agriculture and are designed to provide incentives to promote increased production or to limit the negative effects of agricultural emergencies or disasters, or from the Ministry of Social Development (MDS), where they are oriented toward improving incomes for the most needy. Examples include the "Impulso Argentino", which develops microcredit programs and provides financial and technical assistance; and MDS, which works with various microcredit institutions in the provision of financial and technical assistance. At the level of the provinces, cooperatives and civil society organizations use microcredit and revolving funds to promote family agriculture in their territory. These microcredit and revolving fund programs are tools designed for small-scale producers with limited resources who do not meet the requirements to access typical credit schemes or who do not have collateral, and who need credit for productive, commercial or service undertakings related to agricultural production and use the money to purchase tools or machinery. They may be accessed by individual farmers or by farmer associations. However, the existing revolving funds and microcredit schemes do not take into consideration the reduction of LD nor are they linked to the implementation of SLM practices.

91. Regular loans or credit from commercial banks are available for producers who use the banking system and require clients to hold land title, however, most smallholders do not have formal land tenancy nor means to prove their annual income or sufficient collateral. This type of credit is therefore generally accessed by medium or large producers. These loans or credit are typically used to purchase goods or labour¹¹ and are not associated with requirements for sustainable land management. Furthermore, the credit schemes do not take into consideration the time period required to receive economic returns from the implementation of practices to reduce LD.

92. Budgetary allocation for SLM is also seriously constrained. There are no budgetary resources allocated specifically to SLM and to desertification, land degradation and drought. This lack of budgetary resources limits on-the-ground activities and the possible hiring of additional staff dedicated to SLM promotion and the reduction of land degradation.

93. In part the limited funding is due to a dearth of information on the long-term costs of land degradation both in terms of loss in income and reduced ecosystem goods and services. There is also insufficient information on the economic benefits of SLM adoption at the farm level. Although the LADA identified links between SLM practices and ecosystem functions, a systematic approach to economic valuation was not undertaken. Reliable economic information on the net benefits and costs of the main SLM practices has not been gathered to demonstrate to producers that SLM is economically worthwhile. This includes micro-economic information at the farm level to demonstrate the impact of SLM on incomes, increased productivity, property value, and on the mitigation of risks. In the absence of this, it is hard to make the business case for SLM. Producers generally do not have an understanding of the economic impacts of their current production practices, LD and desertification, nor of the economic benefits of SLM, which limits uptake of SLM practices.

Barrier 2: Weak systemic and institutional capacities for controlling land degradation & upscaling SLM

94. There is a clear need for building systemic and institutional capacities and mainstreaming SLM across production sectors if the high levels of land degradation are to be effectively addressed. These capacity barriers act as a constraint to the replication and upscaling of SLM practices and to the incorporation of lessons learned at a larger scale.

¹¹ In general, credit for agricultural activities can be used for the following activities: expansion or improvements of facilities; purchase of necessary goods or work tools; management of pastures, forage reserves and retention of female cows; purchase of structures for feedlot pens; financing of labour costs, planting; purchase of irrigation, electrification and anti-hail systems.

Lack of comprehensive, integrated compatible information for LD/SLM monitoring and evaluation to facilitate decision-making

95. The information available to guide land use planning and implementation of sustainable land management practices is dispersed among different institutions. Datasets are often isolated between different departments or administrative structures (e.g., agriculture, forestry, animal husbandry, statistics and census, and hydrological resources) within the same provincial government and/or in scientific or technological institutes (CONICET, INTA, Universities) and there is a lack of a participatory or coordinating structure to facilitate information exchange. There is also no regional or national integration of this provincial information. As a result, environmental authorities do not have access to information on LD and it is therefore difficult for them to identify those areas with LD problems or at risk of having them and to take appropriate actions as a result.

96. While there is digital information available on land uses, climate, agriculture and growing monitoring of environmental parameters by the provincial authorities of the drylands, the extent to which it is updated varies. Furthermore, the format of the data is not necessarily compatible, making it difficult to establish an integrated information management system. There are also limited data on certain elements, such as productive activities, agrometeorology and level of adoption of SLM practices. In general, the information is organized geographically, rather than in a way to facilitate management or the implementation of soil conservation techniques, and it is therefore not being utilized for land use planning or as a tool for SLM monitoring. It should be noted that only some provinces have Spatial Data Infrastructure (SDI) technology or administrative units. In some districts, LD monitoring is starting, in accordance with the methodology established through the LADA project. However, it should be noted that protocols or guidelines on how to gather information to monitor SLM do not exist.

97. The difficulty of access and lack of homogeneous and systematized geographical information has significant implications. It means that validated and updated information is not available in real time to facilitate planning, decision-making by productive sectors and provincial governments or to influence regional or national investments or the development of insurance packages and other financial instruments. Nor can it be used to justify required training or recommendations on appropriate SLM practices or land uses with producers.

98. Human resources within the environmental departments of provincial governments are also insufficient and inadequate to develop and update the provincial environmental GIS systems. This lack of sufficient human resources applies to both, the field work as well as the management and administration of the databases and graphical outputs, which would enable planning and evaluation of the state of LD and monitoring of the application of SLM. There are no formal or informal committees or other bodies that analyze relevant stored data on LD and SLM on a periodic basis or even during crisis events. The staff available often divides their time with other tasks and functions. Furthermore, there are no formal links to coordinate and access the relevant information from other departments or areas of the provincial government (cadastre, hydrological resources, livestock management, etc.), which would reduce duplication and facilitate access despite human resource limitations.

Provincial-level constraints to implement and upscale SLM adoption

99. Provincial-level plans to promote SLM with the goal of combating desertification and land degradation have not been developed to guide activities, policies and investments. While Argentina has produced a National Action Program, the UNCCD encourages signatory countries to develop Provincial Action Programs (PAPs) linked to the NAP.

100. In Argentina, only one PAP has been developed for the province of La Rioja, and this is not being implemented. Guidance on SLM that is tailored to each province's reality has not been developed. This refers both to guidelines on how best to implement the practices and the division of institutional roles and responsibilities.

101. There are also few provincial policies related specifically to the promotion of SLM. This often contributes to a focus on short-term actions without a medium or long-term vision. The topic of LD is implicitly or indirectly addressed in some provinces' environmental laws that address natural resources (such as in the case of Jujuy, Salta, San Luis, La Rioja, Catamarca and San Juan) or through laws on territorial planning (in the province of Mendoza). As a result, LD is only tangentially addressed in provincial norms, which is reflected in the lack of administrative units dedicated to LD as well as insufficient budgetary allocation to the issue.

102. The distribution of institutional responsibilities and mandates for land degradation at the provincial level varies (see Institutional Context section) and roles and responsibilities related to the promotion of SLM among institutions, programs and sectors have not been clearly defined. In most cases, there are a variety of administrative structures with some level of responsibility for land use (e.g., environment, livestock management, water resources, and forestry). For example, in Catamarca land use falls under the Secretariat for Water and Environment, while in Tucuman it is dealt with the Ministry for Production Development. In none of the provinces are there specific units within the provincial authorities dedicated to preventing LD and promoting SLM. Also, the staff that are in some way involved with the issue do so on a part-time basis, together with their other responsibilities in the agencies.

103. Staff deficiencies and insufficient training opportunities contribute significantly to institutional weaknesses in addressing LD and constrain effective decision making (see Annex 6 for more detail on provincial institutional capacities). Consultations carried out during the PPG phase indicated that the provincial environmental authorities have professional, technical and administrative staff in place to enable them to carry out their operational functions. However, there is an absence of specialized human resources and insufficient professional and technical staff for the full achievement of their missions and functions, which limits the capacity to carry out field-level activities (outside of externally funded projects). Most of the professional staff does not have specific expertise or know-how on the topic of land degradation and desertification or on technologies associated with SLM. Issues such as best practices for policy development related to LD and SLM and the expected impacts of climate change on LD trends are also poorly understood. Moreover, there are few if any multidisciplinary teams to carry out office and field work, with most authorities adopting unisectoral approaches, undermining the ability to address the social, economic and environmental dimensions associated with degradation and desertification processes. Training opportunities to strengthen the existing human resources are minimal. Only the provinces of Catamarca and San Luis receive training or participate in training workshops at least once a year on SLM. As a result, there is limited capacity to incorporate SLM in relevant sectoral programs.

104. There is also little information exchange among government institutions, research institutes, and sectoral programs on SLM and LD, which leads to limited awareness among relevant institutional stakeholders of best practices for SLM. Strategies to identify appropriate technologies or to link with research centres and with local producers to carry out actions to reduce degradation and information for decision making have not been put in place yet.

105. Weak institutional capacities and knowledge management in the area of LD and SLM severely weakens the enabling framework to replicate and upscale SLM practices and experiences to the ecoregional level does not exist.

Lack of integration of SLM criteria in large baseline sectoral programs

106. Existing sectoral programs allocate substantial funds¹² to agricultural and non-agricultural activities but do not specifically take into consideration SLM (see baseline programs for description of these sectoral programs). These funds are primarily dedicated to improving productive and social indicators for target beneficiaries and include both sectoral investments and programs funded as part of national laws. Thus budgetary processes and allocations do not consider the prevention of LD (though they may have some general environmental guidelines to which they must adhere to access the funds, such as environmental evaluations with PROINDER and environmental and social management frameworks with PROSAP). In the case of hydrological resources, for example, the budgets of water administration institutions are prepared within the framework of the provincial budget with little linkage to a hydrological plan that would account for possible agroclimatological variations. With the exception of the Sheep Law and the Native Forests Act, funds are approved without guidelines to ensure that the investment is compatible with sustainable land use. This situation applies, for example, to the programs implemented by the Sub-Secretary of Family Agriculture, the Goat Law, and PROSAP. Some of these programs are national but implemented at the provincial level and provinces can influence where the national resources for supporting agriculture are channeled, but this is often focused on production for export and technical assistance to increase efficiencies without weighing the negative impacts of agricultural practices on land degradation processes. The process of channeling national resources to the provinces varies depending on the specific sectoral program; there may be specific provincial allocations, competitive processes, or the incurrence of provincial debt. Without SLM criteria, the economic development programs and packages cannot be directed to specific and sustainable investments that avoid degradation, and may actually worsen the situation.

107. As explained above, this lack of mainstreaming of SLM in baseline sectoral investments is in part due to a lack of SLM criteria for inclusion in planning exercises and a lack of guidance on how to incorporate SLM in sectoral investments. But it is also due to insufficient dissemination of the links between SLM and national and provincial policies and programs, leading to a lack of awareness among key stakeholders, including decision makers. Limited availability of resources is also linked to the fact that SLM still has a low profile in the public agenda and there has not been sufficient advocacy carried out to change this situation. There are no provincial budgetary allocations specifically dedicated toward SLM and desertification.

Stakeholder Analysis

Table 5: Stakeholders and Roles in Project

STAKEHOLDER	RELEVANT ROLES
Secretariat of the Environment and Sustainable Development (SAyDS)	SAyDS is charged with the development and implementation of environmental policy at the national level. It coordinates the national government's environmental policies and establishes the strategic environmental policies and programs, with the goal of promoting social, economic and ecological sustainability through regional strategies. Through its Directorate for Soil Conservation, SAyDS will undertake the role of Executing Agency. In addition to executing the project, SAyDS will also be involved in a number of project activities, including, among others: support for the application of the LADA methodology and vulnerability assessment to confirm the SEIs; coordination with MAGyP and MECON to develop proposed guidelines for the incorporation of SLM in bank credit lines; design of a communication and advocacy campaign; and cooperation with national sectoral programs to integrate SLM in sectoral planning and investments.

¹² The resources allocated to beneficiaries from sectoral programs consist of non-reimbursable grants, donations or contributions resulting from the acquisition of provincial debt.

STAKEHOLDER	RELEVANT ROLES
Environment authorities of provincial governments: Jujuy, Salta, Catamarca, Mendoza, Tucumán, San Juan, San Luis, La Rioja	<p>The environmental authorities are key stakeholders for this project and will take a lead role in a number of project activities, including among others: the development of the SLM guides and protocols and the implementation of a communication strategy. They will participate in the multisectoral committees to support implementation of the SLM guides and protocols, help channel funds from sectoral programs to SLM activities, and strengthen coordination among sectoral programs and policies. Together with other members of the multi-sectoral committees, the environment authorities will also play an important role in the development of Provincial Action Programs. They will support the development of proposals for provincial norms to adopt the SLM guides and protocols, PAPs and/or to formalize the multi-sectoral committees. In general, they will provide oversight of project interventions in their territories.</p> <p>They will also benefit from different project activities, such as training in the use of the LADA methodology for the evaluation of LD; training on IDE and M&E protocols, and training on SLM and INRM.</p>
Agricultural authorities of provincial governments	<p>The agricultural authorities of provincial governments will contribute to various project activities, including the development of SLM guides and protocols, development of Provincial Action Programs and implementation of the communication and awareness strategy. They will participate on the multi-sectoral committees to strengthen intersectoral coordination, promote adoption of SLM, and channel funds from sectoral programs to SLM. The extensionists associated with the production authorities will provide training on SLM in some of the project's Specific Intervention Areas (SEIs), with project support. Under the project, provincial production authorities will benefit from training on the use of the LADA methodology to evaluate LD and on SLM and INRM in general. It should be noted that in some provinces the environment and agricultural authorities are one and the same. They will play important part in channeling funding of baseline programmes to SLM practices in the future..</p>
Provincial units responsible for Spatial Data Infrastructure	<p>These units will be strengthened with the development of provincial SLM nodes that will be linked to national nodes. For those provinces without such units, the project will work with the relevant environment authorities to strengthen information management and linkages for effective decision-making.</p>
Ministry of Agriculture and Livestock (MAGyP)	<p>As one of the key baseline programs and the provider of cofinancing at the provincial level, MAGyP will for part of the Project Advisory Committee (PAC). It will also be one of the targets of institutional strengthening and mainstreaming activities under Outcome 2. MAGyP will participate in project activities, such as the economic valuation of SLM benefits and costs, and the development of a proposal to integrate SLM criteria in credit mechanisms. MAGyP includes the Unit for Rural Change, which houses all of MAGyP's externally-funded projects and programs, such as PROSAP and PRODERI (see separate entry on sectoral programs).</p>
INTA	<p>INTA is an institute associated with the MAGyP charged with agricultural extension, among other responsibilities. It will be a member of the multisectoral committees to be developed under this project. It will provide extension services on SLM for some of the SEIs, with project support for the extensionists' travel and other expenses. INTA will also contribute to the valuation of SLM benefits and costs.</p>
National Observatory on Land Degradation and Desertification (ONDyT)	<p>The National Observatory on Land Degradation and Desertification, chaired by the SAYDS, gathers information on land degradation levels, tendencies and risks so as to develop appropriate prevention, control and mitigation measures and to guide decision-making. Its members include CONICET, among others. The ONDyT will contribute its expertise to the ranking of LD hotspots, development of SLM guides and protocols, valuation of SLM costs and net benefits, and will benefit from training related to the establishment of the GIS system for LD/ SLM monitoring. It will also be responsible for LD M&E, including for the project indicators, in order to evaluate project impact.</p>
Community Based Organizations (See Annex ProDoc for	<p>Key CSOs include: NGOs, Cooperatives and Farmers Associations. They will be involved in activities under Outcome 1 and 2 in terms of the promotion of SLM practices and the multi-sectoral committees. They will also be important for facilitating</p>

STAKEHOLDER	RELEVANT ROLES
specificities)	replication of SLM practices in a wide array of differing landscapes through their broad membership and networks.
Sectoral Programs (e.g., PROSAP, Family Agriculture Program, PRODERI, Goat Law, Native Forest Act)	This includes national sectoral programs, which are implemented at the provincial level, as well as programs under the provincial agricultural production and environmental authorities. The project will work closely with these to promote the integration of SLM criteria in their operational manuals to influence sectoral investments. In addition, these programs will serve as a conduit for the replication of SLM practices. They will also provide co-financing to the project.
Ministry of Social Development (MDS) and its decentralized agencies	The project will work together with its decentralized agencies, including the National Commission on Microcredit (CONAMI), the National Institute of Association and Social Economy (INAES), and the National Institute of Indigenous Affairs (INAI), among others. These will provide assistance for the implementation of the project.
Local communities (men and women)	As the ultimate beneficiaries of this project, the local communities of dryland rural areas of eight provinces will be involved in the confirmation of SEIs and implementation of field-level project activities. They will benefit from training on SLM practices as well as training to facilitate access to credit and other financial instruments. They will have an important role to play in promoting replication of SLM practices to the ecoregional levels. They will also participate in the multisectoral committees.

PART II: STRATEGY

Project Strategy and Design Principles

108. The baseline scenario without GEF support will lead to increased land degradation in the dryland ecoregions of NOA and Cuyo, which will fuel the cycle of low productivity, increased pressure on natural resources, degradation, desertification and poverty. The baseline programs will have limited impact on the global environment and on national and local development as they adopt unisectoral approaches that do not take into account the multitude of factors that contribute to LD. By contrast, the GEF alternative will adopt an integrated multi-sectoral approach that will promote on-the-ground implementation of SLM practices and their replication at the ecoregional level. This will be supported by multisectoral coordination and planning mechanisms, capacity building, information dissemination, financial instruments and the integration of SLM criteria in existing sectoral programs (see Incremental reasoning and global environmental benefits section, as well as Project Objective section for more details).

109. Various principles oriented the design of this project to maximize impact, including the selection of representative intervention areas and SLM practices, a focus on smallholders, combined national and provincial level actions, a multi-sectoral approach, and the mainstreaming of gender and social inclusion considerations. These are explained in the following paragraphs.

Selection of intervention areas:

110. There are three levels of intervention for this project:

- i) The ecoregional level (Puna; Dry Valleys scrub; and Plains and Plateaus scrub ecoregions;
- ii) The Geographic Intervention Areas (AGI), the portion of the provinces that coincide with the target ecoregions of the project in which the main actions under Outcome 1 are focused;

iii) Specific Intervention Sites (SEIs), the specific areas in which SLM practices will be implemented and validated.

111. The first two levels were defined during the PPG phase and the third level will be confirmed during the first six months of project implementation.

i) Selection of ecoregions

112. There are five ecoregions located within Argentina's drylands. Of these, three ecoregions were selected to be the focus of this project, namely, Puna, the Dry Valleys scrub (Montes de Sierras y Bolsones) and the Plains and Plateaus scrub (Montes de Llanuras y Mesetas), which are found in the administrative regions of NOA and Cuyo. These ecoregions are considered key priorities for addressing land degradation trends and promoting SLM among small producers. The three selected ecoregions share water shortages and high levels of poverty among small and dispersed rural populations. By focusing on these areas, GEF incremental funding can be most efficiently employed to promote SLM practices tailored to these specific areas at risk of LD and desertification.

ii) Selection of AGIs and Provinces

113. Three provinces were identified in which the AGIs would be established at the outset of the project. These provinces were selected based on the level of institutional support, availability of information, baseline programming and the possibility of implementing SLM practices at scales that would cover the hierarchy of options to address LD.

114. To select the initial provinces in which the AGIs are located, the following criteria were also considered:

- Soil and climate characteristics, with relative homogeneity in order to facilitate comparison and maximize replication potential;
- Varying degrees of land degradation and desertification to provide a wide range of approaches for replication and samples for evaluation and monitoring;
- Level of representativeness of the ecoregion so that results that can be extrapolated to other areas;
- Extent to which the limits coincide with administrative and/or geographic units (water basins, sub-basins);
- Presence of smallholders, communities and/or producer associations or equivalent organizations;
- Variability of land use systems

115. Based on this analysis, it was determined that the ecoregions within each of the provinces demonstrate the type of homogeneity envisioned above and that they contain sufficient different land uses to facilitate the later selection of different types of SEIs. The AGIs were then defined as the area covering the most representative ecoregion in each province¹³. For the province of Jujuy, the selected AGI corresponds to the Puna ecoregion, which covers 94% of the province and 26,868 km². For Catamarca province, the AGI is part of the Dry Valleys scrub ecoregion, which covers an area of approximately 29,724 km² of the province. In the province of Mendoza, the AGI corresponds to the Plains and Plateaus scrub ecoregion, which covers 95.7% of the province and an approximate area of 83,859 km².

¹³ Each of the provinces contains between one and three of the project's three target ecoregions, as well as other ecoregions not included in the project (such as the Altoandina, Chaco Seco and Selva de Jungas ecoregions). However, the AGIs for each province were selected to correspond with the one ecoregion that is most representative in each province and covers the largest area of that province.

116. During project implementation, additional AGIs will be identified as a strategy to permit upscaling and replication of SLM activities. These AGIs will be located in up to five additional provinces, which combined with the three initial provinces, make up all eight provinces contained in the project's three target ecoregions. The criteria that will be used to select the AGIs will be consistent with those used to select the initial three AGIs and will prioritize AGIs similar to the original three to enable replication to the ecoregional level beyond the three initial provinces (*for more details on the methodology employed to select the AGIs, see Annex 3*).

iii) Selection of SEIs

117. The Specific Intervention Sites (SEIs) correspond to the concrete areas of intervention within the AGIs in which project actions will deliver results directly related to LD within the lifespan of the project. The final selection of SEIs will be undertaken in such a way as to maximize replication potential. During the PPG phase, a pre-selection of the practices to be promoted in the project was carried out, and various SEIs were proposed. Given the level of consultation required to achieve consensus among all key stakeholders, the final confirmation of the SEIs will be carried out during the first six months of project implementation, as had been indicated in the original PIF. The following table summarizes key data on the SEIs that were estimated during the pre-selection phase:

Table 6: Summary of Pre-Selected SEIs

Province	Puna	Dry valleys scrub	Plains and Plateaus scrub
	Jujuy	Catamarca	Mendoza
Area (in hectares) in AGI	2,686,800	2,972,400	8,385,900
Estimated area (in hectares) of SEI (s) per province	50,000	50,000	100,000
Location of pre-selected SEIs (names of departments)	SEI1: Cochinoca/ Abra Pampa SEI2: Yavi	SEI5: Faimbalá/ Santa Maria SEI6: Pomán	SEI3: Gral. Alvear/ Rivadavia SEI4: Lavalle/ Santa Rosa
Estimated number of families in the SEIs	1494	3001	3164
Level of replication of SEIs in the AGIs	To be defined during the first semester of implementation		
Ecosystem services that project will contribute to conserving in each SEI	Provisioning services (e.g., food, fibres)/ Supporting services (e.g., hydrological regulation)/ Cultural services (e.g., ancestral practices)	Provisioning services (e.g., food, fibres)/ Supporting services (e.g., hydrological regulation)	Provisioning services (e.g., food, fibres)/ Supporting services (e.g., hydrological regulation)

118. The final selection of a diverse range of SEIs will take into account various criteria, including:

- Different types of land degradation;
- Different soil uses;
- SLM practices to be implemented;
- Hierarchical approach to address LD, namely, prevention, adaptation, mitigation and rehabilitation;
- Sites representative of the three levels of degradation: high, moderate and limited

119. For the SEIs that are identified, the main types of degradation, extent of degradation, and area of degradation will be identified. The types of degradation are based on the FAO - LADA methodology and can be grouped into six categories: water erosion, wind erosion, chemical soil deterioration, physical soil degradation, biological degradation, and water degradation. The degree or extent of degradation defines the intensity of the degradation process and can be classified as: mild, moderate, strong, and extreme. The area of degradation refers to the percentage of the land use system (LUS) that is affected by the degradation.

Selection of practices to be promoted

120. The selection of the practices to be promoted in the SEIs will be based on best practices, technologies, and tools for SLM that were identified and validated for Argentina by the LADA project, as well as other initiatives carried out by institutions such as INTA and IADIZA. These practices take into consideration existing practices and land use systems in place, the characteristics of the productive units, and land tenancy issues, among other issues. During the PPG phase, consultations were carried out with the environment and production authorities of the target provinces, which led to a pre-selection of practices (*see Table under Output 1.3 for a summary of these practices*). To come to a final agreement on the practices to be promoted for each productive activity, a further participatory process of dialogue and consensus will be carried out with the provincial environment and agricultural production authorities, producers, research and rural extension organizations. This will take place during the first six months of the project and will take into account previous findings, the potential benefits of SLM, and associated costs. Thus, the costs of implementation of each of the proposed practices will be assessed with key stakeholders, along with the support available from different programs and institutions, in order to come to an agreement on which practices from the menu of options are most feasible.

Focus on small producers

121. The project interventions will target small, and to a lesser extent medium-sized, producers. Small producers have limited access to training opportunities related to SLM as well as limited access to related information due to their level of isolation.

122. Financing to support the implementation of SLM is also a problem since they often cannot meet banking conditions (such as possession of land title, history of income and expenditures, etc). These conditions lead to a negative cycle that increases the pressure on resources, reduces quality of life, increases poverty and often leads to rural emigration.

123. To a certain extent, medium producers also face restrictions in terms of accessing financing for SLM and for this reason the project will also support the implementation of SLM practices by medium-sized producers through the development a proposal of guidelines for commercial banks to include SLM in their credit mechanisms/systems. By contrast, large producers in the area already have access to training opportunities and to financial assistance and credit to implement SLM practices.

124. There is a close relationship between land degradation and poverty, and it is the poor who face greater vulnerability to the effects of drought and desertification and who feel the impacts of inappropriate land management practices first. The UNDP, Implementing Agency for this project, has a mandate to contribute to poverty alleviation and capacity building and a focus on small and medium producers is therefore aligned with this mandate. The project will also contribute to national poverty alleviation priorities established by the GoA, including those expressed in the National Development Plan, which includes poverty alleviation, sustainable production and environmental sustainability among its key objectives. Finally, a focus on small producers is consistent with GEF's Land Degradation focal area strategy and UNCCD's 10-year strategy, which aim to reduce poverty among those dependent on natural resources, while promoting environmental sustainability.

Action at national and provincial levels

125. To maximize impact, the project will work at complementary and interrelated levels, the national and the provincial, and to some extent local level. At the national level, SAYDS will be responsible for coordinating with the central levels of the sectoral projects and programs that will be implementing training and/or funding activities under MAGyP and its Unit for Rural Change. It will also work with the Ministry of Social Development (MDS) at the national level on the issue of microcredit (MDS-CONAMI) to include LD prevention and SLM promotion. This will include coordination with the agencies of MDS at the local level to ensure that the requirements are applied to smallholders. In addition, proposed guidelines will be developed for commercial banks to facilitate the provision of credit for SLM measures. Through the project SAYDS will support capacity building at the provincial level to facilitate the development of PAPs and will design the communication strategy, which will then be adapted and implemented at the provincial level.

126. Since the provinces have jurisdiction over the management of natural resources, the project design is heavily dependent on actions at that level. SLM guides and protocols will be developed at the provincial level, and multisectoral committees to guide their implementation will be provincially-based. Training and extension of producers will also for the most part take place at this level. To establish an effective monitoring and evaluation system, provincial nodes will be developed with harmonized information based on standardized information gathering protocols and these will be linked with national nodes within the Observatory and the SAYDS. This will facilitate quick access to relevant information on SLM and LD.

127. The process of developing PAPs will be carried out by at least three provinces. The revision and identification of financial instruments to support SLM uptake will take place in part at the provincial level (depending on the particular instrument or fund). Finally, the communication strategy will be adapted and implemented at the provincial level so that it resonates with local realities.

Inclusion of various sectors

128. The project will address key sectors affecting land degradation in the AGIs, including livestock management, agriculture, and water management. This multisectoral approach is essential to the promotion of integrated natural resource management and to addressing the multiple threats from different land uses across ecoregions, promoting complementary and coordinated approaches and reducing the possibility of future conflicts among different land uses. The field-level promotion of practices to reduce LD, institutional strengthening, development of financial instruments and development of programs and norms will all be based on all three above-named sectors.

Gender and social inclusion

129. A careful analysis of gender issues and social inclusion was carried out during the PPG phase (*see Annex 2 for social and environmental screening*) to develop a strategy that ensures the adequate participation of both men and women, marginalized groups, youth, aboriginal communities and all other relevant stakeholders in project activities. The joint strategy for these groups includes two steps:

i) *Training of trainers*. The main objective is to provide a training workshop for all project stakeholders on gender and social inclusion. This will require agreements between the various specialized institutions involved in SLM, INRM, gender and social inclusion. During this workshop, specific monitoring methodologies will be defined to track differentiated indicators in order to be able to assess gender impacts.

ii) *Development and consultation of calendars of activities.* These calendars will enable project actions and calls for participation to be aligned with social, cultural and religious activities events that are typical of each community, ethnic group and gender.

130. The strategy to ensure the participation of women, youth and aboriginal groups is linked to the social development ministries of the provincial governments, as they include provincial representations of INAI (National Institute for Indigenous Affairs) and the National Women's Commission. These provincial representations have different names in each province. INAI is a decentralized agency that depends on the Ministry of Social Development (MDS) and is charged with ensuring the full exercise of the citizenship of aboriginal groups and ensuring the fulfillment of their rights as protected by the Constitution. The National Women's Commission is responsible for all policies related to equal opportunities for both genders.

131. It should also be noted that INTA has two Research and Technological Development centres for Small Family Agriculture, one for each of the regions of NOA and Cuyo. Gender and social inclusion approaches have been integrated in their work since 2005, with the support of rural sociologists. In addition, the gender approach and inclusion of aboriginal communities is integrated into the sectoral intervention programs of MAGyP, such as PROSAP, PROINDER, PRODEAR, as well as in the MERCOSUR program "Institutional Strengthening of Gender within Family Agriculture in MERCOSUR", among others.

132. One particular issue to note when working with aboriginal groups¹⁴ that is based on the National Constitution and the laws in place, is that all consultations and interventions need to follow the process of prior, free and informed consent. To achieve this, it will be important to keep these stakeholders informed in places that are accessible to them, in a clear manner, and in a language that they understand.

Project objectives, outcomes and outputs

133. The objective of the Project is to build a sustainable land management framework for the drylands of the Northwest of Argentina to alleviate land degradation, maintain ecosystems services and improve rural livelihoods. It will do so through two complementary approaches. The first will focus on Geographic Intervention Areas (AGIs) within three provinces (Catamarca, Mendoza and Jujuy), which are representative of the three target ecoregions. The project will work to promote the implementation of SLM practices in these areas to prevent, adapt to, mitigate and rehabilitate degraded lands in hotspots and high risk areas so as to reduce negative environmental impacts and support local communities. In these areas it will also strengthen inter-sectoral coordination mechanisms and financial frameworks to increase SLM adoption in the context of integrated ecosystem management across the larger ecoregions of the territory. The second level of the project will work to institute SLM systems to combat land degradation in all the provinces (8) that house the drylands in the target ecoregions and at the national level to promote mainstreaming of SLM practices into national sector programmes. Over the long term this upscaling of SLM across the three target dryland ecoregions will protect vital ecosystem functions and deliver sustainable development benefits to the rural poor.

134. To achieve this project objective, the project includes two Outcomes, one focused on SLM implementation and the other on strengthening the enabling framework and capacities for SLM uptake at the ecoregional level.

¹⁴ In Spanish, they are termed "pueblos originarios".

Outcome 1: SLM practices implemented to prevent and reduce land degradation in environmental hotspots

135. This Outcome will promote the implementation of SLM practices and the development of guides and protocols that will support strengthened decisions on land uses and improved management in the project's target ecoregions. In addition, management plans will be developed in selected landscapes to identify and provide guidance on appropriate SLM practices for LD avoidance and reduction. Multi-sectoral committees will monitor SLM implementation and enhance inter-sectoral planning and coordination in the wider context of integrated ecosystem management. Adoption of SLM practices will be promoted in specific SEIs within the three identified AGIs. As detailed below, the development of SLM guides, protocols and financial mechanisms to support SLM uptake and the experience generated from the on-site implementation of SLM practices will support upscaling of SLM activities from the level of the specific SEIs to the larger AGIs.

136. The project will initially work in the three provinces of Catamarca, Mendoza and Jujuy to institute SLM practices to avoid and reduce land degradation in environmental hotspots. Within these provinces, three Geographic Intervention Areas (AGIs) were identified (see project design principles section) representing three ecoregions in which SLM practices will be implemented at the scales required to put in place a range of LD management options (prevention, adaptation, mitigation and rehabilitation) so as to determine costs and trade-offs and thus appropriate mixes for each ecoregion. The selection process has ensured that different degrees of land degradation and vulnerability are included in targeted AGIs and that these are sufficiently large and representative to provide objective comparisons and conclusions that can be replicated across the ecoregions. The Specific Intervention Sites (SEIs) in which on-the-ground actions will be implemented will be confirmed at project outset (see project design principles section) and a LADA vulnerability ranking carried out. SLM practices to prevent, adapt, mitigate and rehabilitate degraded areas will include soil and water management techniques; livestock management; rangeland management; crop management; and soil fertility management, among others (see Output 1.3 for details as well as Annex 4). SLM guides and protocols will be developed for each of the main Land Use Systems to guide SLM implementation.

137. In parallel the project will support the setting up of multi-sectoral committees to facilitate dialogue on SLM; review and approve the SLM guides and protocols and support their implementation; and to provide guidance and oversight on SLM implementation. The committees will play an important role in coordinating production sector programmes and policies at the level of the ecoregion within each province. The committees will also contribute to increasing the visibility of the benefits of SLM investments and increasing the financial resource allocation for smallholders and medium producers to support the continued application of SLM in priority areas. To build the economic argument for increased resources flows, a valuation exercise will be carried out of the costs/ benefits of different production systems and SLM practices within selected ecoregions and their benefits to ecosystem functioning and to sustainable livelihoods (sustainable livelihoods approach¹⁵). The project will use the results to build the business case for SLM investment and work with selected local governments to broker private resources for microcredit, revolving and other possible funds. This will be coupled with capacity building of producers to access these funds. This Outcome will be achieved through the following Outputs:

Output 1.1: Guides/ protocols developed to support planning/ implementation of SLM at the local level in the selected ecoregions and land degradation hotspots.

138. The LADA methodology was previously applied at the national level to identify LD hotspots. Using this baseline information, the project will support local-level studies to confirm the hotspots, obtain

¹⁵ See IFAD sustainable livelihoods approach (<http://www.ifad.org.sla>).

more detailed data on the level of degradation and prioritize the areas of intervention (SEIs) through the classification of their environmental status using the LADA methodology and the assessment of their level of vulnerability, taking into account social factors. This work will be carried out in a participatory manner with key stakeholders, including the provincial environment, agriculture, forestry, and irrigation authorities (see stakeholder table), the SAYDS (DCSyLCD), and the ONDTyD (made up of CONICET and INTA, among others). The identification of the priority areas for intervention will enable planning to put in place appropriate SLM practices to avoid and reduce LD. Consultants to be hired through the project will provide training to 40 provincial and national (but provincially based) technicians in the use of the LADA methodology for the evaluation of LD. In addition to the identification and prioritization of LD hotspots and confirmation of SEIs, the proposed list of SLM practices to be promoted in the SEIs to reduce LD will be confirmed.

139. SLM guides and protocols will be developed for each of the main Land Use Systems (LUS) to facilitate SLM adoption. The guides will provide instructions on the implementation of specific SLM practices and will be produced in the form of leaflets or pamphlets. They will support the implementation of SLM in the SEIs and will also be informed by the experiences of the work in the SEIs. The guides will feed into the development of protocols, which will be written and detailed plans (in the form of manuals) outlining procedures with a view to standardizing the series of actions to be taken in the AGIs in which the SLM practices will be implemented. The protocols will identify which practices are appropriate in which contexts based on land use patterns, levels of land degradation, and other factors, and will specifically describe how the practices should be promoted. They will be based on the hierarchy of prevention, adaptation, mitigation and rehabilitation. They will also contain information on roles and responsibilities for SLM implementation and institutional arrangements. As with the SLM guides, the on-site implementation of SLM practices in LD hotspots (SEIs) under Output 1.3 will feed into the development of the SLM protocols; at the same time, the protocols will influence the activities on the ground once they are approved. Training will be provided to ensure that gender and social inclusion are taken into consideration in their development.

140. The protocols will be developed through a consensus-based process with the key stakeholders involved, project consultants, and the ONDTyD, and as such the provincial authorities will be in a position to mandate their use through provincial norms, such as resolutions. They may be formally adopted by the stakeholders making up the multisectoral committees (to be established under Output 1.2) through voluntary written agreements (and may later be adopted in revised form through provincial norms under Outcome 2). In addition to the guides and protocols, management plans will be developed for different landscapes to identify and guide the implementation of SLM practices, in order to avoid and/or reduce LD on these lands. The specific areas for which management plans will be developed for local communities will be dependent on the final selection of the SEIs. *Please see the Section on design principles for a description of the processes that will be used in the event that work will be undertaken with indigenous groups.*

141. Dissemination and awareness raising activities will be carried out through workshops with producers and key stakeholders to promote high levels of appropriation and use of the guides and protocols by small producers, productive organizations, provincial authorities, civil society organizations and technicians from different organizations, among others. The protocols also represent an important input for Output 2.2 for the development of the Provincial Action Programs (PAPs) as well as the provincial norms to promote SLM.

142. Once the Specific Intervention Sites are confirmed (during the first semester of project execution), and through the official announcement¹⁶ and selection of local and/or regional academic, scientific or

¹⁶ In Spanish, this is referred to as "convocatoria".

extension organizations with knowledge and experience of the topic in order, letters of agreement will be assigned and working groups established to develop the SLM guides and protocols. The LADA vulnerability ranking, protocols and management plans will serve as important tools to strengthen the planning of integrated resource management in the specific areas identified as highly vulnerable to land degradation.

Output 1.2: Multisectoral committees promote dialogue on SLM and coordination of sectoral programs at the level of AGIs and guide the implementation of SLM guides/ protocols.

143. Three multisectoral technical/management committees will be established, one for each province/AGI. These committees will provide a space to facilitate dialogue and coordination among different sectors involved in SLM and to agree on priority critical areas for intervention. They will support the implementation and monitoring of project activities including by facilitating the application of SLM practices in the field, supporting the implementation of the SLM guides and protocols (Output 1.1) and striving to ensure integration of these tools in their respective agencies/institutions. The committees will also support implementation of Output 1.4 (strengthening of financing instruments for SLM) and will promote financial instruments for SLM implementation. The committees will be supported with information and feedback provided by the decision-making system to be established under Output 2.1.

144. At a minimum, these committees will include: the focal points of the provincial environment authorities, the agricultural authorities, area or local representatives of relevant national and/or provincial sectoral programs, INTA/IPAF, ONDTyD, representatives of academic and research institutes, representatives of social departments, members of the programs and funds that could provide funding for SLM, as well as land owners and/or land users (farmers). In addition, the Project Execution Unit (PEU) and ecoregional consultants will participate in these committees. While the specific functioning of the committees will be defined upon their establishment, they are expected to meet at least two times a year.

145. The project will facilitate the meetings of the multisectoral committees to support the coordination work and establishment of agreements. In addition, the project will fund workshops (one per province per year over 4 years) in order to increase understanding of the benefits of the SLM practices and the results obtained through their implementation.

Output 1.3: SLM practices are implemented in dryland ecoregions in critical LD hotspots.

146. The first step to achieving this Output is the confirmation of the Specific Intervention Sites or SEIs. During the PPG phase, a preliminary identification (pre-selection) of some of the possible SEIs within each AGI was undertaken, in conjunction with proposed SLM practices. This was based on consultations with provincial environment and agricultural authorities and on an identification of areas in which different representative LUS systems are in place. However, further consultations are required to make the final selection (*please see section on project design principles for an explanation of the criteria to be used in the selection of the SEIs*). As previously highlighted, the SEIs will be selected in such a way as to permit a series of comparisons to be made, for example, between the practices most appropriate for different levels of LD. The SEI methodology adopts a hierarchical approach to addressing LD (prevention, adaptation, mitigation and rehabilitation) and therefore covers SEIs in the following three categories: (i) most degraded areas, where the land is degraded to the extent that only rehabilitation alternatives can be promoted to address the degradation in the medium and long term; (ii) areas with moderate degradation, where the level of degradation is not yet having a significant impact on the environment and as such, mitigation measures can be implemented involving either change in land use or change in land use practices; and (iii) conserved areas, which are defined as areas under sustainable management, in which some aspects can be strengthened to improve the likelihood of demonstration and/or replication.

147. The techniques to be implemented in these SEIs are based on a consideration of practices previously identified by the LADA project and interventions carried out by institutions such as INTA and IADIZA and the consideration of various issues, such as the land use systems in place (*see section on project design principles*). Proposed practices were reviewed and consultations undertaken with representatives of the environment and agricultural authorities of the provinces of Jujuy, Catamarca and Mendoza during the PPG phase to develop a preliminary list. The SLM practices can be grouped into the following three groups:

- Cattle and pasture management practices to maintain vegetative cover (for example, through fencing; raising of camelids; construction of stalls to protect cattle, and growing of perennial pastures).
- Soil management and conservation practices (windbreaks, terraces, gully control, flood control) and crop management practices (rotation among others) applied to reduce erosion and increase fertility;
- Water management practices applied to increase the efficiency of its use; capture of rainfall and run-off water, drip irrigation, and small dams. These measures will improve water administration and contribute to optimizing its capture, distribution and use.

148. During the PPG phase, feasible SLM practices were identified for a series of Land use Systems in the target ecoregions and classified in the categories of mitigation, prevention, adaptation and rehabilitation, where applicable. The possible location of the SEIs in which the SLM practices would be implemented and their levels of degradation were identified. In addition, the implementation arrangements, participating institutions and beneficiaries were pre-identified. The following Table provides a summary of the proposed SLM practices per Land Use System and per category of action, subject to confirmation during the initial semester of project implementation.

Table 7: Pre-Selected SLM practices for prevention, mitigation, rehabilitation and adaptation

Land Use System	SLM Practices			
	Prevention	Mitigation	Rehabilitation	Adaptation
Sustainable management of camelid livestock in the province of Jujuy, Puna ecoregion	Change in type of land use: Planting of pastures and management of natural pastures to avoid superficial erosion and promote water infiltration through increased vegetative cover	Change in management practices/ level of intensity: Modification of camelid loads based on forage supply, incorporation of electrical fencing, rotational grazing, incorporation of perimeter fencing. Change in type of land use: Planting of pastures and management of natural pastures.	Planting of perennial pastures	n/a
Production of quinoa in province of Jujuy, Puna ecoregion	Increased soil cover: Replacement of traditional horticultural crops and other crops like potatoes, for quinoa, as it provides greater soil cover.	Change in management practices/ level of intensity: Incorporation of furrow irrigation or flood irrigation with mechanization. Design considerations based on natural and human environment: Monitoring of water and soil quality, particularly electrical conductivity and pH, to calculate the amount of water needed for irrigation.	n/a	Increased soil cover: Crop rotation and replacement of traditional horticultural crops and other crops like potatoes, for quinoa, as it provides greater soil cover.

Land Use System	SLM Practices			
	Prevention	Mitigation	Rehabilitation	Adaptation
Irrigation systems in oases of walnut production in the province of Catamarca, Dry Valleys Scrub ecoregion	Changes in calendar of activities: Irrigation practices and application of pesticides in accordance with the crops' requirements and phenological stage and sanitary aspects, and based on hydrological conditions of the soil Improved land cover: Enrichment of native forest with <i>algarrobo</i> and silvopastoral management	Change in management practices/ level of intensity: Changes in irrigation system and technology toward more efficient systems (pressurized: drip irrigation, micro-aspersion) Design considerations based on natural and human environment: Monitoring of water and soil quality, particularly electrical conductivity and pH, to calculate the amount of water needed for irrigation. Improved land cover:	Tanks: Improved supply of water resources through construction of small community water storage structures, which will enable more continued distribution of water and other rehabilitation actions such as revegetation	Walnut grafting for genetic improvement
Goat management in the province of Catamarca, Dry Valleys Scrub ecoregion, and in the Plains and Plateaus Scrub ecoregion.	Improved land cover: Planting of pastures adapted to the region (mega-thermic) to increase forage supply and increase soil cover Organic material/ soil fertility: Organic fertilizers/ composting.	Tanks: Improved supply of water through construction of stormwater storage structures and wells Change in management practices/ level of intensity: Construction of nocturnal enclosed pens Management of grasslands and pastures in the forests by adjusting animal loads and through rotational grazing. Improved land cover: Planting of pastures	Improved land cover: Planting of pastures	Change in management practices/ level of intensity: Construction of nocturnal enclosed pens
Management of water and soil in grape/wine cultivation in the province of Mendoza, Plains and Plateaus Scrub ecoregion	Changes in calendar of activities: Irrigation carried out in accordance with crops' phenological stage as well as the hydrological conditions of the soil	Change in management practices/ level of intensity: Changes in irrigation system and technology toward more efficient systems (pressurized: drip irrigation, micro-aspersion) Design considerations based on natural and human environment: Monitoring of water and soil quality, particularly electrical conductivity and pH, to calculate the amount of water needed for irrigation. Walls, barriers: Construction of vegetative wind breaks in order to reduce atmospheric demand and increase efficiency of water use	Diversion dikes, drainage: Improved internal drainage of the fields to avoid prolonged flooding and accumulation of salts.	Change in management practices/ level of intensity: Changes in irrigation system to optimize water use.
Extensive cattle ranching in the province of Catamarca, Plains and Plateaus Scrub	Improved land cover: Planting of pastures that are adapted to the region (megathermic) to increase forage supply and soil cover. Planting/ enrichment of <i>algarrobo</i> trees to	Change in management practices/ level of intensity: Management of grasslands in the <i>algarrobo</i> and <i>jarilla</i> forests by adjusting the animal load and through rotational grazing Changes in calendar of activities: Adjustment of the services of cows	Change in management practices/ level of intensity: Incorporation of selective low-intensity pruning/thinning	Change in management practices/ level of intensity: Changes in irrigation system to optimize water

Land Use System	SLM Practices			
	Prevention	Mitigation	Rehabilitation	Adaptation
ecoregion	increase forest area.	and births to the seasons of highest forage supply and sanitary management	to improve the balance between woody and herbaceous species	use.

149. Based on the pre-selection of SLM practices carried out during the PPG phase, field-based evaluations and participatory workshops will be carried out to reach final agreement on the practices to implement based on the levels and types of degradation and to confirm the SEIs in which the practices will be promoted. Where aboriginal communities are present, prior, free and informed consent will be obtained, working with the provincial authorities supported by the project.

150. Extension and information dissemination will be carried out through workshops with producers and key stakeholders to promote the adoption of SLM practices and to promote replication. A consultant focused on M&E of SLM implementation will be hired with project funds, who will be supported by the project's three ecoregional consultants, one per AGI, and the project's junior agricultural consultant. These project staff will support the development and implementation of the SLM practices, provide guidance, and carry out monitoring and evaluation. The extension and information dissemination work will be carried out in close coordination with relevant institutions and agencies in operation in each of the SEIs; these will therefore vary depending on the particular SEI. The most important partners in the extension work will be:

- INTA, which carries out extension work on behalf of MAGyP and has ample experience doing so, including in the target AGIs;
- Technicians/local agents of sectoral programs, particularly PROSAP and MAG's Family Agriculture Program, but also PROVIAR and PRODERI;
- Technicians associated with provincial agricultural authorities;
- Technicians associated with provincial environmental authorities and universities. See baseline programme section for description.

151. The particular organization/ institution to impart the training will depend on the SEIs that are selected and on their availability in those areas. Once the selection of the SEIs is finalized, agreements will be established with the relevant agencies outlining detailed commitments in terms of the extension work. The project's three ecoregional consultants will support the training work and another consultant for this Output will carry out M&E to supervise and monitor the implementation of the SLM practices. The multi-sectoral committees established under Output 1.2 will also provide oversight for the implementation of SLM practices in the SEIs and will facilitate coordination among the different relevant actors involved in each of the SEIs.

152. The project will strive to promote the replication of SLM practices being implemented in particular SEIs in the initial three provinces to other sites within the AGIs in other provinces that share similar characteristics. This will facilitate upscaling to the level of the AGIs.

Output 1.4. The allocation of financial resources for small farmers supports the continued implementation of SLM in priority areas.

153. In order to ensure sustainability of SLM adoption and promote the upscaling of SLM implementation, this Output will seek to increase the resources available to small and medium producers to carry out SLM from microcredit, revolving funds, and other possible sources.

154. As a first step, further analysis will be undertaken to substantiate the economic argument for adoption of SLM practices under different scenarios will be carried out. The costs and benefits of implementation of the different SLM practices applied to the different production systems will be determined. This valuation will involve an analysis of the main LUS, costs and net benefits. This analysis will take into consideration social issues (including data on livelihoods as per the IFAD methodology), and environmental issues in conjunction with microeconomic evidence at the level of the producer or productive sector and will determine possible private returns and how these can justify the investments. Once the SEIs are defined, the priority ecosystem services associated with these SEIs will be determined for inclusion in the valuation exercise in order to help identify the environmental benefits associated with the SLM practices. The project will carry out additional consultations with experts and liaise with those involved with the Payment for Environmental Services project carried out in Argentina in order to confirm the most appropriate methodologies to employ for the valuation. The analysis will be carried out by the Project Execution Unit with the assistance of a junior agricultural consultant with expertise in economic analysis, in cooperation with the ONDTyD¹⁷, through an ad-hoc commission made up of INTA, CONICET, the provinces, universities, research institutes and MAGyP. The results will be presented and validated in workshops in the SEIs, as well as in provincial-level workshops. The results of this economic valuation will be periodically reviewed and adjustments made as further details from Output 1.3 are available. The results of this valuation exercise will be a key input for the work of persuading the public financial agents in charge of revolving funds (RF) and microcredits (MC) for the agricultural sector to incorporate SLM criteria.

155. As part of the PPG, an initial analysis was carried out on all possible programs, projects and credit schemes that could be relevant for this project in terms of the incorporation of SLM criteria (this analysis identified each fund, identified its objectives, requirements, etc) (*See Annex 8 for summary of financial analysis undertaken*). During project implementation, these financial instruments will be confirmed and work undertaken to promote the necessary revisions for the promotion of SLM including through the development and distribution of guidelines and workshops undertaken for information dissemination and capacity building.

156. Meetings will be held with technical teams and workshops carried out with the stakeholders involved in Revolving funds (RF) and Microcredit (MC) to facilitate the allocation of resources for smallholders linked to the implementation of SLM practices (with specific indicators to measure this implementation). With the support of the multisectoral committees, in each province a coordination mechanism and agreements with the MDS- CONAMI (National Commission for Microcredit) will be established to facilitate the inclusion of SLM criteria in the microcredit allocation scheme, and agreements will also be reached with the network of local microcredit agencies, which actually facilitate access to the credit to smallholders. This will involve coordination between producers, the GoP and the non-profit organizations that are linked to MC. Action at both the national and local level, supported by the multisectoral committees established under Output 1.2, will enable smallholders to access these microcredit resources for SLM-related activities.

157. Additional sources of funding for SLM will also be explored, such as increased funding from the government budget, and concessions from productive activities. In terms of the private sector, funds from bank credit, will be considered, among other options. The project will also identify sources of funding from existing budget lines of sectoral programs (related to agriculture, livestock management, water management) in the target ecoregions that could be directed toward the reduction of LD and promotion of SLM (*see Output 2.3 for the mainstreaming of SLM criteria into these programs and sectoral*

¹⁷ The ONDTyD has a sub-group that works on socio-economic indicators and therefore has relevant experience to contribute to this work.

investments). The identification of multiple possible sources of funding for SLM is consistent with the concept of Integrated Financing Strategies¹⁸, which are highlighted as a priority action for signatory parties in the Ten-Year UNCCD strategy.

158. With the assistance of a consultant, guidelines will be prepared to outline criteria for the distribution of (public) RF and MC resources and other funding sources that are identified, to take into account SLM issues. These will be agreed upon with GoA and with the GoPs. The guidelines will enable practices employed by small producers to reduce land degradation including water and soil management, sustainable agriculture and rangeland management to be eligible for credit. They will enable the "rules of the game" to be established for the financial sector so that parameters and indicators related to SLM are included in their credit or microcredit incentives. The financial instruments will benefit those who implement SLM practices, but will not exclusively stipulate that credit can only be provided upon implementation of such measures.

159. Workshops to disseminate information on these guidelines will be carried out in the three ecoregions to increase impact and potential for replication. These workshops will also serve to increase the visibility of the funds by identifying which credit, microcredit, revolving funds, and other financial incentives are available to support SLM activity implementation. The workshops will include training for producers to facilitate access to credit. Mechanisms will be defined by the multi-sectoral committees in order to oversee the implementation of the revised financial instruments, and enable the effectiveness of the financial instruments and guidelines to be monitored at the provincial level and to permit their revision as needed.

160. At the national level, work will also be carried out to facilitate access to regular credit for medium-sized producers for SLM initiatives. The project will develop a proposal with technical guidelines that outline proposed conditions for commercial banks to incorporate in their credit lines for the agricultural sector to avoid LD and promote SLM.

161. The strategy for the allocation of funds will take into consideration the severity of the degradation, as well as the social vulnerability of inhabitants and this information will be included in the guidelines on the distribution of funds. For areas with severe LD that is difficult to reverse and where the economic outputs of productive activities are low and at risk of being unsustainable, recommendations will be made that resources for SLM be allocated toward recuperation programs and the strategy will recommend alternative opportunities for inhabitants where conventional production systems and practices have stopped being viable (the strategy would facilitate linkages between inhabitants and possible funding programs for such alternatives). In those cases where there is substantial LD with low economic returns but where it is feasible to improve these, resources would be channeled to activities such as small-scale irrigation and drainage works to promote the recuperation of degraded soils and improve the availability of water. Other SLM practices, such as sustainable cattle and sustainable forest management (e.g., silvopastoral activities) can also lead to improvements in degraded soils. Where productive systems are viable but there is a risk of reduced sustainability over time, technical assistance and awareness raising among producers should promote the adoption of practices to prevent degradation in the first place.

Outcome 2: Enabling framework to plan, monitor and adapt land management at the ecoregional level developed.

162. This Outcome will lead to the development of an enabling framework and capacities for the implementation, and monitoring of SLM at the level of the project's target ecoregions. To upscale the

¹⁸ The goal of IFS is to create an enabling environment for mobilizing internal, external and innovative resources to provide an investment framework for SLM.

work to the provincial and ecoregionals level and to support mainstreaming, the second Outcome will work across all eight provinces that house the targeted dryland ecoregions. The development of a LD/SLM-based GIS system and SLM monitoring protocols; institutional and individual capacity building on SLM with the eight provinces; implementation of a communication and advocacy campaign; and the integration of SLM criteria in large sectoral programs will facilitate replication of SLM practices at sufficiently large scales to reduce LD degradation in these three ecoregions.

163. As a foundation for decision making and for the integration of SLM into ongoing programmes, the project will develop a LD/SLM-based GIS system that will facilitate ecoregional modelling, planning, and monitoring of SLM and INRM and of the associated global environmental and development benefits. This will build on the baseline national LD Observatory but expand it to include provincial GIS-based information, establishing links between provincial and national nodes and integrating multiple datasets, such as environment, population, agriculture, climate information, and risk maps. The project will set up protocols for monitoring and evaluation of SLM practices in the three ecoregions to ensure consistency and link these to the GIS System. In parallel the project will strengthen the capacity of the eight provincial government institutions to apply SLM practices through the adaptation of the guides and protocols developed under Outcome 1 to each province's realities.

164. A multi-tier training programme will be implemented for provincial and local level staff on SLM and INRM complemented by information exchange programmes and knowledge management on best practices for SLM demonstrated in target ecoregions. The training will cover the principles of SLM and INRM, monitoring, evaluation, best practices for policy development; and the expected impacts of climate change, among other topics. This will facilitate the incorporation of SLM in rural development and sectoral programmes. The institutional strengthening will also include support for provinces to develop Provincial Action Programs for combating land degradation (PAPs) and to develop draft norms to adopt the PAPs. This process will be guided by the environmental authorities of GoA and GoP based on the multisectoral committees' recommendations. Proposals will also be developed for provincial decision makers to strengthen the provincial regulatory frameworks associated with SLM, which would include resolutions or regulations associated with existing legislation, approvals of PAPs, institutionalization of multisectoral committees and/or revised operational manuals of sectoral programs. To further increase mainstreaming of SLM practices in national and provincial sectoral programmes, the project will support a communication and advocacy campaign to raise awareness about LD and the importance of combating desertification and links to national and provincial sectoral policies and programs. In addition, the project will promote the revision of the operational manuals of baseline sectoral programs in order to integrate SLM in national and sectoral programs and associated investments, which will promote upscaling to ensure project impact on all eight provinces within the three ecoregions.

165. The Outcome will be delivered through the following three Outputs:

Output 2.1. Geographic Information Systems (GIS) for the monitoring and evaluation of LD/SLM in the drylands of the 8 provinces.

166. For the eight provinces located within the project's three ecoregions, the environmental authorities have GIS systems under their responsibility and are equipped with some hardware and software as well as trained personnel to permit the processing of information in their own management units. This constitutes constitute important co-financing for this Output. However, as highlighted in the barriers section, the digital information on land use is not always up-to-date and is dispersed among different departments and authorities and not all provinces have Spatial Data Infrastructure (SDI) technology or administrative units.

167. The project will develop a GIS-based system to permit M&E of LD and SLM in the target drylands. Increased M&E will enable greater tracking of land degradation in the ecoregions and will improve decision-making as well as enhance the management actions carried out by provincial and national authorities, such as revisions to the legal framework or to financial instruments. The M&E system will follow the guidelines established by the ONDTyD based on the methodology developed by the National System for Monitoring and Evaluation of Land Degradation, Desertification and Sustainable Management (See Annex 7). The GIS system will continue to be employed after project closure with the support of the ONDTyD network.

168. Through the hiring of a consultant, protocols for metadata will be designed to establish the data bases related to SLM and livelihoods (containing biophysical and socioeconomic data) that need to be included in the GIS system. In addition, the information layers that should be incorporated in the system will be identified, as well as the information providers and associated responsibilities. The information layers may include data on environmental factors, population, agriculture, climatology, and risk maps, among others. In order to establish a system to monitor land uses and changes in land use through GIS and to integrate this information for easy access, provincial nodes will be created, which will strengthen intraprovincial coordination. These will be linked to the national nodes within the ONDTyD and the SAYDS, thus enabling ecoregional integration (at the level of the three ecoregions). This will be coordinated with the Provincial and National SDI administrative units and with the Environment Authorities for the four provinces that do not have SDI units.

169. In each province an interinstitutional workshop will be carried out to permit analysis of the information contained in the provincial GIS and the current state of LD and tendencies, taking into account agrometeorological expectations and projections, the biophysical aspects of land degradation, as well as the social, economic and institutional dimensions that influence degradation processes.

170. Training will be carried out for professionals and technicians of the provincial environment authorities¹⁹ and the provincial IDE nodes as well as the ONDTyD in order to strengthen human resources and increase linkages among different departments to reduce duplication and maximize efficiency in information management.

171. As part of this Output, protocols will be developed to define how SLM practices will be monitored in a consistent manner, based on the Land Use Systems in place. This will facilitate the monitoring of the SLM practices being implemented under Output 1.3 in the SEIs, but will also enable monitoring of actions carried out beyond these specific sites during and after the project. This monitoring will enable lessons learned to be gathered and corrective measures to be taken. The information will also of course feed into the GIS system described above. A working group will be established through official announcement and selection of local and/or regional members of the academic and scientific sector or organizations providing extension services with knowledge and experience in the field (experts in livestock management, agriculture and silviculture, and irrigation). The working group will work with the PMU and a representative of each sector of the provinces of Mendoza, Catamarca and Jujuy to develop the monitoring and evaluation protocols. The working group for M&E of SLM will define the final M&E protocols, follow up on the indicators proposed in each of the SEIs and at the ecoregional level to measure SLM adoption, and support the inter-institutional relationships between provinces and the national level (ONDTyD). The protocols will be validated with all eight provinces participating in the project, after which they will be edited, published and distributed to provincial authorities, extensionists, and producers.

¹⁹ Training will not likely be necessary for the agricultural production authorities as they are more advanced in terms of GIS and IDE systems.

172. The information that will be made available from the GIS system will support the work of the multi-sectoral committees (Output 1.2) in the monitoring of SLM implementation and will also support the development and implementation of the Provincial Action Programs. More generally, by strengthening monitoring and information management, the GIS system will improve the planning and management of SLM activities at different scales to reduce LD and promote SLM. It will provide reliable harmonized data to assist producers, provincial authorities, technicians and civil society organizations in making decisions based on integrated ecosystem management.

173. Among other results of this output, it will lead to increased awareness among decision makers of the benefits of integrating different types of information to improve decision making. With the data gathered and analyzed, workshops will be held with decision makers to highlight the utility of the information and the links with public policy processes.

Output 2.2 Provincial government institutions apply SLM practices

174. In order to promote SLM implementation in the eight provinces found within the project's targeted ecoregions in the drylands, the project will support the development of Provincial Action Programs to Combat Desertification (PAPs), training activities and information exchange and drafting of provincial norms. This will facilitate upscaling to the ecoregional level and will provide the enabling environment for continued SLM adoption after project termination.

175. PAPs will be developed in at least three provinces, covering an area of 140,000 km² or 14,000,000 ha. With assistance from the PEU, the DCSyLD team will develop a "model" PAP document, to serve as a tool for discussion and to serve as an aide for the development of PAPs in the three provinces. The development of these PAPs is a strategic priority to achieve the objectives of the NAP in order to channel the different initiatives to combat LD and desertification more effectively through provincial institutions. It is a responsibility of the SAYDS as the focal point for the implementation of the UNCCD. Discussion and consensus-building workshops will be held in each of the provinces as part of the PAP formulation process. The PAPs will serve as provincial policies that establish each province's priorities in an intersectoral agreed-upon framework. They will facilitate the subsequent development of additional provincial norms to adopt the SLM guides and protocols. Ultimately, it is hoped that the PAPs will strengthen political support and institutional management to prevent LD prevention and promote SLM.

176. Multi-sectoral committees will facilitate and guide the development of the PAPs, the incorporation of SLM practices in sectoral programs and the systematization of this information in the provincial Spatial Data Infrastructure through the GIS systems generated by the project. These committees will also develop strategic alliances among the different actors involved. The committees will expand on the membership of the committees established under Output 1.2 (e.g. focal points of environmental authorities) as necessary, to include relevant representatives of provincial environmental, agricultural and other agencies. The expanded multisectoral committees involved in the PAPs will be formally established/institutionalized through provincial norms and may be referred to as Provincial Advisory Commissions. They will continue to monitor the implementation of the PAPs post-project, ensure the incorporation of lessons learned, and will enhance project sustainability. The project will support their formalization, with agreed upon composition, mandates, operating procedures, and identification of mechanisms by which the costs of the meetings will be covered in the future. The multisectoral committees established under Output 1.2 will continue to function as sub-committees of the broader committees to ensure continued monitoring of SLM actions at the level of the SEIs/AGIs.

177. The development of the PAPs will contribute to the sustainability of project impact. The project will also support the development or revision of the mission and functions of the provincial

environmental authorities in terms of combating desertification and promoting SLM, by incorporating the necessary structures for the implementation of the PAPs through provincial coordination mechanisms.

178. Coordination *between* provinces will be promoted as more provinces develop their PAPs in order to achieve impact at the higher ecoregional level. This will be facilitated by the results of the activities under Output 1.3 at the level of the SEIs and the information analysis systems generated under Output 2.1. The SAyDS will facilitate this inter-provincial coordination in order to recommend strategies for land use that reduce LD at the ecoregional level.

179. To support uptake of SLM in all eight provinces, the SLM guides and protocols developed under Output 1.1, will be reviewed and adapted to the ecosystems and realities of the eight provinces and to the different institutional setups in each. The project will support the preparation of draft provincial norms, which would, once approved, formally adopt the guides and protocols and serve to promote the implementation of SLM practices in the 8 provinces. The project may also support the development of other draft provincial norms to promote widespread SLM adoption. These may be in the form of resolutions from provincial environmental authorities, joint resolutions from environmental and agricultural authorities, decrees/regulations associated with pre-existing legislation and/or formal changes to sectoral program operating manuals to incorporate SLM criteria (*see Output 2.3*). In addition to the development of proposals for norms to approve the SLM guides and protocols, norms may also be drafted to officially adopt the PAPs and to institutionalize the multisectoral committees involved in the PAPs so that they may continue to guide PAP implementation after the project terminates.

180. Multi-tiered training programs will be carried out by staff of SAyDS and ONDTyD for provincial staff at various levels, including the technical and decision-making levels, from within the environment, agricultural production and planning authorities, on the topics of SLM, monitoring and evaluation of SLM practices, combatting desertification and the impact of climate change on drylands, among others. The training will take into consideration the causes of LD as well as the fragility of the target ecoregions. It will enable staff to better understand measures for the prevention of land degradation and for mitigation and rehabilitation of degraded lands, vulnerability to climate change and adaptation measures. The guides and protocols developed through the project, and the lessons learned from the implementation of SLM practices under Output 1.3 will serve as inputs for these training programs. The programs will promote an increase in institutional capacities as well as increased technical, scientific and technological cooperation. At least 150 professionals and technicians from provincial environment and agricultural departments, as well as other organizations will participate in SLM training programs from the eight provinces involved in the project. A total of 24 training and information exchange workshops will be carried out, three per province. This work will be carried out by personnel from SAyDS, ONDTyD and local partners.

181. Information exchange and knowledge management programs will be developed on best SLM practices in the target ecoregions. To do so, the PEU will coordinate with the ONDTyD and with the Provincial Advisory Commissions guiding implementation of the PAPs. The project will facilitate meetings and other activities to promote this information exchange. The project will strive to incorporate national universities that include research groups dedicated specifically to the topic as they have already established networks for the exchange of information with local governments. In addition, the GoP will promote information exchange with producer organizations and civil society organization involved in the issue. Lesson learnt will also be shared and information exchange with other regions undertaken at broader national environment council forum meetings.

182. In order to further promote the replication of the practices implemented in the SEIs to the level of the AGIs and to upscale the SLM activities to the eight provinces, the project will support further information dissemination on SLM practices by INTA (given their large number of extensionists), technicians of the provincial agricultural authorities, and local agents of the Small Family Agriculture

Program, PRODERI, PROVIAR and PROSAP, among others. As a tool to support replication, all IFAD indicators on natural, social, productive, human, and physical capitals will be measured to tailor the work to the different contexts in which SLM is being promoted. This will be carried out at project initiation, midterm and closure.

Output 2.3. National sectoral programs in drylands incorporate SLM practices

183. This Output includes an information dissemination and advocacy campaign to raise awareness of the importance of mainstreaming SLM in policies programs and sectoral investments. It will also work to strengthen coordination between the NAP and the PAPs and to integrate SLM in sectoral programs in order to guide investments.

184. In the first year of the project, a communication strategy will be developed with the goal of promoting greater understanding of the issue of land degradation and its linkages to national and provincial sectorial policies and programs. This strategy will then be implemented in years 2-5 of the project and will target the GoA, the provincial governments, universities, INTA, CONICET, sectoral programs, producer associations and producers themselves. The strategy will reinforce the linkages between the National Action Program and the PAPs. A consultant will be hired to support the design and implementation of the communication and advocacy strategy. The strategy will include television and radio ads as well as graphic communication campaigns. The SAYDS-DCSyLCD will develop and distribute electronic bulletins and the national and provincial communication media will also disseminate communication pieces. In addition, an advocacy campaign will be mounted to highlight the importance of increasing the budgetary allocation for SLM, targeting decision makers. In order to promote the sustainability of the communication strategy, partnerships with the GoA, GoP, universities, INTA, CONICET, producer associations and sectoral programs and projects will be developed, in order to make use of these organizations' own communication and media strategies to reach out to different constituencies, including producer groups (this will constitute co-financing for the project).

185. The communication and advocacy strategy will highlight the various benefits of SLM (economic, productive and environmental) in order for the issue to be incorporated into the agenda of decision makers. At the same time, inhabitants of the drylands in the target ecoregions will be informed of these benefits and will be able to influence the development of public policies on LD and SLM, through the implementation of the PAPs. The strategy will be carried out at different levels, with communication from the SEIs to the provincial level, from the provincial level to the national level and from the national level to the different sectoral programs.

186. With the assistance of the PEU, SAYDS will work with national sectoral programs to integrate SLM in key programs, with the goal of guiding sectoral investments. In order to achieve this, SLM criteria and protocols will be included in the operational manuals of at least two sectoral programs (these may include the Family Agriculture Program, PROSAP, PRODERI, the Goat Law and/or the Native Forest Act, among others), in order to influence resource allocation and activity implementation. This will enable increased channelling of these resources toward SLM measures and will serve as a sustainable source of funds for rural producers to implement activities to reduce LD.

Incremental Reasoning and Global and Local Benefits

187. The maintenance of the current scenario without GEF funding will exacerbate land degradation in the dryland ecoregions of the NOA and Cuyo regions, increase vulnerability to the effects of land degradation and climate change, and limit the economic development of the smallholders dependent on water and soil resources. Farmers will continue to have limited access to knowledge and to funding mechanisms to promote sustainable land management and simultaneously maintain or increase productivity. This will fuel a vicious cycle of low production to support livelihoods, increased pressure on

natural resources, and ultimately increased degradation and desertification risk. Limited multisectoral collaboration and institutional capacity to address LD will remain a problem under the baseline. In the context of multiple land uses and increasing baseline sectoral activities on highly vulnerable lands, there is an increased possibility of lack of coordination of different land uses under the baseline, which would exacerbate LD trends. Tools to guide SLM such as best practice manuals, harmonized GIS systems and provincial SLM programs will be unavailable. Baseline programs to reduce poverty, increase productivity and protect the environment will be insufficient as they do not integrate SLM considerations nor do they adopt a multisectoral approach. As a result, global environmental benefits as well as national/local development benefits will be limited.

188. Under the GEF alternative, the project will work at an ecoregional level with different sectors and different scales of action. Local-level implementation of different types of SLM practices to reflect different land uses and types of production will facilitate upscaling to the ecoregional level. This will be supported by the development of SLM guides and protocols, Provincial Action Programs and an integrated LD/SLM GIS system, which will guide the planning of appropriate activities in LD hotspots. Financial barriers to long-term SLM implementation will be addressed through the revision of microcredit and revolving fund credit, the development of a proposal for revised credit for medium-scale producers, the identification of other possible funding sources, and the integration of SLM criteria into large sectoral programs with significant baseline funding. Multisectoral collaboration, extensive capacity building, information dissemination and communication are key elements of the GEF alternative to promote the replication of integrated natural resource management actions. Given the multiple land uses and pressures on limited resources in highly sensitive areas vulnerable to LD and desertification, the project will strengthen coordination among different land uses and reduce the possibility of land use conflicts in the long term.

189. Within this context, the baseline scenario identifies the baseline investments in the project's target areas in actions that contribute to the project's outcomes over the five years of the project, including from sectoral programs and agricultural and environmental laws. The GEF alternative comprises the baseline in addition to the costs associated with the incremental actions required to achieve the project objective. The incremental cost is therefore the difference between the costs of the GEF alternative and the baseline scenario. The total cost of the project, including GEF funds and co-financing, amounts to US\$24,320,945. GEF financing comprises 14% of the total, or US \$3,515,091. Co-financing constitutes 86% or US \$20,805,854.

190. The project addresses current inappropriate land and soil practices in drylands located in the Puna, Dry Valleys Scrub and the Plains and Plateaus Scrub ecoregions in Argentina's NW and Cuyo regions. Landscape level uptake of SLM practices will deliver direct ecosystem and development benefits over 1,480,000 ha in 3 dryland ecosystems: Puna 450,000 ha; Dry valley Scrub, 750,000 ha; Plains and Plateaus Scrub 280,000 ha. These SLM practices are summarized below along with the expected global and development benefits. Replication of SLM practices will be promoted over an area of 14,000,000 ha (replication will be promoted from the SEIs to the rest of the hotspots within the AGIs). Increased flow of resources to SLM will provide increased conservation of drylands ecosystem functions & services over 2,500,000 ha Puna; 4,000,000 ha Dry Valley Scrub; and 7,500,000 ha Plains and Plateaus Scrub. Increased institutional capacity of provincial and national governments for SLM and INRM will facilitate replication over 30,000,000 ha.

191. The project will promote SLM practices to prevent and mitigate LD, which will lead to a variety of global benefits, including reduced soil and water erosion, increased vegetative cover, reduced soil salinization and alkalinization and reduced water deficiency, as described in the Table below. Annex 9 describes the means of monitoring achievement of various global benefits. This will be achieved through implementation of practices in SEIs and support for upscaling, which will enable producers to adopt more

efficient water and soil management practices and techniques to reduce soil and water erosion, among others.

192. The project will also reduce greenhouse gas emissions by promoting increased vegetation cover through the planting of permanent pastures, improved management of natural pastures and establishment of silvopastoral systems, and by reducing soil erosion, therefore contributing to climate change mitigation. The climate change projections for the NW of Argentina include reduced precipitation and increased temperature, leading to increased evapotranspiration and water demand. In this context, the project's promotion of practices for the more efficient use of water will help local populations adapt. The project will coordinate with national and provincial programs that aim to improve the administration of water management through improved efficiency in water capture, distribution and utilization. It will disseminate information on good practices, provide technical assistance and identify possible funding sources.

193. The project will also lead to benefits in terms of biodiversity conservation through greater maintenance and improvement of native pastures and associated endemic biodiversity, promotion of silvopastoral systems, and enclosure of livestock, among other activities. The development of SLM guides, protocols and PAPs to guide practices in highly degraded areas will also contribute to reduced loss of vegetative cover and will result in biodiversity benefits. Examples of the biodiversity found in these ecoregions that will benefit from project actions include shrubs and bushes such as yareta- *Azorella yareta*; grasses such as *Pennisetum chilensis*; trees such as *Polylepis tomentella*; *Larrea* species; the Patagonian mara- *Dolichotis patagonum*; desert puma- *Pteronemion pennatta garleppi*; and Andean flamingos- *Phoenicopterus andinus* (see paragraphs 6-8 for a description of the characteristic and unique species associated with the project's target ecoregions).

Table 8: Expected Global Benefits of Practices to be Promoted by Project

Current Practice	Alternatives to be put in place by the project	Expected Global Benefits
Livestock rearing with little or no management leading to overgrazing by sheep, goats, camelids and some cattle	<i>Livestock Management:</i> Fencing, camelid management, sheds for livestock protection <i>Soil management:</i> planting permanent pastures; grazing management on natural grassland <i>Soil and water management:</i> windbreaks	<ul style="list-style-type: none"> ✓ Reduced soil erosion ✓ Increased productivity (increased net primary production in pastures) ✓ Increased protection against water erosion ✓ Increased conservation of native grasses and endemic biodiversity (eg. Thola, Prosopis 'carob', etc.) ✓ Reduced greenhouse gas emissions
Crop cultivation without soil and water management techniques, contributing to erosion and land degradation	<i>Crop Management:</i> crop rotation & diversification <i>Soil and water management:</i> windbreaks <i>Soil and water management:</i> fixation of dunes; gully control, terraces	<ul style="list-style-type: none"> ✓ Increased protection against water erosion ✓ Reduced soil erosion ✓ Increased crop productivity
Low technical use of water and heavy irrigation in water deficient area	<i>Soil and water management:</i> Improving irrigation water use; efficient use of water runoff; water harvesting on house rooftops; construction of reservoirs to capture rainwater	<ul style="list-style-type: none"> ✓ Reduced water deficiencies ✓ Reduced soil alkalinisation & salinization ✓ Increased productivity (increased net primary production in pastures) ✓ Increased protection against

Current Practice	Alternatives to be put in place by the project	Expected Global Benefits
		water erosion
Deforestation of scrubs and trees	Promotion of silvopastoral practices Adoption of SLM protocols and development of Provincial Action Programs and provincial norms to guide SLM to reduce deforestation in LD hotspots Diversification and value added measures	<ul style="list-style-type: none"> ✓ Increased vegetation cover leading to BD benefits ✓ Reduced soil erosion ✓ Increased mitigation of climate change

194. The project will also deliver substantial development benefits to the local populations of the three target ecoregions. Increased capacities and know-how to implement SLM will enable producers to combat land degradation and desertification and will lead to increased productivity and reduced emigration from rural areas. The increased capacity and strengthened enabling framework will also enable decision makers to increasingly promote SLM in policies, program and projects. During the project direct benefits will be provided to an estimated 5,000 rural farmers within AGIs. In addition by institutionalising SLM and mainstreaming it into baseline production programmes at least 50% of farming households in all the drylands provinces will also incur indirect benefits over the medium and long term. By increasing and strengthening crop, rangeland and livestock management, productivity is expected to increase and with this income. Further benefits will be incurred by providing more stable incomes and by reducing economic vulnerability through diversification and sustainable production. Reducing land degradation processes also will deliver benefits and reduce vulnerability to climatic changes, which can lead to increased extreme events that can trigger natural disasters on degraded land. By building multi-stakeholder and sector platforms and developing management plans for communities agreed upon by the villagers, local actors will be empowered. Active participation of women, youth and indigenous people in training and capacity building activities will contribute to greater empowerment, increased livelihoods and income for vulnerable populations. The project will adopt appropriate approaches to convene and work with indigenous populations to ensure that they participate and benefit fully from the project, including by building on existing practices with strong local acceptance (*see Section on project design principles for more information on inclusion of women, youth and indigenous populations*).

Consistency with GEF Focal Area Strategies

195. The project will promote the sustainable land management in drylands (arid , semi-arid and dry sub-humid) ecosystems of the northwest of Argentina to address increasing loss of ecosystem functions and services in an area characterised by high land degradation and poverty levels. The project will address the GEF land degradation focal area objective LD 1: “Maintain or improve flow of agro-ecosystem services to sustaining the livelihoods of local communities”. It will do so by promoting SLM practices related to sustainable agriculture, rangeland management and water management in at least three provinces of the dryland ecoregions, in order to avoid, reduce and correct land degradation in targeted landscapes. On-the-ground investments and training of producers in specific SEIs will be supported by significant institutional capacity strengthening, development of SLM guides and protocols, and knowledge transfer. In order to support the ongoing adoption of these practices, the project will work to channel large existing baseline government programs to SLM practices, promote the revision of existing funding instruments to incorporate SLM criteria, and identify promising new funding sources to reduce LD. These efforts will contribute to increased functionality and cover of agro-ecosystems and flow of ecosystem services as well as reduced vulnerability of poor inhabitants to climate change and other human-induced stressors.

196. The project also supported focal area objective LD 3: “Reduce pressures on natural resources from competing land uses in the wider landscape”. The project will set up multi-sector platforms, including representatives from provincial environmental and agriculture departments, research centres, key sectoral programs, and producer associations, among others, which will guide SLM implementation and enhance

intersectoral coordination and collaboration. Planning will be carried out to identify high degradation areas within the Geographic Intervention Areas in which SLM practices will be prioritized. Management plans will be developed for different types of lands and different levels of degradation, which will serve to guide SLM practices and reduce the possibility of future land use conflicts among small and medium producers. In addition, Provincial Action Programs will identify key actions to be undertaken to avoid and reduce land degradation and will also adopt a fully participatory, inter-sectoral approach to maximize impact in terms of the adoption of INRM approaches and practices and increase inter-sectoral coordination.. The project will integrate information (social, productive and environmental) to promote informed decision making for monitoring and evaluation of SLM, which can provide critical information to influence SLM investment and increase efficiencies. Actions under both focal area objectives will promote increased SLM and INRM adoption, strengthen the enabling environment and capacities for replication at the ecoregional scale, while simultaneously benefitting rural livelihoods.

197. The project will support Argentina's implementation of UNCCD 10-year Strategic Plan and Framework to Enhance the Implementation of the Convention (2008-2018) in accordance with the Decision of the Conference of the Parties of UNCCD (DEC 3/COP8). It will contribute to the following operational objectives:

- Advocacy, awareness raising and education, through the project's communication strategy with key stakeholders and knowledge transfer elements;
- Policy Framework, through the identification of LD drivers and barriers to SLM and the identification of specific measures to address them;
- Science, technology and knowledge, through strengthened LD monitoring, harmonization of data collection, and effective knowledge sharing systems;
- Capacity building, including at the individual, institutional and systemic levels; and
- Financing and technology transfer, through channeling of government resources to avoid and reduce LD as well as identification of innovative sources of finance.

Project Indicators, Risks and Assumptions

Table 9: Main Project Indicators and Targets

Intervention Logic	Objectively Verifiable Indicators	Targets (End of Project)
Project Objective: Build a sustainable land management framework for the drylands in the north west of Argentina to alleviate land degradation; maintain ecosystems services and improve rural livelihoods	Area (in ha) in which SLM measures are being applied in the three target dryland ecoregions in NOA and Cuyo.	SLM measures are applied in 1,480,000 ha to avoid and reduce LD in the 3 ecoregions of the drylands of NOA and Cuyo (Puna: 450,00 ha, Dry Valleys scrub: 750,000 ha, and Plains and Plateaus scrub: 280,000 ha)
	% of area with bare ground in 3 provinces.	5% reduction in the area with bare ground in at least 3 provinces
	Level of association: % of producers who are associated with some type of organization	Value increases at least one category in each Province
	Access to water as measured by % of farms what access surface water for irrigation (with or without pumping)	Disaggregated values will be determined through interviews in year 1 to define % small farmer with access to water and specific targets for each intervention area (AGI)
	% of population with Unmet Basic Needs compared to the national average	6 of the 8 provinces increase at least one rank
Outcome 1: SLM practices	Number of families implementing any of the SLM practices.	5000 families implementing at least one SLM practice by the end of the project (3560

Intervention Logic	Objectively Verifiable Indicators	Targets (End of Project)
implemented to prevent and reduce land degradation in environmental hotspots.		additional families), representing a 347% increase.
	Level of cross-sectoral coordination capacity for promotion of SLM and INRM as measured by Question 3.1 on the LD Tracking Tool (Enhanced cross-sector enabling environment for integrated landscape management- capacity strengthening).	At least 3 points are obtained in the GEF LD tracking tool Question 3.1 by the end of the project.
	Funding in US \$ allocated through revolving funds, microcredit programs and/or other financial mechanisms to facilitate SLM and INRM.	Revolving funds, small credit schemes and/or other financial instruments allocate USD 10 million to productive sectors or activities that incorporate SLM or INRM by the end of the project. (amount to be confirmed in the first semester of the project)
Outcome 2: Enabling framework to plan, monitor and adapt land management at the ecoregional level developed.	Level of replication of SLM practices in drylands of the three target ecoregions of the project	At least 20% of farm households in hotspots and high risk areas of 75 % NW dryland provinces replicate best SLM and IEM practices
	Area monitored, with respect to the implementation of SLM through provincial GIS systems that are integrated with the national node.	1,480,000 ha (Puna: 450,00 ha, Dry Valleys scrub: 750,000 ha, and Plains and Plateaus scrub: 280,000 ha) of the ecoregions of the drylands of NOA and Cuyo are monitored by the National Observatory of Land Degradation and Desertification with respect to the implementation of SLM, with the results being stored in provincial GIS systems that are integrated with the national node.
	Percentage of staff in the environmental, production (agriculture and livestock management) and water management sectors working directly or indirectly on LD issues that have been trained on SLM at the provincial level	100% of staff involved in LD issues trained on SLM in the three sectors of environment, agriculture and hydrological management and all employ the SLM guides and protocols to assist in the development, implementation and evaluation of sectoral plans, programs and activities in the drylands of NOA and Cuyo.
	Number of Provincial Action Programs developed and beginning to be implemented.	At least three additional provinces have developed PAPs and are beginning to implement them by the end of the project (Catamarca, Mendoza and Jujuy)
	Number of baseline programs that integrate SLM and INRM criteria and apply them in the field.	At least two baseline programs formally incorporate SLM and INRM criteria in their operational manuals by project end.

Please see Annex 7 for a description of the Project Monitoring Plan.

Project risks and mitigation measures

Table 10: Project Risks and Mitigation Measures

Risks	Ranking	Proposed Mitigation Measures
Political changes at the different levels (national, provincial, municipalities)	Low/Medium	The project will work with the national government as well as with provincial governments to increase their understanding and awareness of the effects of SLM on production and ecosystem services, and thus on the livelihoods and well-being of the populations. Thus it addresses an issue central to development goals and one likely to withstand changes in government. Nonetheless a Steering Committee at the political

Risks	Ranking	Proposed Mitigation Measures
and changes in personnel may delay project implementation		level will be set up, including high-level representatives of the provincial environmental authorities in the regions of NOA and Cuyo. This will strengthen project decision-making and ensure relevance and consistency with provincial priorities. In the event of changes in government, the project will sensitize decision makers or intermediate authorities (e.g., ministers) to familiarize them with the project and promote ownership of the project. Project activities will be undertaken within public organizational structures and will be anchored in cooperation agreements to increase continuity. Implementation arrangements have been agreed upon to ensure administrative efficiencies and expedite project execution. Furthermore, tools and policies will be developed, including SLM guides, protocols and PAPs, which will facilitate continued adoption of SLM practices despite possible changes in personnel.
Due to the difference in time scales between the political cycle and the ecosystem recovery cycle partners may not prioritize SLM policies.	Low	The project will carry out a communication and advocacy campaign with decision makers and other stakeholders to raise awareness about the benefits of SLM adoption and the importance of integrating SLM in national and sectoral programs and policies. In addition, through the project, a valuation of the costs and benefits of SLM practices will be carried out, which will feed into the communication and advocacy campaign as well as into the financial instruments to support SLM adoption. The establishment of multi-sectoral committees, development of Provincial Action Programs that are linked to the NAP, and the mainstreaming of SLM into sectoral programs will also contribute to the continued prioritization of SLM issues over time.
Institutional rigidity and resistance to inter-institutional and multisectoral collaboration	Low to Medium	During the PPG phase, joint meetings, consultations and workshops were held with the environment and production departments of the target provinces (particularly the three provinces being targeted under Outcome 1). These discussions pave the way for continued inter-sectoral collaboration during project implementation. Given that limited inter-institutional collaboration is an important restriction that has undermined a multi-sectoral approach to reducing LD in the past, the project will support the establishment of multi-sectoral committees to guide the development and implementation of SLM protocols and promote integration of SLM criteria in funding instruments (Output 1.2). These multi-sectoral committees will form the basis for the broader multi-sectoral committees to be established under Output 2.2 to guide the development and implementation of Provincial Action Programs. These multi-sectoral committees will be formally established to ensure their long-term continuity. In addition, the specific institutions that will participate in project implementation have provided letters of intention at the PPG stage with co-financing figures. More detailed agreements with specific commitments will be established once the SEIs and practices to implement therein are confirmed.
Barriers to reform of baseline programs	Low/Medium	The project will work closely with stakeholders from the baseline programs through multi-sectoral committees and workshops in order to revise the operational manuals in use that guide resource allocation. The development of the PAPs will also facilitate the revision of baseline investments to incorporate SLM.
The number of players and difficult decisions needed for up-scaling SLM may delay field application of the measures proposed by the project.	Low/Medium	Project coordination mechanisms will include participatory decision-making and seek to facilitate consensus, early detection of areas of insufficient coordination and constructive dialogue. The project will set up multi-stakeholder committees to improve intersectoral coordination and consensus on SLM at landscape levels. The GIS based data will provide access to information and increased clarity on trade-offs among different land uses thus facilitating decision making. The project will also establish institutional roles and responsibilities vis-a-vis SLM at the provincial level through the development of SLM protocols and will provide training and awareness on SLM practices and their benefits, again facilitating the achievement of consensus among the diverse stakeholders.
Local communities are not sufficiently	Low	The areas of intervention for SLM up-scaling and activities will be identified through participatory workshops to ensure a high level of involvement and interest within local communities. The project will also operate through key community stakeholders thus

Risks	Ranking	Proposed Mitigation Measures
encouraged by direct benefits and thus reluctant to adopt behavioral changes needed to achieve goals in the long-term		raising the level of readiness for cooperation of the entire local community (farmers and their families, teachers, local opinion formers, etc.). The project's communication strategy and training components will also raise awareness of the benefits of SLM adoption. The SLM practices to be promoted are based on existing practices in place within the communities, with some modifications to increase their productivity and reduce their impact on LD, thus increasing the likelihood of support for adoption. All of the SLM practices that have been pre-selected (which are subject to confirmation during the project) have been assessed in terms of their associated costs to ensure that their implementation is feasible with the project resources available. Furthermore, the project will carry out a thorough valuation exercise to determine the magnitude of the benefits versus costs of different SLM practices. It should also be noted that by mainstreaming ongoing baseline projects, communities will have increased support for SLM practices in the medium and long term.
Changing climate and meteorological conditions may affect adaptation measures implemented during the project.	Low/medium	The targeted drylands are high altitude fragile environments in which current harsh climatic conditions are exacerbating human-caused land degradation. These drylands are already experiencing increased extreme climatic events that are projected to increase still further. As highlighted in Argentina's Second Communication to the Framework Convention on Climate Change (2007), climate change projections for the NW include reduced precipitation and increased temperatures, with concurrent increased evapotranspiration and water demand. The SLM practices to be promoted and up-scaled will support adaptation to climate change by promoting more efficient water use and increased productivity.

Country Ownership: Eligibility and motivation

198. Argentina is party to the United Nations Convention to Combat Desertification (UNCCD), which was approved by National Congress and ratified through Law 24.701 in October, 1996. The National Action Program to Combat Desertification and Mitigate the Effects of Drought, approved in 2003 (Resolution SAsDS 250/02) and the subsequent creation of the National Advisory Council (Comisión Asesora Nacional) constitute the regulatory basis for the application of the UNCCD in the country, together with the National Environmental Policy of 2002 (Act 25675). The NAP specifically emphasizes the importance of decentralization, in part because of the country's large size and diversity of natural features, but also due to the provinces' constitutional mandate and responsibility over natural resources. The NAP calls for the development of inter-provincial; regional, local or provincial programmes and action plans to enhance local ownership of NAP objectives and as the central pivot for its implementation. The project will contribute to such decentralization through the participatory development of at least three Provincial Action Programs and the establishment of intersectoral committees to promote dialogue, consensus and action on SLM. By focusing on LD hotspots at the local level, the building of capacities among producers to adopt SLM practices and the development of provincial enabling frameworks to facilitate replication to scale, the project is fully consistent with the priorities of the UNCCD and the NAP, which call for the implementation of SLM strategies at the local level.

199. In addition, the project will provide tools, information and processes that are critical for the implementation of five of the six strategic lines of the NAP: i)) addressing the causes of land degradation; ii) building regional capacity for SLM; iii) building institutional and financial frameworks; iv) upscaling SLM best practices across multiple use landscapes; and (v) creating awareness on desertification in a wide variety of stakeholders. Furthermore the project addresses a region that played a central role in the development of the NAP and has been identified as a priority for intervention in a number of programmes and strategies.

200. One of the objectives of the NAP is to develop a Permanent Monitoring and Evaluation System of the processes that lead to desertification and the effects of drought. The project will contribute to this

objective through the strengthening and linking of provincial nodes with a national LD/SLM monitoring system and the strengthening and harmonization of SLM M&E protocols. This LD and SLM M&E system will facilitate access to updated information and serve as a tool for effective decision-making. In addition, the project will build on actions taken after the LADA project that led to the establishment of the ONDTyD, by expanding the Observatory's scope of actions.

201. The project also addresses the principal components of Argentina's National Development Plan: poverty alleviation, sustainable production and environmental sustainability, and development priorities as it will remove barriers that currently impede SLM practices so as to enhance resilience and stability of ecosystems and reverse the land degradation processes that are causing loss of soil fertility and increased vulnerability of local populations to the effects of poverty and drought. In doing so it also complies with priorities related to Argentina's climate change adaptation strategies since reducing land degradation is likely to reduce the impact of natural disasters under the forecasted scenarios of climate change and/or reduce the vulnerability of the local populations to these phenomena.

202. The project is also consistent with, and will significantly strengthen, baseline sectoral programs to improve agricultural production and reduce rural poverty financed by the GoA, since the project will promote incorporation of SLM criteria in these programs (through the adoption of the SLM protocols to be developed through the project and revision of the programs' operational manuals). In particular, the following programs are of relevance. PRODERI is focused on funding investments and tools to carry out activities to increase production, productivity and income among family agriculture producers. COVIAR is providing technical assistance and training to producers as well as financial assistance through non-reimbursable grants. The Family Agriculture Program supports implementation of policies, plans and programs linked to family agriculture. Finally, PROSAP provides support to the irrigation sector in terms of infrastructure, institutional strengthening and training of provincial structures and small producers.

Coordination with other GEF initiatives

203. The project builds on the lessons learned from previous investments in the FAO/GEF Project "Evaluation of Land Degradation in Drylands, Republic of Argentina" (LADA) (2003-2011). The SLM best practices identified through the LADA project for the drylands of northwestern Argentina will be applied at the ecoregional level and an enabling framework for their replication over time will be developed. In addition, the project will incorporate lessons learned from other relevant GEF projects underway in the country as explained in the following paragraphs.

204. The regional GEF/UNEP/UNDP project (2010-2016) for the "Sustainable Forest Management of the Gran Chaco" seeks to address land degradation in this highly biodiverse forested Gran Chaco ecoregion. This project began recently and is working to strengthen the institutional capacities for SFM and SLM in four provinces²⁰ of Argentina and in Bolivia and Paraguay. Although the Gran Chaco project is addressing a different biome and does not include any arid provinces, the institutional strengthening strategies and the different approaches aimed at developing standardized SLM protocols could provide lessons for the institutional component of the drylands project.

205. Another GEF/UNDP project of relevance, "Sustainable management of arid and semiarid ecosystems to control desertification in Patagonia" (2007-2013), now nearing completion, addressed land degradation in the Patagonian steppe. This project focused primarily on strengthening the application of the Sheep Law and provided funds for the improvement of pastures, but also involved elements of coordination across provinces. The experience of the Patagonia project in reviewing the Sheep Law may be useful for the drylands project, which will seek to incorporate SLM criteria in the Goat Law. In

²⁰ Santiago del Estero, Formosa, Chaco and Córdoba.

addition, the drylands project can learn from the best practice manuals produced in the Patagonia project and more generally from the communication strategy it employed.

206. The GEF/UNDP/UNEP project, "Establishment of Incentives for the Conservation of Globally Important Ecosystem Services" (2009-2013), which focuses specifically on Payment for Environmental Services (PES) mechanisms, and on ecological regions or provinces in the drylands, will provide information on the effect of different land uses on ecosystem services (including soil conservation methods in the province of Entre Ríos). The approaches and compensation models that will be developed to address the tradeoffs between land use practices and ecosystem services could provide tools for the drylands project.

207. At the same time as this project, the Adaptation Fund has provided funding for the project "Increasing Climate Resilience and Improving Sustainable Land Management in the Southwest of the Province of Buenos Aires, Argentina" (2014-2019), which adopts the same strategic approach as the drylands project in terms of the use of AGIs and SEIs. Furthermore, both this project and the drylands project are being implemented by the DCSyLCD of SAYDS, which will facilitate interactions and synergies between the two projects.

208. The four GEF projects are, or were, led by the Under-Secretariat of Planning and Environmental Policy of SAYDS. To facilitate coordination and information exchange, SAYDS will hold biannual workshops and annual work plans will be shared for the ongoing projects to maximize efficiency. These workshops will be conducted to coincide with the review of the AOPs and at the mid-year mark. In addition, permanent joint mechanisms will be established through key stakeholders, who will coordinate the exchange of information, the calendar of activities, and revisions to the AOPs.

209. The project will also ensure information sharing with the UNDP/GEF Small Grants Program (SGP) in Argentina, which provides funding for projects to reduce land degradation, among other focal areas. For example, the SGP funds projects involving silvopastoral and agroforestry systems, live fences, wind breaks, terraces and associated training to protect soils. While the SGP may not be funding projects in the particular ecoregions involved in the drylands project at this point because it is currently focused on the humid areas of the NE region, the project will facilitate communication to learn from SGP's previous and current experiences of working with local organizations in the promotion of SLM practices. The drylands project also commits to sharing project outputs with the SGP program.

Sustainability

Environmental

210. The project will achieve environmental sustainability through the promotion of a series of sustainable land management practices that have been previously validated by prior projects and programs in the country, including through the LADA project and through the activities of INTA and IADIZA, among others. In parallel with the implementation of these practices in the SEIs, the project will develop SLM guides and protocols, with the support of the multi-sectoral committees, which will identify where and how SLM practices should be implemented for particular land uses and at the ecoregional level. The adoption of these protocols by large baseline sectoral programs will ensure their continued application post-project. Furthermore, the protocols will form the basis of the Provincial Action Programs to be developed in at least three provinces, which will serve as a comprehensive planning tool for the promotion of SLM at the provincial level. These PAPs could be supported by additional provincial norms to adopt the SLM guides and protocols and formalize the multisectoral committees. The environmental impact of the implementation of SLM will be monitored through a strengthened GIS-based monitoring and evaluation system, which will continue to be available after the project ends, in order to ensure a reduction in land degradation, based on agreed upon indicators.

Institutional

211. Institutional sustainability will be achieved through several elements, most notably, capacity building and establishment of coordination mechanisms. The project will carry out training activities at the provincial and national levels on SLM and INRM and the expected impacts of climate change, among other related topics. The extension work will be carried out by existing staff from the provincial agricultural authorities, INTA, and sectoral programs, who will be trained to incorporate SLM; this adds an element of sustainability as the capacity built will not be lost once the project closes. In addition, multi-sectoral committees will be established to guide the development of the SLM protocols, to support SLM implementation and to support the incorporation of SLM criteria in existing baseline sectoral programs. These multi-sectoral committees will permit more integrated planning among key institutions and agencies than the traditional unisectoral approach that has been employed, and will be formally established before project closure. The development of protocols and of Provincial Action Programs will also play a role in institutional sustainability as the roles and responsibilities of all the key stakeholders and the priority actions to reduce LD will be outlined therein. The PAPs will outline the technical and administrative staff needed to support their implementation. They will facilitate the provinces work of promoting the implementation of SLM and reducing LD, monitoring the LD status and trends, and implementing the UNCCD at the provincial level.

212. The ONDTyD was formally established after the LADA project through an agreement defining its composition, physical location, mandate and its presidency (with the SAYDS). The project will strengthen the ONDTyD as a scientific and technical body with the purchase of equipment and with training activities. The planned involvement of the ONDTyD in the multi-sectoral committees to be established through the project and the expertise it will provide in the valuation of the benefits and costs of SLM practices, among other activities, will reinforce its utility and expand its mandate. Its role as the national node for the LD M&E system will also be enhanced through linkages with provincial M&E nodes with harmonized and updated information. The strengthening of the ONDTyD therefore represents another important aspect of institutional sustainability.

Social

213. The practices to be promoted among smallholders in NOA and Cuyo are based on existing practices that already have social acceptance, but for which some modifications will be introduced to reduce negative environmental impacts. For example, in Puna, improved camelid management will be promoted. The introduction of SLM techniques will increase the environmental sustainability of these practices and contribute to improvements in livelihoods, and thus to the social sustainability of the project.

214. From the project design phase, the process has been highly participatory and consensus-based. The workshops carried out in the NOA and Cuyo regions enabled strong inter-institutional participation from key stakeholders, which is reflected in the Outcomes and outputs of the project. During project implementation, the project will continue to employ consensus-based processes both for the implementation of practices and for the elaboration of protocols (Outputs 1.1 and 1.3), with producers and producer associations being included as key actors. In addition, a public participation strategy will be used for the development of the Provincial Action Programs (PAPs).

215. In terms of indigenous groups, the project will make use of the process established by the Government of Argentina (GoA) in terms of informed, free and consensual consultation to facilitate their participation (*see Project Strategy and Design Principles Section and Annex 2*). Extensionists and trainers will approach and work with indigenous groups using appropriate forms and languages, and will link proposed project activities with their traditional productive systems and soil uses. Specifically in the

province of Jujuy (Puna ecoregion), the project will likely promote the management of camelid species to facilitate replication in these communities and in the province of Mendoza (“Monte de Llanuras y Mesetas” ecoregion), the Huarpe communities may participate in the implementation of SLM related to goat production. Lessons learned from these experiences will be gathered in terms of levels of sociocultural acceptance, communication mechanisms, and the incorporation of the community's traditional knowledge, and these can be applied to other provinces in the drylands.

216. The project will promote the mainstreaming of the gender issue in all of its activities and will employ various strategies to ensure the adequate participation of women. These include the preparation of maps of actors to identify all relevant actors, including organizations working with women and youth (such as women farmer commissions, youth groups, student groups, etc.). In addition, a calendar of sociocultural activities will be prepared to ensure that activities promoted are aligned with the temporal distribution of communities' activities. The project will also work with governmental organizations dedicated to the participation of women (provincial women's councils, the associated departments of the provincial Ministry of Development and the programs on women, gender and diversity that exist under different names in each province).

Financial

217. The incorporation of SLM criteria in baseline sectoral programs that provide permanent funds to rural farmers will enable continued adoption of SLM. Existing funds will be channeled more efficiently to areas of high LD to support SLM practices. Among the funds that will continue to operate after the project and that are entrenched in legislation and associated with a significant budgetary allocation from the GoA are the OTBN Law (Native Forest Act) and the Goat Law. In addition, projects such as PROSAP 3 and the Socio-economic Inclusion in Rural Areas Project (PISEA) will also have large sums of resources available. For specific figures, see baseline program section.

218. In addition to the funds available through sectoral programs to promote continued adoption of SLM practices in the target drylands ecoregions, the project will produce revised guidelines for financial instruments, such as microcredits and revolving funds, and will develop a proposal for a credit mechanism for medium-sized producers to support SLM (Output 1.4). Additional possible sources of funding for SLM promotion will also be explored.

Cost-Efficiency

219. The project strategy is highly cost efficient due to the synergies to be created with large baseline sectoral programs as well as the use of previous project and program experiences. The demonstration of appropriate practices in different contexts and the development of guides and protocols and training of key stakeholders also represent elements of cost-effectiveness by facilitating upscaling.

220. The project will promote the integration of SLM criteria into at least two large baseline sectoral programs (Output 2.3). This will be achieved through the adoption of the SLM protocols (to be developed with the project) by the main sectoral programs. In addition, SLM criteria will be incorporated into the operational manuals of these programs. Since these manuals are utilized for funding allocation, the project will be able to influence large baseline and future spending. Through coordination with existing sectoral programs, the project will also benefit from significant co-funding.

221. It should also be noted that the project will build on multiple previous experiences in the country in the promotion of SLM and reduction of LD and desertification. The consideration of lessons learned and use of tools and information that were previously developed increases the cost-efficiency of the project as it does not need to start from scratch. Specifically, important baseline information has been generated by LADA in terms of the development of national-level land degradation maps, which will serve as an input

in the validation of the LD hotspots in the three ecoregions targeted in this project. INTA and IADIZA have carried out research on appropriate SLM practices in drylands to reduce LD and promote sustainable livelihoods, and extension work with local producers. The project will work with provincial environmental and agricultural authorities, and sectoral programs in the promotion of SLM with producers, and will fund travel and per diem costs to facilitate this work.

222. The project's approach of working with Specific Intervention Sites (SEIs), which represent different levels of land degradation and different land uses of relevance in the target ecoregions will facilitate the upscaling of the SLM practices over larger areas of land. Coordination and synergies will be achieved between the drylands project and the "Increasing Climate Resilience and Improving Sustainable Land Management in the Southwest of the Province of Buenos Aires, Argentina" project, whose period of implementation coincides with this project as previously noted. Both projects are focused on SLM, adopt the same approach using SEIs and AGIs and share the same executing agency.

223. The development of SLM protocols for each of the main land uses and for each of the ecoregions will also facilitate the replication and upscaling of project activities and will support coordination within each of the target ecoregions. The protocols will be an important input into the Provincial Action Programs to be developed through the project, which will guide SLM actions over the longer term.

224. Finally, the project's investment in training of key actors supports cost effectiveness by facilitating future promotion of SLM with target groups. The project support for strengthening inter-sectoral coordination mechanisms will influence the work of key large sectoral projects and programs, reduce duplication among different sectors and promote increased cooperation with the objective of reducing LD.

Replicability

225. Various elements of the project design favour the replication of project activities and impacts. The selection of SEIs to represent a wide range of different types of land uses (LUS) and different degrees of degradation will enable direct results to be seen *in sitio* and will facilitate replication to other sites with similar characteristics. Moreover, the identification of AGIs, which are delimited homogeneous areas that are representative of larger areas, will also enable upscaling to occur to the ecoregional level.

226. Strengthening of institutional capacities at the provincial and national levels and strengthening of the ONDTyD will ensure that trained human resources are available to support the replication of SLM activities. Increased awareness of the benefits of SLM among decision makers through Output 2.3 and among producers themselves will also increase the likelihood of support for continued implementation of SLM approaches and practices.

227. The channeling of financial resources from baseline sectoral programs toward SLM activities, coupled with the revision of financial instruments (such as microcredit and revolving funds) and identification of feasible new funding sources to promote SLM adoption are also important for replication as financial issues can otherwise serve as limiting factors preventing adoption.

228. The project will carry out biannual meetings with other relevant national projects implemented by the Secretariat in order to benefit from synergies and strengthen replication at the national level. The SAyDS also participates in several fora that will facilitate replication beyond Argentina to the MERCOSUR²¹ region (Common Market of the South). For example, SAyDS has been participating in the ad-hoc group "Combating Desertification and Drought", as part of the Sub Working Group on the

²¹ This is made up of Argentina, Brazil, Uruguay, Paraguay, Venezuela and Bolivia. Associated countries include Chile, Colombia, Perú, Ecuador, Guyana and Suriname.

Environment (SGT N°6)²², and through this has also worked with UNASUR²³ and CELAC²⁴. In addition, SAYDS has recently participated in the ECONORMAS project of the MERCOSUR in the component entitled "Combating Desertification and Drought". There are also platforms for the replication of Argentina's family agriculture initiatives through the "Specialized Meeting on Family Agriculture" (REAF)²⁵, and through the "Institutional Strengthening of Gender Policies in Family Agriculture" program. These different venues will enable information sharing on the drylands project with a large group of participants.

²² Created by the Grupo Mercado Común in 1995 (Res. N° 20/95). Its objective is to ensure the protection and integrity of the environment among the participating parties.

²³ La Unión de Naciones Suramericanas is made up of Argentina, Bolivia, Brasil, Colombia, Chile, Ecuador, Guyana, Paraguay, Perú, Suriname, Uruguay and Venezuela

²⁴ The Community of Latin American States is made up of all the countries of Latin America and the Caribbean.

²⁵ Bolivia, Brazil, Chile, Ecuador, Uruguay and Venezuela participate.

PART III: STRATEGIC RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:
Outcome 2: Policies and strategies designed and implemented for the management and conservation of land, forests, water resources and biological diversity.
Country Programme Outcome Indicators:
Number of provinces with high forest cover that apply territorial norms for the conservation of natural resources.
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):
Manage energy and environment for sustainable development
Applicable GEF Strategic Objective and Program:
LD 1: Maintain or improve flow of agro-ecosystem services to sustaining the livelihoods of local communities
LD 3: Reduce pressures on natural resources from competing land uses in the wider landscape
Applicable GEF Expected Outcomes:
Outcome 1.2: Improved rangelands /livestock management.
Outcome 1.3 Sustained flow of services in agro-ecosystems
Outcome 3.1: Cross- sectoral enabling environment for integrated landscape management (in support of SLM)
Outcome 3.2: Integrated landscape management adopted by local communities.
Applicable GEF Outcome Indicators:
Indicator 1.2 Increased land area with sustained productivity and reduced vulnerability of communities to climate variability
Indicator 1.3 Maintained/increased flow of services in agro-ecosystems
Indicator 3.1 Policies support integration of agriculture, rangeland, forest, and other land uses
Indicator 3.2 Application of integrated natural resource management (INRM) practices in wider landscapes

Project Strategy	Indicator	Baseline	Target By Project End	Means of Verification	Risks and Assumptions
Project Objective: A framework for Sustainable Land Management implemented to mitigate land degradation, maintain ecosystem services and improve the quality of life of the rural populations of the drylands of Northwest	Area (in ha) in which SLM measures are being applied in the three target dryland ecoregions in NOA and Cuyo.	Area covered with some form of SLM is 744,232 ha in the three target dryland ecoregions in NOA and Cuyo	SLM measures are applied in 1,480,000 ha to avoid and reduce LD in the 3 dryland ecoregions of NOA and Cuyo: Puna: 450,000 ha Dry Valleys Scrub: 750,000 ha Plains and Plateaus Scrub: 280,000 ha).	PEU- Reports of the provincial focal points with information from INTA/ IPAF- Family Agriculture/ PROSAP-CNA	The national and provincial governments maintain their support for project implementation. Producers are open to the implementation of SLM and to participation in associated training courses. The commitment of the
	% of area with bare ground in 3 provinces	Bare ground surface area is 3,188,905 ha in the 3 provinces in the project	5% reduction in the area with bare ground in at least 3 provinces	National Observatory of Land Degradation and Desertification Data	
	% of producers associated with agriculture/ livestock	Catamarca: 2 Mendoza: 1	Value increases at least one category in each Province	Project interviews with producers in	

Project Strategy	Indicator	Baseline	Target By Project End	Means of Verification	Risks and Assumptions
Argentina	organisations that support SLM (NGOS; Cooperatives etc) Ranking Values: 5: 100% to 76 % 4: 75% to 51% 3: 50% to 26%- 2: 25% to 10 % 1: less than 10%	Jujuy: 2 La Rioja: 2 Salta: 2 San Juan: 1 San Luis: 1 Tucuman: 2 Baseline values currently defined on data at provincial level ²⁶	(more specific targets per ecoregion/area of intervention will be defined once interviews are completed in the first semester)	first 6 months of project and at end of the project.	key stakeholders from public and private institutions is maintained. Climatic variations remain within projected scenarios. The socioeconomic conditions of the population in the project area remain stable.
	Increase in equitable access to water as measured by % of small farms that access surface water for irrigation (with or without pumping) Ranking Values: 5: 100% to 76 % 4: 75% to 51% 3: 50% to 26%- 2: 25% to 10 % 1: less than 10%)	Catamarca: 4 Mendoza: 5 Jujuy: 4 La Rioja: 4 Salta: 4 San Juan: 4 San Luis: 2 Tucuman: 3 Baseline values are data at provincial level and are skewed upwards due to high % of large farms with access to water ²⁷	Disaggregated values will be determined through interviews in year 1 to define % small farmer with access to water and specific targets for each intervention area (AGI)	Project interviews with producers in first 3 months of project and at end of the project.	
	% of population with Unmet Basic needs compared to the national average (NatAv) Ranking values 5: Below NatAv 4: 0 to 25 % above NatAv 3: 26 - 50 % above NatAv 2: 51 - 75 % above NatAv:	Catamarca: 1 Mendoza: 4 Jujuy: 1 La Rioja: 1 Salta: 1 San Juan: 1 San Luis: 3 Tucuman: 1	6 of the 8 provinces increase at least one rank	Project interviews with local inhabitants in first 3 months of project and at end of the project.	

²⁶ The baseline values for the project will be verified once the LADA methodology is applied to select the Specific Intervention Areas (SEIs) during the first 3 months of project implementation. Within the SEIs, project interviews will be carried out to verify the baseline data that are currently available at the provincial level to determine whether these need to be adjusted.

²⁷ Ibid footnote 26.

Project Strategy	Indicator	Baseline	Target By Project End	Means of Verification	Risks and Assumptions
	1: 76 -100% above NatAv				
Outcome 1: SLM practices implemented to avoid and reduce soil degradation in the environmental hotspots of the three target arid ecoregions covering 1,480,000 ha.	Number of families implementing any of the SLM practices.	1440 families	5000 families implementing at least one SLM practice by the end of the project (3560 additional families), representing a 347% increase.	PEU- reports of the provincial Focal Points based on information from INTA- IPAF- Family Agriculture- PROSAP.CNA	Climatic variations remain within projected scenarios. Producers are open to the implementation of SLM and to participation in training courses on the topic.
	Level of cross-sectoral coordination capacity for promotion of SLM and INRM as measured by Question 3.1 on the LD Tracking Tool (Enhanced cross-sector enabling environment for integrated landscape management-capacity strengthening).	One point scored in GEF LD Tracking Tool Question 3.1	At least 3 points are obtained in the GEF LD tracking tool Question 3.1	Minutes of the Multi-sectoral Committees in 3 ecoregions	Changes in political authorities do not alter the level of commitment to the adoption of SLM and the avoidance of LD.
	Funding in US \$ allocated through revolving funds, microcredit programs and/or other financial mechanisms to facilitate SLM and INRM.	There are not any funds specifically earmarked for this purpose at the moment.	Revolving funds, small credit schemes and/or other financial instruments allocate \$ 10 million to productive sectors or activities that incorporate SLM or INRM by the end of the project. (amount to be confirmed in the first semester of the project)	Reports of the Provincial Focal Points, the PEU and the Multi-sectoral Committees. Reports from CONAMI on distribution of RF and MC	The existing funding support from programs is maintained despite changes in political authorities.
<u>Outputs:</u> Output 1.1: Guides/ protocols developed to support planning and implementation of SLM at the local level in the selected ecoregions and land degradation hotspots. Output 1.2 Multisectoral committees promote dialogue on SLM and coordination of sectoral programs at the level of AGIs and guide the implementation of SLM guides/ protocols. Output 1.3: SLM practices are implemented in dryland ecoregions in critical LD hotspots. Output 1.4. The allocation of financial resources for small farmers supports the continued implementation of SLM in priority areas.					

Project Strategy	Indicator	Baseline	Target By Project End	Means of Verification	Risks and Assumptions
Outcome 2: Enabling framework to plan, monitor and adapt land management at the ecoregional level developed.	Level of replication of SLM practices in drylands of the three target ecoregions of the project	0	At least 20% of farm households in hotspots and high risk areas of 75 % NW dryland provinces replicate best SLM and IEM practices.	Surveys at project end, application of SLM monitoring protocols See Annex 9 for more details	<p>There is a willingness on behalf of the technicians and the GoPs to provide training on SLM/INRM and to incorporate SLM/INRM criteria in their actions.</p> <p>The commitments made by the GoPs are maintained throughout the duration of the project and despite changes in political administrations.</p>
	Area monitored, with respect to the implementation of SLM through provincial GIS systems that are integrated with the national node.	Observatory currently monitors 865,516ha, in NOA y Cuyo	1,480,000 ha (Puna: 450,00 ha, Dry Valleys scrub: 750,000 ha, and Plains and Plateaus scrub: 280,000 ha) of the ecoregions of the drylands of NOA and Cuyo are monitored by the National Observatory of Land Degradation and Desertification with respect to the implementation of SLM, with the results being stored in provincial GIS systems that are integrated with the national node.	Graphical outputs (reports) from the GIS systems of the GoPs (environment/statistics or IDE) and from the ONDTyD	
	Percentage of staff in the environmental, production (agriculture and livestock management) and water management sectors working directly or indirectly on LD issues that have been trained on SLM at the provincial level	Specific training on SLM is only provided in the provinces of Catamarca and San Luis and the staff is not applying any SLM/INRM guides or protocols as these are not available	100% of staff involved in LD issues trained on SLM in the three sectors of environment, agriculture and hydrological management and all employ the SLM guides and protocols to assist in the development, implementation and evaluation of sectoral plans, programs and activities in the drylands of NOA and Cuyo.	<p>Reports of the Provincial Focal Points.</p> <p>Reports from the National Observatory of Land Degradation and Desertification</p>	
	Number of Provincial Action Programs developed and beginning to be implemented.	There is one PAP developed for La Rioja.	At least three additional provinces have developed PAPs and are beginning to implement them by the end of the project (Catamarca, Mendoza and Jujuy).	<p>Published Provincial Action Programs.</p> <p>Reports of Multisectoral Committees on activities related to PAP implementation.</p> <p>Reports of Project Execution Unit.</p>	

Project Strategy	Indicator	Baseline	Target By Project End	Means of Verification	Risks and Assumptions
	Number of baseline programs that integrate SLM and INRM criteria and apply them in the field.	Sector investment baselines programmes have some partial mention of SLM and INRM.	At least two baseline programs ²⁸ formally incorporate SLM and INRM criteria in their operational manuals	Reports of the provincial focal points. Operational manuals of the sectoral programs	
<u>Outputs:</u> Output 2.1: Geographic Information Systems (GIS) for the monitoring and evaluation of LD/SLM in the drylands of the 8 provinces. Output 2.2: Provincial government institutions apply SLM practices Output 2.3: National sectoral programs in drylands incorporate SLM practices					

*LADA/WOCAT 2011

²⁸ See baseline program section for sectoral programs with which the project could work.

PART IV: TOTAL BUDGET AND WORKPLAN

Award ID:	00080382	Project ID(s): 00090091	PIMS: 4841; GEF 5044
Award Title:	Sustainable Land Use Management in the Drylands of North-west Argentina		
Business Unit:	Argentina		
Project Title:	Sustainable Land Use Management in the Drylands of North-west Argentina		
PIMS no.:	4841		
Implementing Partner (Executing Agency)	Secretaria de Ambiente y Desarrollo Sustentable (SAyDS)		

GEF Outcome/ Atlas Activity	Responsible party	Source of funds	ERP/ATLAS Budget Description/ Input	Atlas Code	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Note
					US\$	US\$	US\$	US\$	US\$	US\$	
1. SLM practices implemented to prevent and reduce land degradation in environmental hotspots	SAyDS	GEF	Local Consultants	71300	94,727	59,696	71,373	57,750	55,804	339,350	1
			Travel	71600	39,860	41,958	8,391	2,098	8,392	100,699	2
			Contractual services - companies	72100	155,707	181,515	132,000	99,000	39,000	607,222	3
			Materials and Goods	72300	84,050	113,800	75,800	68,800	38,876	381,326	4
			Supplies	72500	6,183	6,183	6,183	6,182	6,183	30,914	5
			Professional services	74100	10,165	10,165	10,165	10,165	10,165	50,825	6
			Audio Visual& Print Prod Costs	74200	12,680	12,680	12,680	12,680	12,680	63,400	7
			Miscellaneous Expenses	74500	9,600	9,600	9,600	9,600	10,100	48,500	8
			Training	75700	213,431	79,152	104,434	80,900	59,766	537,683	9
	Total Outcome 1					626,403	514,749	430,626	347,175	240,966	2,159,919
2. Enabling framework to plan, monitor and adapt land management at the dryland ecoregional level developed	SAyDS	GEF	International Consultants	71200	0	0	20,000	0	20,000	40,000	10
			Local Consultants	71300	104,204	69,173	57,496	64,308	55,550	350,731	11
			Travel	71600	52,448	35,664	17,587	16,783	9,196	131,678	12
			Contractual services - companies	72100	11,678	0	0	0	0	11,678	13
			Supplies	72500	9,274	9,274	9,274	9,275	9,275	46,372	14
			Information Technology Equipment	72800	83,665	0	0	0	0	83,665	15
			Professional services	74100	3,138	3,138	3,138	3,138	3,139	15,691	16
			Audio Visual & Print Prod Costs	74200	19,020	84,020	32,020	87,343	33,520	255,923	17
			Miscellaneous Expenses	74500	300	300	300	300	300	1,500	18
	Training	75700	45,806	88,915	36,564	38,723	40,541	250,549	19		
Total Outcome 2					329,533	290,484	176,379	219,870	171,521	1,187,787	
Project Management	SAyDS	GEF	Local Consultants	71300	23,354	23,354	23,354	23,354	23,354	116,770	20
			Travel	71600	10,123	10,123	10,123	10,123	10,123	50,615	21
	Total Project Management					33,477	33,477	33,477	33,477	33,477	167,385
Totals					989,413	838,710	640,482	600,522	445,964	3,515,091	

Summary Budget: GEF and CoFin Resources

	TOTAL	GEF	SAyDS	INTA	CONICE T	Provinces	UNDP	Ministry of Agriculture
Outcome 1:								
Outcome1 Total	15,126,576	2,159,919	235,912	1,130,070	1,211,000	2,680,000	300,000	7,409,675
Output 1.1: Guides/ protocols developed to support planning and implementation of SLM at the local level in the selected ecoregions and land degradation hotspots	2,326,054	200,238	20,300	124,308	544,950	696,800	0	739,458
Output 1.2: Multisectoral committees promote dialogue on SLM and coordination of sectoral programs at the level of AGIs and guide the implementation of SLM guides/ protocols.	1,682,610	87,928	24,862	192,112	423,850	214,400	0	739,458
Output 1.3: SLM practices are implemented in dryland ecoregions in critical LD hotspots	9,598,254	1,591,951	170,604	779,748	181,650	1,608,000	75,000	5,191,301
Output 1.4: The allocation of financial resources for small farmers supports the continued implementation of SLM in priority areas	1,519,658	279,802	20,146	33,902	60,550	160,800	225,000	739,458
Outcome 2:								
Outcome 2 Total	8,029,218	1,187,787	217,769	282,517	519,000	2,680,000	200,000	2,957,831
Output 2.1: Geographic Information Systems (GIS) for the monitoring and evaluation of LD/SLM in the drylands of the 8 provinces	3,601,063	615,960	60,096	197,762	415,200	1,206,000	120,000	986,045
Output 2.2: Provincial government institutions apply SLM practices	2,630,675	206,235	124,096	56,503	51,900	1,206,000	0	985,941
Output 2.3: National sectoral programs in drylands incorporate SLM practices	1,813,166	365,592	33,577	28,252	51,900	268,000	80,000	985,845
Project Management	1,149,465	167,385	982,080	0	0	0	0	0
TOTAL	24,320,945	3,515,091	1,435,761	1,412,587	1,730,000	5,360,000	500,000	10,367,506

Budget Notes	
Outcome 1:	
1	Local consultants: (US \$ 339,350): expertise in sustainable agricultural management per ecoregion (US \$ 175,154) to technically support the implementation of the SLM practices and the planning, implementation and monitoring of Outputs 1.1, 1.2, 1.3 and 1.4 (50% time) in coordination with the Focal Points and Project Technical Coordinator. Specific consultants to deliver the following products: (i) training of key stakeholders on the gender and social inclusion approach to ensure the participation of women, youth and indigenous people (US \$ 2,919); (ii) the methodological framework for the evaluation of the economic impact of implementation of the SLM practices (Output 1.4), including its validation in the SEIs (one economist consultant for 72 weeks- US \$ 35,031); (iv) design of guides with criteria for the distribution of resources from Revolving Funds (RF), Microcredit (MC) and other sources of funds (Output 1.4) (US \$ 8,758). Implementation of the LADA evaluation in the SEIs, the ranking of the critical sites and of the level of vulnerability (taking into consideration the SLM practices

	based on the hierarchical structure and the final selection of the SEIs). Technical support for Output 1.3 (US \$ 117,488).
2	Travel: (US\$ 100,699): The long distances and the far location of the sites in which the SLM activities will be implemented require resources to co-finance the personnel to the AGIs and the SEIs in the field, for monitoring and advisory visits of project personnel and consultants from the field, as well as occasional trips of the field personnel to Buenos Aires or to other project target province(s) for planning meetings and forums.
3	Contractual Services (Companies): (US \$ 607,222) Consolidated working groups will be hired to provide the following products (1) design and develop the SLM guides and protocols to be applied in the SEIs (Output 1.1) (2) provide training to provincial technicians and national technicians (with a provincial base) on the application of the guides/ protocols and on the use of the LADA methodology to evaluate land degradation. (3) surveys of stakeholders related to livelihoods and SLM implementation (USD 50,825). Technical services for implementation of SLM practices and their replication, such as the establishment of pastures, the construction of fences, the installation of irrigation systems, and maintenance of water conveyance systems for irrigation, etc. (Output 1.3) (US \$ 556,397)
4	Materials and goods: (US \$ 381,326). Procurement of materials and/or tools (goods) for the field work, such as, for example, supplies for fencing, sowing and intercropping, for tilling the land, irrigation facilities, among others, in particular to support Output 1.3 related to the implementation of SLM practices in the SEIs, the AGIs, and their replication in different sites.
5	Supplies: (US \$ 30,914). The funds will be used to for the purchase of office stationery and supplies for the Project Execution Unit, support staff and field personnel, including for the provinces involved in the project.
6	Professional services (US \$ 50,825): Corresponds to project audits and other professional services required for the achievement of project outputs under Outcome 1.
7	Audiovisual and printing costs (US \$ 63,400). The funds will be used to develop SLM guides/ protocols for the three provinces as well as criteria for the distribution of resources (including editing and design) (printed and digital copies). These will directly facilitate implementation of SLM practices in the SEIs during the lifetime of the project.
8	Miscellaneous expenses: (US \$ 48,500). Funds for expenses associated with unforeseen circumstances that may arise including in relation to the field work to promote SLM uptake, as well as to cover currency fluctuations, insurance, and banking costs needed to enable field actions and effective project implementation.
9	Training ~ Workshops: (US \$ 537,683) (i) Training programs for technicians, producers and agency staff on the application of the LADA methodology at the local level to classify the level of vulnerability in specific areas identified as highly vulnerable to land degradation (Output 1.1); and for the implementation of SLM practices (Output 1.3) (ii) workshops to validate the SLM guides and protocols with the key stakeholders involved, including the ONDTyD and the provincial authorities, among others (Output 1.1) Facilitation of the meetings of the multisectoral committees to support the coordination work and establishment of agreements (Output 1.2) (iii) Awareness raising program on the benefits of SLM practices and the results obtained from their adoption (Outputs 1.3 and 1.4). (iv) training on credit funds, microcredit, revolving funds and other financial incentives that are available to support the implementation of SLM activities (Output 1.4) (v) training and sharing of experiences from and among producers and other stakeholders (organizations, associations, rural communities or indigenous groups) on the implementation of SLM practices, the transfer of knowledge and replication (Output 1.3).
Outcome 2	
10	International consultants: (US \$ 40,000). Experts in SLM for the independent mid-term review and for the final project evaluation to identify lessons and recommendations.
11	Local consultants: (US \$ 350,731): Expertise on sustainable agricultural management per ecoregion to technically support the identification of SLM criteria to incorporate in sectoral programs, local regulations and extension and research organizations in each ecoregion; the planning, implementation and monitoring of Outputs 2.1, 2.2 and 2.3. The implementation of the PAPs at the provincial government level (50% time US \$ 174,154). Specific consultants to deliver the following products: (i) Design of the communication and advocacy strategy (Output 2.3) (US \$ 11,677) (ii) Design of the proposals for the Provincial Action Programs (PAPs) to combat desertification, drought and land degradation, and proposals of different types of normative instruments that provincial governments could adopt (provisions, resolutions, decrees and/or laws) in the framework of the PAPs (Output 2.2) (US \$ 26,273) (iii) design of metadata for the regional and national databases which will be integrated for the monitoring of the state of LD of the level of adoption of SLM in the NOA and Cuyo regions (US \$3,892) (iv) Design of the GIS protocols and training of provincial technicians (US \$ 13,623); (v) creation and coordination of the national and provincial nodes to facilitate M&E of the state of LD, desertification, SLM and INRM through GIS (US \$ 11,677). Monitoring that environmental, sociocultural and productive aspects are integrated in the economic evaluation of the implementation of SLM by productive sectors; the development of M&E indicators of project implementation; databases necessary for SLM and livelihoods and the communication and advocacy strategy; the implementation of the communication strategy; the M&E

	indicators of project implementation; ensuring consistency between the recommendations of the guides on RF, MC and other sources of funds and the proposals included in the guides for the implementation of SLM; the state of the situation and advances in the incorporation of the topic of LD and SLM in the provincial nodes and SDI (Spatial Data Infrastructure) and monitoring of the incorporation of the GIS tool in key areas of provinces (US \$ 108,435).
12	Travel: (US \$ 131,678) The long distances and the far location of the sites in which SLM activities will be implemented require resources to co-finance travel for technical planning meetings and for forums related to ecoregional agreements. In addition, trips related to project monitoring and evaluation will be funded.
13	Contractual services (Companies): (US \$ 11,678) For the design and development of sectoral protocols for the monitoring and evaluation of SLM implementation through consensus-based processes (Output 2.1).
14	Supplies: (US \$46,372). Purchase of office stationery and supplies needed for efficient operations of the Project Execution Unit and field personnel, including technical consultation and support personnel, and purchase of materials to be used for the consultation processes.
15	Information technology equipment: (US \$ 83,665). Acquisition of computer equipment (PCs, laptops, printers, GPS) and software for national agencies (SAyDS, ONDTyD) and provincial governments that are integrated with the nodes, equipment (cameras, projector, screens) that facilitate the monitoring and evaluation of the state of LD and the implementation of SLM, as well as of project implementation.
16	Professional services: (US \$ 15,691): Corresponds to project audits and other relevant professional services required for the achievement of the Outputs under this Outcome.
17	Production of printed and audiovisual material: (US \$ 255,923). Includes the development, printing and distribution of publications on SLM and the design and broadcasting of communication pieces. Also includes the design and elaboration of materials associated with the communication and promotion strategy (digital and audiovisual graphics) (Output 2.3) (US\$ 133,323). Expenses associated with the translation of project documents, including annual reports; mid-term review and final evaluation (US\$ 27,500).). The funds will also be used to develop guides (SLM guides/ protocols tailored to the specific conditions of the 8 provinces) required by the project (including editing and design) (printed and digital copies).
18	Miscellaneous expenses: (US \$ 1,500) Corresponds to amounts for expenses associated with currency fluctuations, insurance, banking costs, filing and storage of information, and to cover unforeseen circumstances that may arise.
19	Training ~ Workshops : (US \$ 250,549). Includes costs related to the organization of consultations and to the training of technicians, producers and government actors for the development of the PAPs (Output 2.2); the implementation of the communication, awareness raising and advocacy strategy (Output 2.3); and the promotion of information exchange and knowledge management on the best SLM practices demonstrated in the project's target ecoregions.
Project Management	
20	Local consultants (US \$ 116,770) Corresponds to the hiring of an administrative to support project implementation on accounting and administrative issues related to the PEU and to activities carried out in the eight target provinces of the project.
21	Travel: (US \$ 50,616). Corresponds to the travel made by the Project Execution Unit to the project's target provinces to facilitate agreements and to coordinate with authorities and/or trips for the provincial authorities to participate in national meetings.

PART V: MANAGEMENT ARRANGEMENTS

229. The project will be implemented over a five-year period, under the National Implementation Modality (NIM) according to the standards and regulations of the UNDP and with UNDP as the GEF Implementing Agency (IA) and the Secretary of Environment and Sustainable Development (SAyDS) as Implementing Partner as the National Environment Authority and National Focal Point of the United Nations Convention to Combat Desertification and Drought (UNCCD) with responsibility for coordinating the National Action Program to Combat Desertification (NAP). In this role the SAyDS will undertake full programmatic and administrative-financial control and responsibility for supervising the project.

230. As GEF implementing agency, UNDP is ultimately accountable and responsible for the delivery of results, subject also to their certification by SAyDS, as Implementing Partner. UNDP shall provide project cycle management services as defined by the GEF Council (described in Section IV Part XII), that will include the following:

- Providing financial and audit services to the project
- Overseeing financial expenditures against project budgets,
- Ensuring that activities including procurement and financial services are carried out in strict compliance with UNDP/GEF procedures,
- Ensuring that the reporting to GEF is undertaken in line with the GEF requirements and procedures,
- Facilitate project learning, exchange and outreach within the GEF family,
- Contract the project mid-term and final evaluations and trigger additional reviews and/or evaluations as necessary and in consultation with the project counterparts.

231. UNDP will provide Project Assurance, supporting the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. UNDP Energy and Environment Area Program Specialists in the Latina American and Caribbean UNDP regional Service Centre in Panama will be involved as necessary in key project meetings, consultations, events and reviews of technical and other reports.

232. The SAyDS as Implementing partner for this project is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outputs, and for the effective use of UNDP/ GEF resources. The Secretary will work in a coordinated manner with the provincial authorities, with other strategic partners in the project, and with co-funding bodies. The SAyDS will also carry out effective coordination between this and other projects involving land degradation and other related issues.

233. The implementation of the project in the provinces located within the ecoregions of focus of this project will be taken on by the environmental authorities of each provincial jurisdiction (provinces of Jujuy, Salta, Catamarca, Mendoza, Tucumán, San Juan, San Luis and La Rioja). They will be responsible for coordinating with other relevant provincial government bodies (agriculture, livestock, hydrological resources, etc.) that should be involved and/or cooperate to achieve the goal of reducing LD and promoting SLM and INRM, as well as with the GoA and the GoP found within the relevant ecoregions. Specifically, in conjunction with corresponding administrative authorities, the environmental authorities will contribute to the achievement of the project objectives within their jurisdictions, which include, among others, valuing the costs and benefits of different SLM practices and production systems, coordinating the multisectoral stakeholder committees to facilitate dialogue on SLM, and coordinating the productive sectors, programs and policies for the development of protocols and implementation of SLM practices. They will also be responsible for GIS-based monitoring and evaluation of their jurisdictions and of the nodes that will be linked to the national level. With the assistance of the project, the provinces'

environmental authorities will develop Provincial Action Programs to Combat Land Degradation (PAPs). They will carry out promotion, dissemination and communication of issues related to combating desertification and its links with sectoral policies at the provincial level, and will strive to coordinate and mobilize public resources for microcredit and revolving funds.

234. The provincial environmental authorities will each designate Focal Points (FP), for a total of eight focal points. These will be the primary contact points for the coordination of activities within their jurisdiction and will serve as links with the national level. They will also be responsible for supervising the work of SLM implementation in sitio. While the FPs are from the provincial environmental authorities, they will make every effort to ensure the identification and participation of key relevant stakeholders both from the province and from national organizations with provincial or regional membership, such as from agriculture, livestock rearing, hydrological resources, forestry, INTA, family farming, and the provincial representatives of programs and projects such as PROSAP , PRODERI, and COVIAR, among others. The FPs will be responsible for the implementation of the activities within their province, will inform the Project Technical Coordinator of results obtained and will contribute to the preparation of quarterly and annual reports by the PEU. The Focal Points will maintain a registry of the co-funding contributions in each province.

Project Governance

235. In order to ensure that the project is executed effectively, a project governance structure will be established, consisting of a Project Board (PB) - and a Project Advisory Committee (PAC). In addition, a core project team will comprise the Project Execution Unit (PEU), which will carry out the activities established in the Pluriannual Plan and the AOPs.

Project Board (Project Steering Committee)

236. The Project Board is the project coordination and decision making body. It will meet quarterly to review project progress, approve project work plans and approve project deliverables. The responsibility of the Board is to see that project activities lead to the required outcomes as defined in the project document. The Board will oversee project implementation, approve work plans and budgets as supplied by the National Coordinator, approve any major changes in project plans, approve major project deliverables, arbitrate any conflicts which might arise, be responsible for the overall evaluation of the project. The Board may be convened extraordinarily by the Chair, on the request of individual members.

237. The make-up and TORs of the Board will be finalized in the Project Inception Workshop.

238. The Project Board will be responsible for making executive decisions for the project, in particular when guidance is required by the National Coordinator. The Project Board will play a critical role in facilitating inter-ministerial coordination, project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It will ensure that required resources are committed and will arbitrate on any conflicts within the project or negotiate a solution to any problems with external bodies. In addition, it will approve the appointment and responsibilities of the National Coordinator and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board will also consider and approve the quarterly plans and will also approve any essential deviations from the original plans.

239. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP.

240. The Board will consist of the following members:

- The Executive, who will chair the Board. This role will be composed by two representatives from SAYDS and MAGyP.
- A representative of the Senior Supplier, who will provide guidance regarding the technical feasibility of the project. This role will be filled by UNDP.
- Senior Beneficiaries (One representative of each of a provincial environmental authority in the regions of NOA and Cuyos), will represent the interests of those who will ultimately benefit from the project and ensure the realization of project results from the perspective of project beneficiaries.
- The Project Technical Coordinator will attend PB meetings but is not a formal voting member of the committee. The PB will meet at least once a year.

Project Advisory Committee (PAC)

241. A Project Advisory Committee will serve as the political-technical body to support project planning and implementation. It will provide technical support to the project and facilitate inter-sectoral coordination. The PAC will be chaired by a senior representative of the SAYDS, namely, the National Project Director. The other committee members will be: National Project Coordinator, the focal point of each of the eight provinces, a representative of MAGyP, a national representative of Law 26,331 (Native Forest Law), a representative of ONDTyD, and a representative of UNDP - Argentina Country Office. The Project Technical Coordinator will attend meetings but will not be a voting member of the Committee. The PAC's first meeting will take place prior to the Inception Workshop to develop/review an Annual Operating Plan (AOP) and to agree on a schedule of activities and meetings. Midterm of each year, the PAC will review the progress of the project in advance of the preparation of the PIRs and will provide recommendations and suggestions for improvements to facilitate achievement of project goals. At the end of each calendar year, the PAC will review the draft AOP prepared by the PEU and will make suggestions and recommendations as necessary. Meetings will be called by the National Project Coordinator and the items for the meeting agendas will be agreed upon by simple majority among the members present. The PAC will meet at least three times a year.

Project Execution Unit and Project Technical Coordinator (PEU y PTC)

242. Project Execution Unit (PEU) will consist of a National Project Director (NPD), National Project Coordinator (NPC), Project Technical Coordinator (PTC) and administrative/accounting staff all funded by cofinancing. In addition, technical and administrative staff of the SAYDS (particularly the DCSyLCD) will also participate and provide support to the PEU. To obtain specific outputs, the incremental support of GEF will be used to hire specialized consultants for specific periods of time. For relevant Outputs, agreements will be established with national institutions or organizations (INTA, MDS, MAGyP), provincial organizations, research and/or academic institutions such as CONICET, national universities, as well as civil society organizations.

243. The National Project Director (NPD) will be the Sub-Secretary of Environmental Planning and Policy of the SAYDS. He/she will work to ensure achievement of the projects results and objectives and adherence to the norms and procedures established in this ProDoc. The NPD will be solely responsible for requesting advances of funds in accordance with the Annual Operational Plans (AOP) to be developed for each year, and can delegate to the National Project Coordinator the responsibility for hiring and acquisitions, as well as other actions necessary for the administration of the project to be undertaken in the name of the project.

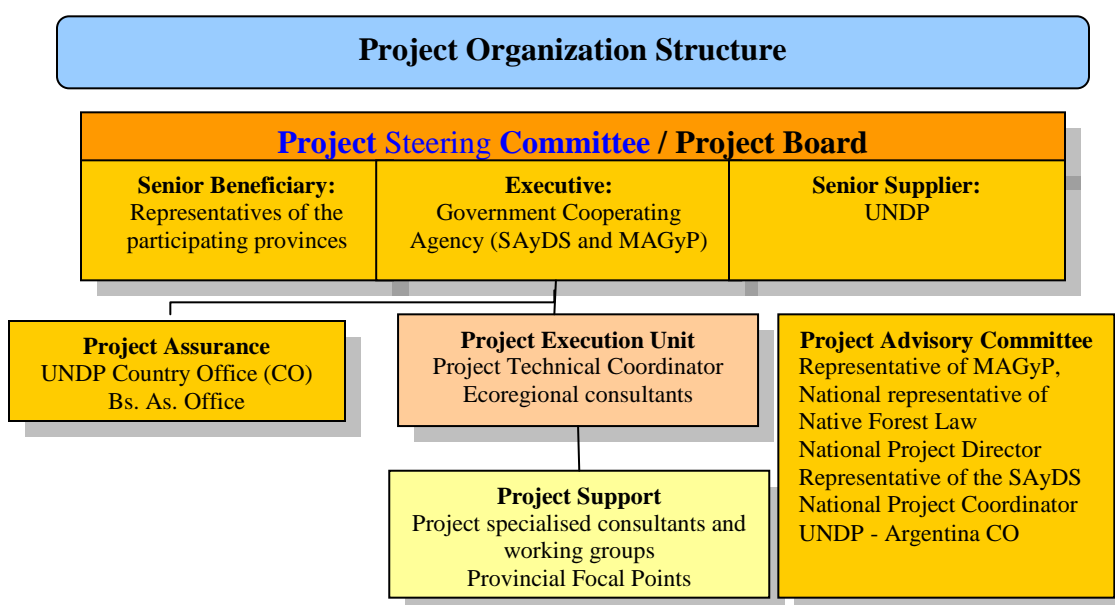
244. The Director of Soil Conservation and Combat against Desertification (DCSyLCD) will act as the National Project Coordinator (NPC). It will be his/her responsibility to work on behalf of the national political authority, ensuring that the project meets the goals, objectives and results established in this Project Document and its annexes. The NPC will also ensure that the project is closely aligned with the NAP strategy and with the other programs and projects of the SAyDS and will contribute to the effective dissemination of lessons learned at the national and international level. The NPC will take the lead in the preparation of the Pluriannual Plans, with the assistance of the Project Technical Coordinator, which should reflect the activities and results to be achieved throughout project implementation.

245. The Project Technical Coordinator (PTC) will be provided by the GoA and will be responsible for the day-to-day management of the project, oversight of the implementation of the activities and project reporting. He/she will have experience in project management and combating desertification and ideally will have prior experience working specifically on the initiatives being promoted by the project.

246. The Project Execution Unit will develop Annual Operational Plans (AOPs) with the support of the DCSyLCD, an annual work plan indicating the outputs and activities that are planned for the year, the implementation periods for each activity, and those responsible for carrying them out, the budget and the M&E plan. The draft AOP will be reviewed by the Project Advisory Committee and approved by the Project Steering Committee.

247. Three ecoregional consultants (EC) will be hired with project funds to act as the links between the PEU and the eight provinces, particularly the three provinces that will contain the initial AGIs. These consultants will be responsible for technical support coordination with the Provincial Focal Points in relation to project execution.

248. The Provincial Focal Points will be designated for each province as co-funding contributions and will be responsible for provincial coordination for the effective execution of the project in their territories. They will be the provincial reference points for the coordination among the different departments of the provincial governments, the producers and the research and technology transfer centres on the one hand, and the PEU and the consultants to be hired by the project. The commitments and responsibilities of the Provincial Focal Points will be clearly laid out in agreements with the project once the SEIs and SLM practices are confirmed.



PART VI: MONITORING AND EVALUATION

249. Project M&E will be conducted in accordance with the established UNDP and GEF procedures and will be provided by the project team and the UNDP-CO with support from the UNDP/GEF RSC in Panama City. The Project Strategic Results Framework provides performance and impact indicators for project implementation along with their corresponding means of verification. The M&E plan includes an inception report, project implementation reviews, quarterly and annual review reports, mid-term and final evaluations, and audits. The following sections outline the principle components of the M&E plan and indicative cost estimates related to M&E activities. The M&E budget is provided in the table below. The project's M&E plan will be presented and finalized in the Project Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Project Inception Phase

250. A Project Inception Workshop (IW) will be held within the first three (3) months of project start-up with the full project team, relevant GoA counterparts, co-financing partners, the UNDP-CO, and representation from the UNDP-GEF RSC, as well as UNDP-GEF headquarters as appropriate. A fundamental objective of this IW will be to help the project team to understand and take ownership of the project's goal and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the Project Results Framework and the LD GEF Tracking Tool. This will include reviewing the results framework (indicators, means of verification, and assumptions), imparting additional detail as needed, and on the basis of this exercise, finalizing the Annual Workplan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

251. Additionally, the purpose and objective of the IW will be to: a) introduce project staff to the UNDP-GEF team that will support the project during its implementation, namely the CO and responsible RSC staff; b) detail the roles, support services, and complementary responsibilities of UNDP-CO and RSC staff in relation to the project team; c) provide a detailed overview of UNDP-GEF reporting and M&E requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR/PIR), as well as Mid-term Review and Final evaluation. Equally, the IW will provide an opportunity to inform the project team on UNDP project-related budgetary planning, budget reviews including arrangements for annual audit, and mandatory budget re-phrasings.

252. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines and conflict resolution mechanisms. The Terms of Reference (ToRs) for project staff and decision-making structures will be discussed, as needed, in order to clarify each party's responsibilities during the project's implementation phase. The IW will also be used to plan and schedule the Tripartite Committee Reviews. A report on the Inception Workshop is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting (see details below).

Monitoring Responsibilities and Events

253. A detailed schedule of project review meetings will be developed by the project management in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: a) tentative timeframes for Tripartite Committee (TPC) Reviews, Steering Committee (or relevant advisory and/or coordination mechanisms); and b) project-related M&E activities.

254. **Day-to-day monitoring** of implementation progress will be the responsibility of the Project Technical Coordinator (PTC) based on the project's AWP and its indicators. The PTC will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion. The PTC will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the IW with support from UNDP-CO and assisted by the UNDP-GEF RSC. Specific targets for the first-year implementation progress indicators together with their means of verification will be developed at this workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the AWP. Targets and indicators for subsequent years will be defined annually as part of the internal evaluation and planning processes undertaken by the project team. Measurement of impact indicators related to global benefits will occur according to the schedules defined through specific studies that are to form part of the project's activities.

255. **Changes in local Exchange Rates and anticipation of changes in exchange rates.** Possible changes in local exchange rates due to the differences in the rates will be increased or decreased in the corresponding value of U.S. dollars (USD) for each deposit, in accordance with Chapter 5, rule 5.04 of the UNDP Financing Manual. The adjustment will be made through budgetary revision, previously anticipated to the steering committee members.

256. On a quarterly basis, the UNDP, jointly with the Project Director, will perform an analysis of how much the available budget can cover and of the available project funds (as a result of eventual variations in exchange rates) in order to adjust the work plans. Any modifications needed will be made through a project revision, in accordance with SC members

257. **Periodic monitoring** of implementation progress will be undertaken by the UNDP CO through quarterly meetings with the project implementation team, or more frequently as deemed necessary. This will allow parties to take stock of and to troubleshoot any problems pertaining to the project in a timely fashion to ensure the timely implementation of project activities. The UNDP CO and UNDP-GEF RSC, as appropriate, will conduct yearly visits to the project's field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report and AWP's to assess first-hand project progress. Any other member of the Steering Committee can also take part in these trips, as decided by the Steering Committee. A Field Visit Report will be prepared by the UNDP CO and circulated no less than one month after the visit to the project team, all Steering Committee members, and UNDP-GEF.

258. **Annual monitoring** will occur through the Steering Committee meetings. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Steering Committee review at least once every year. The first such meeting will be held after the inception workshop. The project proponent will prepare an APR/PIR and submit it to UNDP CO and the UNDP-GEF regional office at least two weeks prior to the Steering Committee meeting for review and comments.

259. The APR/PIR will be used as one of the basic documents for discussions in the TPC. The PTC will present the APR/PIR to the Steering Committee, highlighting policy issues and recommendations for the decision of the Steering Committee participants. The PTC will also inform the participants of any agreement reached by stakeholders during the APR/PIR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary. The Steering Committee has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the IW, based on delivery rates and qualitative assessments of achievements of outputs.

260. The **Terminal Steering Committee Review** is held in the last month of project operations. The PTC is responsible for preparing the Terminal Report and submitting it to UNDP-CO and to UNDP-GEF RSC. It shall be prepared in draft at least two months in advance of the Steering Committee meeting in order to allow review, and will serve as the basis for discussions in the Steering Committee meeting. The terminal Steering Committee review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learned can be captured to feed into other projects being implemented.

Project Monitoring Reporting

261. The PTC, in conjunction with the UNDP-GEF extended team, will be responsible for the preparation and submission of the following reports that form part of the monitoring process and that are mandatory.

262. A **Project Inception Report (IR)** will be prepared immediately following the IW. It will include a detailed First Year/AWP divided in quarterly timeframes detailing the activities and progress indicators that will guide implementation during the first year of the project. This work plan will include the dates of specific field visits, support missions from the UNDP CO or the RSC or consultants, as well as timeframes for meetings of the project's decision-making structures. The IR will also include the detailed project budget for the first full year of implementation, prepared on the basis of the AWP, and including any M&E requirements to effectively measure project performance during the targeted 12-month timeframe. The IR will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions, and feedback mechanisms of project-related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. When finalized, the IR will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to the IR's circulation, the UNDP CO and UNDP-GEF's RSC will review the document.

263. In light of the similarities of both APR/PIR and PIR, UNDP-GEF has prepared a harmonized format for use in fulfilling the following two requirements:

264. The **Annual Project Report (APR/PIR)** is a UNDP requirement and part of UNDP CO central oversight, monitoring, and project management. It is a self-assessment report by the project management to the CO and provides input to the country office reporting process and the Results-Oriented Annual Report (ROAR), as well as forming a key input to the PB Review. An APR/PIR will be prepared on an annual basis prior to the PB Review, to reflect progress achieved in meeting the project's AWP and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The format of the APR/PIR is flexible but should include the following sections: a) project risks, issues, and adaptive management; b) project progress against pre-defined indicators and targets, c) outcome performance; and d) lessons learned/best practices.

265. The **Project Implementation Review (PIR)** is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from on-going projects. Once the project has been under implementation for one year, a PIR must be completed by the CO together with the project management. The PIR can be prepared any time during the year and ideally prior to the TPC review. The PIR should then be discussed in the Project Steering Committee meeting so that the result would be a PIR that has

been agreed upon by the project, the Implementing Partner, UNDP CO, and the RSC in Panama. The individual PIRs are collected, reviewed, and analyzed by the RSC prior to sending them to the focal area clusters at the UNDP-GEF headquarters.

266. Quarterly Progress Reports outlining main updates in project progress will be provided quarterly to the local UNDP CO and the UNDP-GEF RSC by the project team. Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform and the risk log should be regularly updated in ATLAS based on the initial risk analysis.

267. **Specific Thematic Reports** focusing on specific issues or areas of activity will be prepared by the project team when requested by UNDP, UNDP-GEF, or the Implementing Partner. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learned exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

268. A **Project Terminal Report** will be prepared by the project team during the last three (3) months of the project. This comprehensive report will summarize all activities, achievements, and outputs of the project; lessons learned; objectives met or not achieved; structures and systems implemented, etc.; and will be the definitive statement of the project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's activities.

269. **Technical Reports** are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List detailing the technical reports that are expected to be prepared on key areas of activity during the course of the project, and tentative due dates. Where necessary, this Reports List will be revised and updated, and included in subsequent APR/PIRs. Technical Reports may also be prepared by external consultants and should be comprehensive and specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national, and international levels.

270. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the project. These publications may be scientific or informational texts on the activities and achievements of the project in the form of journal articles or multimedia publications. These publications can be based on Technical Reports, depending upon the relevance and scientific worth of these reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and (in consultation with UNDP, the GoA, and other relevant stakeholder groups) will also plan and produce these publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

Independent Evaluations

271. The project will be subjected to at least two independent external evaluations as follows:

272. An independent **Mid-Term Review** will be undertaken at the mid-point of the project lifetime. The Mid-Term Review will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency, and timeliness of

project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation, and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, ToRs, and exact timing of the Mid-Term Review will be decided after consultation between the parties to the project document. The ToRs for this Mid-Term Review will be prepared by the UNDP-CO based on guidance from the UNDP-GEF RSC. The management response of the evaluation will be uploaded to the UNDP corporate systems, in particular the UNDP Evaluation Resource Center (ERC). All GEF Tracking Tools for the project will also be completed during the mid-term review cycle.

273. An independent **Final Evaluation** will take place three months prior to the terminal Steering Committee meeting, and will focus on the same issues as the Mid-Term Review. The Final Evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Resource Centre (ERC). The ToRs for this evaluation will be prepared through close collaboration between the PEU, SAYDS and the UNDP-CO, based on guidance from the UNDP-GEF RSC. All GEF Tracking Tools for the project will also be completed during the final evaluation.

Audit Clause

274. According to UNDP's general corporate audit regulations, internal and external audits will be carried out individually to each responsible party, and these costs will be covered by the project. The audit will be conducted according to UNDP's financial regulations, rules, and audit policies. The GoA will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance rules and regulations.

Learning and Knowledge Sharing

275. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition, the project will participate, as relevant and appropriate, in UNDP-GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP-GEF RSC has established an electronic platform for sharing lessons between the project managers. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an ongoing process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every twelve (12) months. UNDP-GEF shall provide a format and assist the project team in categorizing, documenting, and reporting on lessons learned. Specifically, the project will ensure coordination in terms of avoiding overlap, sharing best practices, and generating knowledge products of best practices in the area of sustainable land management.

M&E work plan and budget

Table 11: M&E Plan

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
Inception Workshop	National Project Coordinator (NPC) Technical Project Coordinator	\$14,000	Within first two months of project start up

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
	(TPC) UNDP		
Inception Report	TPC	0	Immediately after workshop
Field-based impact monitoring including oversight visits to sites	TPC Ecoregional Consultant (EC)	\$21,000	Ongoing
Quarterly reports on project progress	TPC	0	Quarterly
APR/PIR/ with LD Tracking Tools	Project Technical Coordinator- UNDP CO- UNDP- GEF	0	Annual
Steering Committee Meetings	NPC TPC	0	One time per year
Advisory Committee	NPC TPC	\$31,000	Three times per year
Tripartite Committee Meetings	GEF Focal Point, UNDP CO, Project team	0	Yearly
Technical Reports	TPC EC	0	As necessary
Financial audits	UNDP CO	\$14,060	Yearly \$2,812
Mid-term Review	Project team UNDP CO UNDP RSC Evaluation team	\$25,000	At the mid-point or third year of project implementation.
Lessons Learned (with printing of document)	TPC	\$ 24,989	At least two months before end of project
Final Evaluation	Project team, UNDP CO UNDP RSC Evaluation team	\$25,000	At project closure
Project Terminal Report	PTC	0	At least one month before the end of the project
TOTAL INDICATIVE COST (*Excluding project team staff time and UNDP staff and travel expenses)		\$155,049	

PART VII: LEGAL CONTEXT

276. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Argentina and the United Nations Development Programme, signed by the parties on February 26, 1985 and approved by Law 23,396 of October 10, 1986. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

277. The UNDP Resident Representative in Argentina is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes: (i) revision of, or addition to, any of the annexes to the Project Document; (ii) revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation; (iii) mandatory annual revisions which re-phase the delivery of agreed project inputs or

increased expert or other costs due to inflation or take into account agency expenditure flexibility; and (iv) inclusion of additional annexes and attachments only as set out here in this Project Document.

278. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

279. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

280. The implementing partner shall:

- a) Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

281. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

282. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

Agreement On Intellectual Property Rights And Use Of Logo On The Project's Deliverables

283. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgement to GEF.

List of Annexes

- Annex 1: Tracking Tools (See Separate File)
- Annex 2: Social and Environmental Screening (See Separate File)
- Annex 3: CoFinancing Letters (See Separate File)
- Annex 4: Risk Matrix
- Annex 5: Description of Eco-regions and Selection of Geographic Areas to target Interventions (AGIs as per the Spanish acronym)
- Annex 6: Pre-Selected SLM practices and their feasibility
- Annex 7: Plan for involving Key Stakeholders
- Annex 8: Institutional Context and Provincial Capacities for SLM
- Annex 9: Project Monitoring Plan
- Annex 10: Summary and Analysis of Financial Instruments
- Annex 11: Terms of Reference - Main Activities of Staff and Consultants

Annex 4: Risk Matrix

OFFLINE RISK LOG

(see [Deliverable Description](#) for the Risk Log regarding its purpose and use)

Project Title: Sustainable Land Use Management in the Drylands of North-west Argentina						Award ID: 00080382	Date: April 2014		
#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1	Weather events such as draught and/or floods hinder the fulfilment of projects objectives as described in the project document	2013	Environmental	Even though there is a low probability of occurring, the impact of specific environmental events might delay the development of activities P = 2 I = 4	The targeted drylands are high altitude fragile environments where current harsh climatic condition is exacerbating human caused land degradation. These drylands are already experiencing increased extreme climatic events projected to increase still further. The SLM practices to be up-scaled will take into account current and future climate. Also strengthening of the National LD Observatory will enable monitoring changes in climate variability and conditions of the targeted ecoregions and the proposal of adjustments as needed.	Project Execution Unit			
2	Changes in political authorities in the involved government agencies slow down the development of on the field activities	2013	Political	The national elections to be held late 2015 might have the potential of changing national and provincial authorities. P = 2 I = 4	The project will work with provincial governments to increase their understanding and awareness of the effects of SLM on production and ecosystem services thus on the livelihoods and well-being of their populations	Project Director, UNDP			
3	Counterparts identified as co financiers of the project do not present solid evidence or reports of effective co finance.	2013	Financial Operational	UNDP has been working with local counterparts in the development of solid administrative capacities in order to prevent this specific risk from occurring. P = 2 I = 2	A specific Administrative workshop will be held with consultants in charge of tracking cofinancing at national and provincial level.	Project Director, Project Execution Unit, UNDP			
4	Due to the difference in time scales between the political cycle and the ecosystem recovery cycle partners may not prioritize SLM policies	2013	Political Operational	The campaign to be developed in order to tackle the impact of this risk will include all stakeholders, including top decision makers in key political agencies. P = 2 I = 2	The project will carry out a communication and advocacy campaign with decision makers and other stakeholders to raise awareness about the benefits of SLM adoption and the importance of integrating SLM in national and sectoral programs and policies. In addition, through the project, a valuation of the costs and benefits of SLM practices will be carried out, which will feed	Project Director, Project Execution Unit			

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
					into the communication and advocacy campaign as well as into the financial instruments to support SLM adoption. The establishment of multi-sectoral committees, development of Provincial Action Programs that are linked to the NAP, and the mainstreaming of SLM into sectoral programs will also contribute to the continued prioritization of SLM issues over time.				
5	Institutional rigidity and resistance to inter-institutional and multisectoral collaboration	2013	Political Operational	<p>UNDP has been developing a multi approach strategy when it comes to liaising with national and provincial authorities. In this sense, UNDP is seen as a respected and valid actor with a very high convening power. This added to the work carried out during the PPG phase should minimize both the risk and its impact.</p> <p>P = 2 I = 2</p>	During the PPG phase, joint meetings, consultations and workshops were held with the environment and production departments of the target provinces (particularly the three provinces being targeted under Outcome 1). These discussions pave the way for continued inter-sectoral collaboration during project implementation. Given that limited inter-institutional collaboration is an important restriction that has undermined a multi-sectoral approach to reducing LD in the past, the project will support the establishment of multi-sectoral committees to guide the development and implementation of SLM protocols and promote integration of SLM criteria in funding instruments (Output 1.2). These multi-sectoral committees will form the basis for the broader multi-sectoral committees to be established under Output 2.2 to guide the development and implementation of Provincial Action Programs. These multi-sectoral committees will be formally established to ensure their long-term continuity. In addition, the specific institutions that will participate in project implementation have provided letters of intention at the PPG stage with co-financing figures. More detailed agreements with specific commitments will be established once the SEIs and practices to implement therein are confirmed.	Project Director, Project Execution Unit, UNDP			
6	Barriers to reform of baseline programs	2013	Operational Political	The work done through the PPG phase, in which local actors were considered from the very development of the idea, guarantees a low impact of this identified risk.	The project will work closely with stakeholders from the baseline programs through multi-sectoral committees and workshops in order to revise the operational manuals in use that guide resource allocation. The development of the PAPs will also facilitate the revision of baseline	Project Director, Project Execution Unit			

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
				P = 1 I = 3	investments to incorporate SLM.				
7	Local communities are not sufficiently encouraged by direct benefits and thus reluctant to adopt behavioral changes needed to achieve goals in the long-term	2013	Operational	UNDP working closely with the national and provincial counterparts shall guarantee that local communities receive proper and accurate information on the benefits of the projects implementation. P = 2 I = 3	The areas of intervention for SLM up-scaling and activities will be identified through participatory workshops to ensure a high level of involvement and interest within local communities. The project will also operate through key community stakeholders thus raising the level of readiness for cooperation of the entire local community (farmers and their families, teachers, local opinion formers, etc.). The project's communication strategy and training components will also raise awareness of the benefits of SLM adoption. The SLM practices to be promoted are based on existing practices in place within the communities, with some modifications to increase their productivity and reduce their impact on LD, thus increasing the likelihood of support for adoption. All of the SLM practices that have been pre-selected (which are subject to confirmation during the project) have been assessed in terms of their associated costs to ensure that their implementation is feasible with the project resources available. Furthermore by mainstreaming ongoing baseline projects, communities will have increased support for SLM practices in the medium and long term.	Project Director, Project Execution Unit			

Annex 5: Description of Eco-regions and Selection of Geographic Areas to target Interventions (AGIs in the Spanish acronym)

Coordinates of the Eco-regions²⁹ targeted by the Project:

Puna:

North End: Lat S. 21° 46' 44"

South End: Lat S. 31° 21' 51"

East End: Long O. 64° 49' 46"

West End: Long O. 69° 32' 36"

Monte de Sierras y Bolsones (Dry Valley Scrub)

North End: Lat S. 24° 38' 34"

South End: Lat S. 32° 59' 41"

East End: Long O. 65° 37' 33"

West End: Long O. 69° 39' 43"

Monte de Llanuras y Mesetas (Plains and Plateaus Scrub)

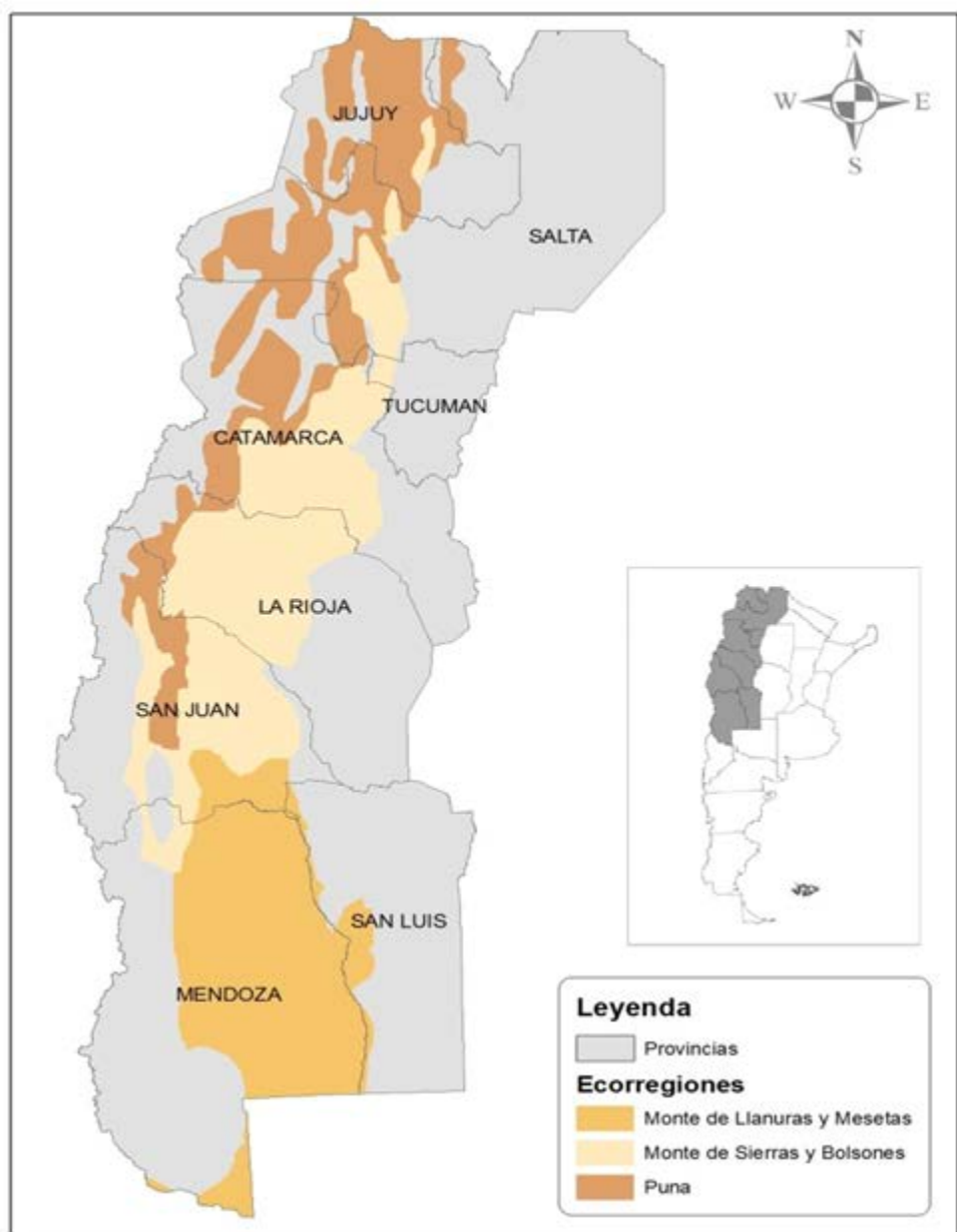
North End: Lat S. 31° 22' 27"

South End: Lat S. 37° 34' 30"

East End: Long O. 66° 19' 28"

West End: Long O. 69° 46' 41"

²⁹ Eco-regions are “a geographically defined territory in which certain relatively standard or recurrent geomorphological and climate conditions prevail and is characterized by a vegetation physiognomy of natural and semi-natural communities sharing a considerable group of prevailing species, a dynamics and overall ecological conditions, the interaction of which are essential for their long-term persistence” (National Biodiversity Observatory – Secretariat for the Environment and Sustainable Development (SAyDS)).



Land Use Systems (LUS-LADA) in the Project's Eco-regions

Puna

LUS- Land Use Systems LADA	Area_km²	%
Subsistence livestock	39,444	42.4
Mixed extensive livestock system	21,135	22.7
Seasonal migration of livestock	14,376	15.5
Mining	6,159	6.6
Extensive silvopastoral livestock production	4,698	5.1
Tourism	3,767	4.1
Protected Areas – Natural Parks	1,607	1.7
Irrigation Oasis	1,234	1.3
No use in the area under consideration	528	0.6
Total	92,947 (*)	100

Monte de Sierras y Bolsones

LUS- Land Use Systems LADA	Area_km²	%
Extensive silvopastoral livestock production	36,602	32.2
Mixed extensive livestock production	28,829	25.4
Subsistence livestock production	27,207	23.9
Tourism	5,203	4.6
Irrigation oasis	4,702	4.1
No use in the area under consideration	3,921	3.5
Protected Areas – National Parks	3,204	2.8
Mining	2,335	2.1
Extensive Goat production	1,138	1.0
Seasonal migration livestock	462	0.4
Total	113,603(*)	100

Monte de Llanuras y Mesetas

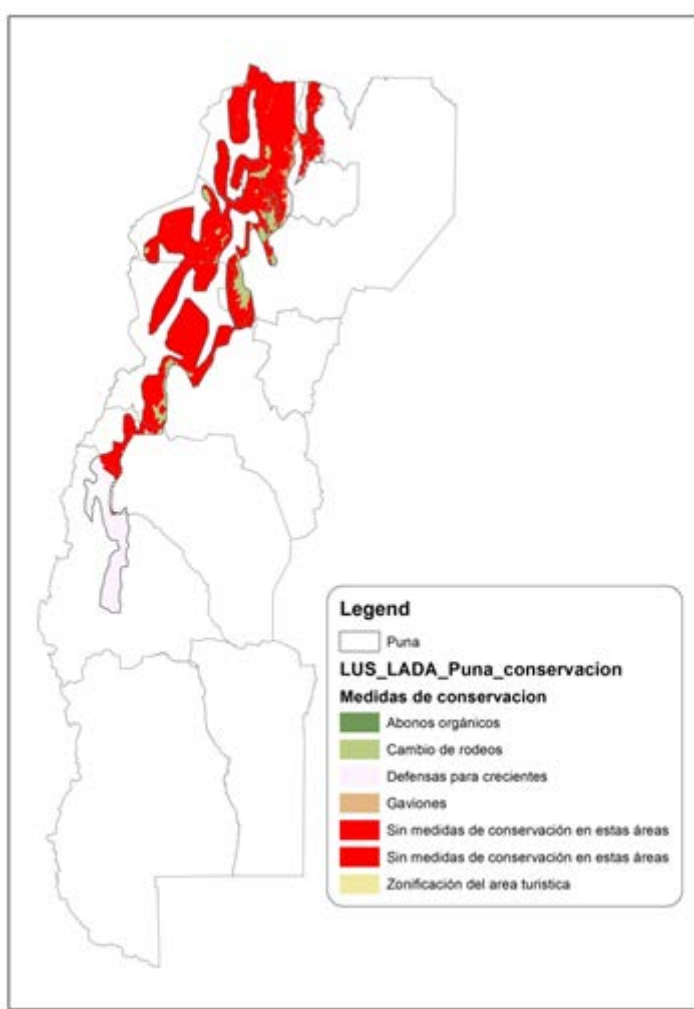
LUS- Land Use Systems LADA	Area_km²	%
Mixed extensive livestock production	47,827	48.2
Extensive cattle production	25,596	25.8
Irrigation oasis	9,668	9.7
Extensive goat production	8,645	8.7
Subsistence livestock production	5,423	5.5
Lakes and salt marshes	1,690	1.7
Cities	180	0.2
Protected Areas – National Parks	170	0.2
Total	99,199(*)	100

(*) The difference in the eco-region areas is due to the fact that the spatial coverage of LUS in the LADA classification accounts for less or more than the eco-region itself.

Conservation Measures (LUS – LADA)

Puna:

Conservation measures (LUS level)		Area Km2		%
Applying conservation measures	Change in cattle roundup	6,443	17.014	18.6
	Flood defense	9,429		
	Gabions	1,038		
	Zoning of the tourist area	101		
	Organic manure	3		
No conservation measure recorded		74,598	74,598	81.4
Grand Total		91,612		100



Map key:

Organic Manure

Changes in roundups

Flood Defenses

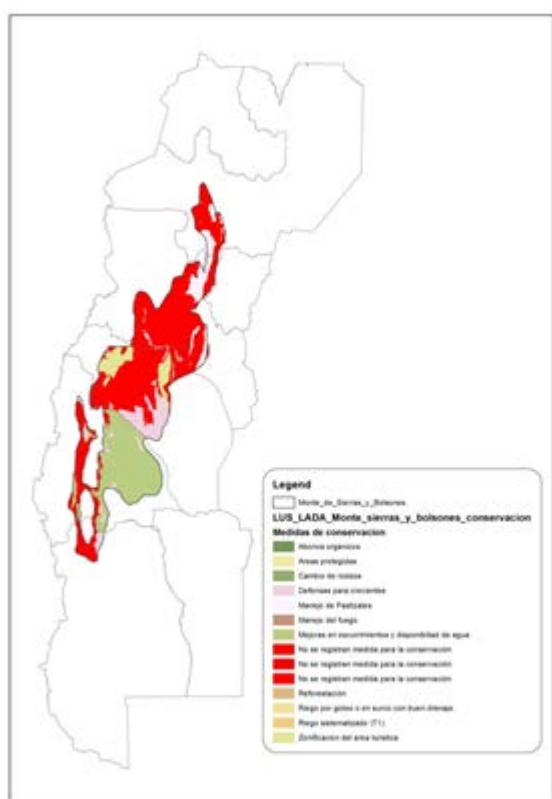
Gabions

No conservation measures in these areas

Zoning of tourist area

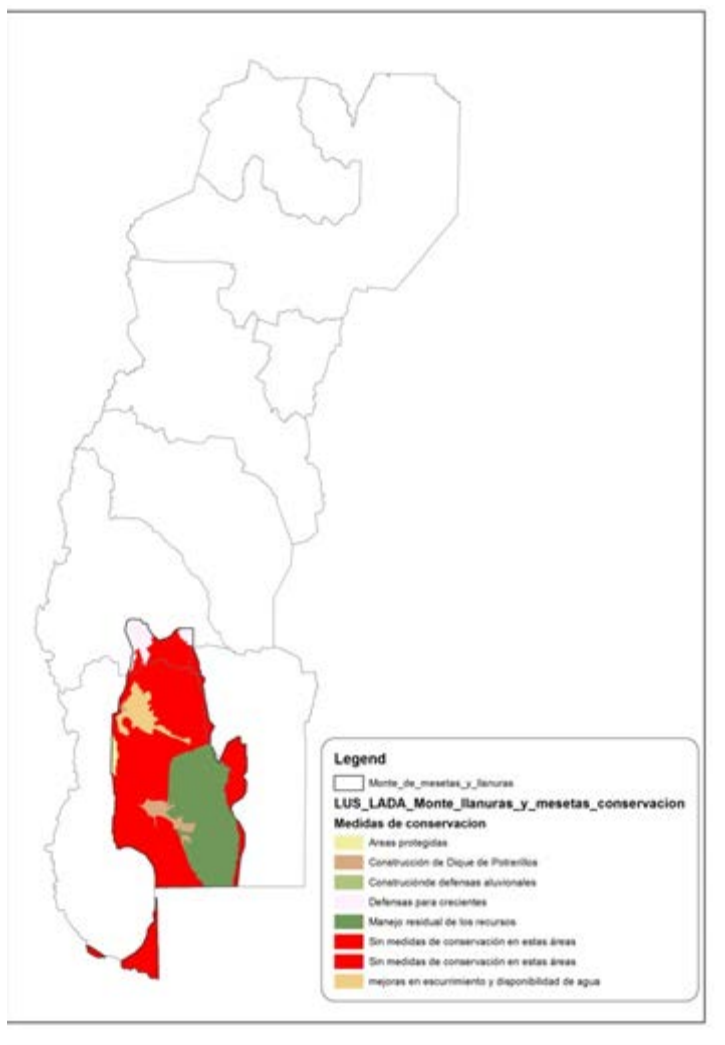
Monte de Sierras y Bolsones:

Conservation Measures (LUS level)		Area Km2		%
Conservation measures	Protected Areas	1	46,602	41.6
	Changes in cattle roundups	4		
	Flood defense	9,098		
	Rangeland management	5,250		
	Fire management	527		
	Improvements in run-off and water availability	25,504		
	Drip irrigation or well drained furrow irrigation	1		
	Systematized irrigation (T1)	4		
	Organic manure	6		
	Reforestation	0,3		
	Zoning of tourist area	6,206		
No conservation measure recorded		65.423	65,423	58,4
Grand Total		112,025		100



Monte de Llanuras y Mesetas:

Conservation Measures (LUS level)		Area Km2		%
Applying conservation measures	Protected Areas	726	37.384	37.7
	Building of Potrerillos Dam	2,648		
	Building of alluvial levees	1		
	Flood Defense	3,641		
	Residual management of resources	25,596		
	Improvements in run-offs and water availability	4,771		
No conservation measures in these areas		61,820	61,820	62.3
Total		99,204		100



Selection of Geographic Areas to Target Interventions (AGIs)

The Geographic Areas to target Interventions (AGIs) are the second level of intervention, between the eco-region and province at the higher levels, and the Specific Intervention Sites at a lower level. Such AGIs are related to the areas in which Sustainable Land Management measures will be implemented in each eco-region throughout the project, by implementing different practices in SIS, their replication at the eco-region level, and the development of conditions to facilitate actions at the eco-region scale. These conditions include the outlining of financial instruments and intersectoral coordination mechanisms, having SLM cut across big sector-based programmes and carrying out an awareness-raising and advocacy campaign, among others.

The process for selecting AGIs was based on the information available and collected during field visits to the provinces and correspondence exchanges with the interlocutors of the involved provinces. In this manner, it involved an analysis at the provincial level of institutional support to the project, availability of information, baseline programmes and the possibility of implementing Sustainable Land Management Practices at an appropriate scale to address the hierarchical options for managing Land Degradation. The specific criteria used for selecting AGIs are the following:

- Soil and climate characteristics
- Representativeness of the whole of the eco-region
- Different degrees of land degradation and desertification
- To what extent area boundaries match those of the administrative or geographic units (basins, sub-basins).
- Environmental and socioeconomic differences that allow comparisons.
- Basic information indicating technical, economic, social and environmental feasibility
- Institutional presence and support in the long term.

Additionally, when selecting the areas, the presence of small farmers, the average area of the productive units and the Land Use Systems were also taken into consideration.

a) Soil and climate characteristics

Soil and climate characteristics are relatively homogeneous or similar within each eco-region but with differences between one eco-region and the other. A priori the project established the climate characteristics by defining arid and semi-arid eco-regions in Northwest Argentina and Cuyo to be targeted by the project: *Puna*, *Monte de Sierras y Bolsones* and *Monte de Llanuras y Mesetas*. Based on this approach, and considering that the AGIs will encompass the three eco-regions, in three of the eight provinces, this criterion was not weighted for selection purposes.

b) Representativeness of the whole of the eco-region

The representativeness of the eco-region is believed to be the spatial representativeness in terms of area, determined by the percentage of the eco-region with regard to the total area of the eco-regions present in the province.

The areas involved in San Luis and Tucumán provinces do not allow conclusions to be reached, and given the little area involved they cannot be selected as AGIs. In Jujuy province, the Puna eco-region covers 94.7% of the project's area in the province. In this same regard, in Mendoza the eco-region Monte de Llanuras y Mesetas covers 95.7%. The Monte de Sierras y Bolsones covers 90% of La Rioja. Although with lower percentages, this eco-region is also representative of San Juan (64%) and Catamarca (56%) provinces.

c) Different degrees of land degradation and desertification

In order to define the different typologies and degrees of degradation and desertification, we considered as an element of analysis the Assessment of Desertification in Argentina – LADA Project Outcomes, Evaluation of Desertification at the National Level.

Jujuy has **three different types** of degradation (Wg: Water erosion in rills/furrows; Wt: Surface water erosion / loss of top horizon; Wm: mass wasting / torrents) with an average degradation of 0.75.

Salta has **two different types** of degradation (Wg: Water erosion in rills / furrows; Wt: Surface water erosion / loss of top horizon) Surface water erosion / loss of top layer) with an average of 0.75.

Catamarca has **four different types** of degradation (Ed: Deflation and wind sedimentation; Et: loss of surface layer due to wind erosion; Wg: Water erosion in rills /furrows; Wt: Surface water erosion / loss of top layer) with an average value of 0.65.

La Rioja has **4 different types** of degradation (Wg: Water erosion in rills / furrows; Wt: Surface water erosion / loss of top layer; Wo: Effects of water erosion downstream; Wm: mass wasting / torrents) with an average value of 0.85.

San Juan has **4 different types** of degradation (Wg: Water erosion in rills / furrows; Hg: Changes at water table level; Bc: Reduction of vegetation coverage; Pk: Soil crusting; Pu: Loss in bioreproductive functions due to other activities) with an average value of 0.55.

Mendoza has **14 different types** of degradation (Wg: Water erosion in rills / furrows; Wm: mass casting / Torrents; Bc: Reduction of vegetation coverage; Wt: Surface water erosion / loss of top layer; Wo: Effects of water erosion downstream; Loss of bioreproductive functions due to other activities; Hs: Changes in the amount of surface water; Cs: Salinization / alkalinization; Bh: Loss of biodiversity; Et: Loss of top surface due to wind erosion; Pk: Soil crusting; Hp: Decrease in water quality; Cp: Soil pollution) with an average value of 0.75.

San Luis has **3 different types** of degradation (Wt: Surface water erosion / Loss of top layer; Et: Loss of top layer due to wind erosion; Wg: Water erosion in rills / furrows) with an average value of 0.7.

Tucumán has **1 type** of degradation (Wt: Surface water erosion / loss of top layer) with a value of 0.7

d) To what extent area boundaries match those of the administrative or geographic units (basins, sub-basins).

The departmental division is used so as to compare to what extent area boundaries match administrative units. The number of departments having 75% or more of their area in each eco-region is taken into consideration.

Table 5 shows the departments per province and eco-region with the pertinent percentage.

Table 5. Number of departments with over 75% of their area within the eco-regions, by department and by province

Provinces / Eco-region / Department	Area in selected eco-regions	Total Area	%	Amount
CATAMARCA				
<i>Monte de Sierras y Bolsones</i>				
POMAN	5091	5222	97.5	2
SANTA MARIA	4823	5776	83.5	
JUJUY				

Provinces / Eco-region / Department	Area in selected eco-regions	Total Area	%	Amount
<i>Puna</i>				
COCHINOCA	5796	7251	79.9	5
HUMAHUACA	2884	3758	76.8	
SANTA CATALINA	2413	2830	85.3	
TUMBAYA	2685	3386	79.3	
YAVI	2432	3092	78.6	
LA RIOJA				
<i>Monte de Sierras y Bolsones</i>				
ARAUCO	2463	2463	100.0	6
CASTRO BARROS	1317	1533	85.9	
CHILECITO	5244	5263	99.6	
CORONEL FELIPE VARELA	8034	8191	98.1	
FAMATINA	4227	4227	100.0	
SAN BLAS DE LOS SAUCES	1481	1481	100.0	
MENDOZA				
<i>Monte de Llanuras y Mesetas</i>				
CAPITAL	61	73	83.6	12
GENERAL ALVEAR	14425	14425	100.0	
GODOY CRUZ	69	76	91.0	
GUAYMALLEN	176	176	100.0	
JUNIN	259	259	100.0	
LA PAZ	7165	7267	98.6	
LAVALLE	10361	10361	100.0	
MAIPU	663	663	100.0	
RIVADAVIA	2127	2127	100.0	
SAN MARTIN	1500	1500	100.0	
SAN RAFAEL	25482	31954	79.7	
SANTA ROSA	8511	8511	100.0	
SAN JUAN				
<i>Monte de Llanuras y Mesetas</i>				
25 DE MAYO	3991	4012	99.5	8
9 DE JULIO	157	157	100.0	
CAPITAL	28	28	100.0	
CHIMBAS	56	56	100.0	
POCITO	538	560	96.1	
RAWSON	300	300	100.0	
RIVADAVIA	118	118	100.0	
SANTA LUCIA	55	55	100.0	
<i>Monte de Sierras y Bolsones</i>				
ALBARDON	844	977	86.4	4
ANGACO	2647	2664	99.4	
JACHAL	11518	14581	79.0	
SAN MARTIN	431	562	76.8	

As regards the Puna Eco-Region, only Jujuy Province has a match with the departments of over 75%. On the other hand, Mendoza is the province with the greatest number of departments involved (12) for the *Monte de Llanuras y Mesetas* Eco-region. In the case of *Monte de Sierras y Bolsones*, La Rioja has six departments compared to 4 in San Juan and 2 in Catamarca.

Information available on the division of river basins is presented on a scale of 1:250,000 that does not allow an analysis of where they belong to or the percentage of the eco-regions encompassed. Although the river network and level curves are available on an appropriately detailed scale to carry out a more

thorough analysis, this activity requires time frames that are beyond the time assigned to the consulting services.

e) Environmental and socio-economic differences that allow comparisons

Land Use Systems (LUS) are deemed appropriate for estimating environmental and socio-economic differences. A Land Use System (LUS) is the basic assessment unit used by the LADA project, containing biophysical as well as socio-economic information on the use of land and related practices. The larger the number of LUS involved, the greater the difference in livelihood and environmental conditions.

Province	Number of LUS
Mendoza	8
Catamarca	6
Jujuy	5
La Rioja	4
Salta	3
San Juan	3
San Luis	3
Tucumán	1

f) Basic information indicating technical, economic, social and environmental feasibility

The availability of information related to land degradation and desertification processes varies in quantity and quality as well as among provinces. Two aspects are particularly important to determine the project's technical, economic, social and environmental feasibility. The first is related to prior experience by provincial institutions and other local stakeholders from the science and technology sectors and the farmers' association in degradation and desertification topics. Their participation in the project "Evaluation of Desertification in Argentina – LADA FAO" is considered relevant regarding their experience as pilot sites and as a part of the National Observatory on Land Degradation and Desertification. Such is the case of the provinces of Jujuy, Catamarca and Mendoza.

The second aspect is related to the province's capacity to implement, conduct and maintain a monitoring and evaluation system using tools of the Geographic Information Systems. The existence of an SDI – Spatial Data Infrastructure- relating nodes at the national and provincial levels guarantees the availability and inclusion of data which can be easily accessed for replicating actions, and Integrated Natural Resource Management. SDI structures exist in the provinces of Jujuy, Mendoza, Catamarca and Tucumán.

g) Institutional presence and support in the long term

Institutional participation of the provinces and of those institutions that are members of the National Observatory on Land Degradation and Desertification is a clear indicator of the presence and support to address the problem in the long term. In order to select and validate AGIs for the subsequent identification of Specific Intervention Sites, submission by the provinces of the Letter of Endorsement of the Project is considered an indicator of institutional presence and support. In this regard, Letters have been received from the Provinces of Jujuy, Mendoza and Catamarca.

Furthermore, it was confirmed that different agencies are involved in these provinces. Meetings held during the missions to the field, as well as the exchange of communications evidenced the participation of different provincial agencies representing the environment, production, family agriculture and planning, pertaining to secretariats and directorates from different ministries, which shows the capacity or intent to work in a coordinated, inter-ministerial manner.

h) Presence of small farmers

Finally, and considering the number of small farmers, **Table 6** shows the project's provinces arranged by number of farms (Agriculture and Livestock– EAPs) with an area of less than five hectares. Although the ratio between the area and the name “small farmer” depends on the zone and the type of production, this classification is provided by the National Farming Census and appears to be homogeneous for the whole of the area covered by the project.

Table 6. Number of AEAPs under five hectares and eco-region at departmental level.

Province / Eco-region	Number of EAPs < 5 has	
MENDOZA		12,242
Monte de Llanuras y Mesetas	11,600	
Monte de Sierras y Bolsones	642	
SAN JUAN		5,675
Monte de Llanuras y Mesetas	2,765	
Monte de Sierras y Bolsones	2,228	
Puna	682	
CATAMARCA		5,477
Monte de Sierras y Bolsones	3,319	
Puna	2,158	
LA RIOJA		3,139
Monte de Sierras y Bolsones	2,752	
Puna	387	
SALTA		2,534
Monte de Sierras y Bolsones	949	
Puna	1,585	
JUJUY		2,299
Monte de Sierras y Bolsones	1,046	
Puna	1,253	
TUCUMAN		241
Monte de Sierras y Bolsones	241	
SAN LUIS		24
Monte de Llanuras y Mesetas	24	

2002 National Farming Census

The following matrix shows and compiles the outcomes and specifications for the different criteria used. An X shows that the criterion is pertinent for the province while the amount of X indicate the qualitative variation between provinces in fulfillment of the criterion; the higher the number of X, the greater the level of fulfillment of a given criterion.

Criterion	Cat	Juy	LRj	Mdz	Sta	SJn	SLu	Tuc
Representativeness of the whole of the eco-region	X	XX	XX	XX		X	-	-
Different degrees of degradation of the land and desertification.	XX	X	XX	XXX	X	XX	-	-
To what extent do area limits match administrative or geographic units (basins,		X	X	X			-	-

Criterion	Cat	Juy	LRj	Mdz	Sta	SJn	SLu	Tuc
sub-basins)								
Environmental, social and economic differences that allow comparisons	X	X		X			-	-
Basic information indicating technical, economic, social and environmental feasibility.	XX	XX		XX			-	-
Institutional presence and support in the long term	X	X		X			-	-
# of small farmers	X			X		X	-	-
Score	(8)	(8)	(5)	(11)	(1)	(4)	-	-
Selection	X	X		X				

Cat: Catamarca; Juy: Jujuy; LRj: La Rioja; Mdz: Mendoza; Sta: Salta; SJn: San Juan; SLu: San Luis; Tuc: Tucumán.

As a result of the analysis carried out and the hypothesis put forward, it can be concluded that the following are the Geographical Areas for targeting Project interventions within the “Sustainable Management in the Drylands of Northwest Argentina”:

- **Jujuy Province, Puna Eco-region** in the area encompassed by this eco-region and the departments involved with an approximate area of 26,868 km².
- **Catamarca Province, Monte de Sierras y Bolsones Eco-region**, in the area encompassed by this eco-region and the departments involved, with an approximate area of 29,724 km².
- **Mendoza Province, Monte de Llanuras y Mesetas Eco-region**, in the area encompassed by this eco-region and the departments involved, with an approximate area of 83859 km².

It is worth noting that additional AGIs will be selected in up to five provinces to allow the replication of SLM activities. Together with the three initial provinces, these will represent the eight provinces included in the three target eco-regions of the project. Criteria to be used for selecting additional AGIs will be similar to those used for the first three AGIs.

Annex 6: Pre-Selected SLM practices and their feasibility

Land conservation measures considered SLM technology fall into four categories: agronomic, vegetal, structural and management-related measures. Each category includes one or -generally- a combination of measures.

Agronomic practices include conservation agriculture, use of organic fertilizers/compost, combined crops, contour farming, coverage, etc.; **Structural practices** comprise use of terraces, ridge farming, constructions, etc. These measures are characterized by producing changes in the slope profile, they are of long duration and are used mainly to control water runoff, wind speed and erosion and to capture rainwater; **Vegetal practices** such as grass strips, live barriers, windbreakers, agro-forestry, etc. including the use of perennial grasslands, shrubs and trees are long-term practices, and **Management practices** such as changes in land use, fencing areas of rotational grazing, etc. which include changes in land use.

These measures are combined when the different practices supplement one another and increase reciprocal effectiveness. Any combination of the above-mentioned practices is possible. Also these practices can be grouped according to their purpose in: **prevention, adaptation, mitigation and/or rehabilitation** of land degradation.

- **Prevention:** implies use of non-structural measures of conservation, planning, institutional actions, designed to maintain natural resources and their environmental and production functions which may be prone to degradation. The implication is that if these good management practices are already in place; which is in fact the opposite of land degradation provoked by human beings.
- **Adaptation:** this refers to those cases where land degradation is so severe that rehabilitation is impossible, people cannot be resettled and therefore productive systems and livelihoods must be modified in order for people to remain in their homes.
- **Mitigation:** this is an intervention designed to reduce the degradation process. This takes place when degradation has already started. The main objective is to stop degradation and to launch the improvement of resources and functions. Mitigation impacts tend to be perceived in the short to medium term; they thus provide a strong incentive to continue with the efforts. The word "mitigation" is also used at times to describe decreased degradation impacts.
- **Rehabilitation:** It is necessary when land is so degraded that its original use is no longer possible and it has become practically unproductive. In that case, long term and costly investments are necessary in order to produce some kind of impact.

Within the framework of the project on Sustainable Land Management in the Drylands of Northwest Argentina, a set of practices has been pre-selected which will be confirmed during the first semester of project implementation for each of the Specific Intervention Sites corresponding to the Puna Geographic Intervention Areas in the provinces of Jujuy, *Monte de Sierras y Bolsones* in the province of Catamarca and *Monte de Llanuras y Mesetas*, in the province of Mendoza.

Economic Benefits from implementing Sustainable Land Management practices

The goal of implementing one or more SLM practices is to carry out practices which contribute to a better management of natural resources, mainly of land. *The most convincing arguments for users to invest in SLM are the increase in land productivity and the resulting economic return. However, compilation of relevant and reliable information in order to carry out a thorough analysis of costs and benefits is an important challenge for land users and for land and water conservation specialists.*

Difficulties in comparing and validating results appear in different zones, regions or eco-regions where one or many practices can be analyzed, and these difficulties are due -among other reasons- to agro-climate conditions, case particulars or group analysis, land slopes and slope orientation. In many

instances the economic benefits of isolated practices have been analyzed worldwide with various degrees of correlation with SLM processes, due to the fact that the sector-based approach used for those cases purported to explain the maximization of income from agricultural production.

The Puna, the *Monte de Sierras y Bolsones*, and the *Montes de Llanuras y Mesetas* eco-regions have their own agro-ecological characteristics which differ greatly from traditional large-scale commercial agricultural production environments in the rest of Argentina and, therefore, they lack the analysis and validated results that the SLM project aims at achieving in the Northwestern and Cuyo regions, and which are convincing arguments for farmers in the target project regions.

Nonetheless, there are parameters showing productive economic improvements both at regional and extra regional level which allow the establishment of an initial platform evidencing economic feasibility and which will be detailed based on the project's experience, to demonstrate the benefits of implementing SLM practices.

Measurement of benefits within the framework of LADA- WOCAT³⁰

Costs and benefits are very difficult to evaluate but obviously, they are a decisive factor in the justification of land and water conservation interventions. The basic difficulty is the lack of consistent and reliable data. In the absence of data, WOCAT has had to rely on "perceived benefits". An analysis of 42 case studies carried out by WOCAT revealed marked differences in land productivity and economic return among several technologies. Benefits were assessed by requesting land users to classify benefits using a variable scale that went from "very negative" to "very positive". SLM practices assessed included conservation agriculture, manure/compost, vegetative strips, agro-forestry, water capture, rehabilitation of gullies, terraces, grazing land management and others.

Establishing short term costs and benefits: with the exception of "terraces", in each group there are cases with positive returns within short periods. Terraces are a special case: in only three out of eight cases there were benefits "neutral to slightly negative" (two) or "very negative" (three). This reflects the high cost of the investments and, probably, some initial reduction in production level due to subsoil exposure and disturbance during terracing and leveling, or to loss of area due to space between terrace structures.

Maintenance costs and short to long-term benefits: regarding maintenance, additional benefits compared to annual recurring costs within the first five years were perceived as "positive" in around two thirds of cases. Only in agro-forestry examples, where new systems were established and degraded land was improved to convert it to agro-forestry, maintenance costs in the short term were not reimbursed rapidly. There were examples in Costa Rica with coffee plants grown under shadow and conversion of degraded pasturelands to fruit orchards in Tajikistan. In the long-term, maintenance yielded positive returns in all case studies except one.

Establishment costs and long-term benefits: thirty-three cases (out of 35 cases involving establishment costs) indicate that establishment costs were not only covered but also yielded a "positive " or "very positive" return.

Information on each practice is presented below according to purpose and grouped by eco-region/AGI together with an initial analysis of environmental and socio-economic and costs and benefits.

³⁰ World Overview of Conservation Approaches and Technologies.

SLM practices for each AGI

AGI – PUNA

Prevention

- **Change of land use type:** Sowing pastures and management of natural pastures in order to avoid surface erosion and to promote infiltration by means of increase of vegetal coverage.
- **Enhanced land coverage:** change to quinoa crops which provides greater coverage than traditional horticultural production, or to other Andean crops like potato, oca or ulluco

Mitigation

- **Management/intensity change:** Adjustment of camelid loads according to forage supply, incorporation of electric fencing; rotational grazing, incorporation of perimeter fencing.
- **Change in land use type:** Sowing of pastures and management of natural pastures, cultivation of quinoa.
- **Change of management/intensity level:** Incorporation of furrow irrigation or flood irrigation and mechanization.
- **Design according to natural and human environment:** Water and soil quality monitoring, especially electrical conductivity and pH, in order to calculate quantity of water to be used.

Cost of Practices

The estimated cost of pasture sowing is of USD 200/hectare and USD150/hectare of intercropping for natural pastures, including purchase of seed and soil preparation. The estimated cost of quinoa cultivation, including seed, soil preparation, planning and execution of irrigation systems, water analysis and crop management is of USD 200/hectare. The cost of camelid management and quinoa cultivation is composed of farmhands' wages, depreciation of facilities and machinery, animal health expenditures, all of which are counterpart contributions from the provincial government.

Environmental and socio-economic benefits

From an integral and eco-systemic point of view, the effect/impact of SLM technologies on the Ecosystem Services is considered (supply, regulation, support and culture). The categories under which they are classified are: P: Productive services, E: Ecological services (regulation and support) and S: Social and cultural services.

Processes and degradation typologies identified in the three systems of land use affect eco-system services. Therefore, SLM measures applied reverse the negative effect of degradation processes thus resulting in environmental benefits. There is a positive impact on ecological services of regulation and support of water, soil and biodiversity resources. Increase of vegetation coverage from pastures and quinoa decreases surface runoff, promotes infiltration and the recharge of aquifers. At the same time, decreased runoff reduces erosive processes and sediment transport. Incorporation of organic fertilizers and plant material from stubble favour the soil's biological processes resulting in chemical and structural improvement. Biodiversity is favoured by the appearance and reproduction of species absent in overgrazing scenarios.

An example of potential economic benefits of SLM practices proposed for this eco-region is related to camelids' management. In many areas of Peru with similar agro-climatic and productive characteristics as the Puna Jujena region, simple techniques of Andean cattle-raising have been implemented with good socio-economic results. For cattle resting, pens built of stone, mud walls and barbed wire are used. Considering data of 73 alpacas per family, and a growth rate for alpacas of 18 per cent, these measures allowed 13 new specimens to be protected against the cold (avoiding death), decreasing the level of annual mortality from 11 percent to 5 percent, this is equivalent to four additional alpacas. From an

economic standpoint, implementation of sheds generates a positive economic impact by avoiding mother and calf deaths, 13 new alpacas are available and, in addition, avoiding the death of four alpacas has a positive value; socially they contribute to reducing migration in the community and environmentally, they allow a healthier management of animals, use of materials found in the zone; and manure accumulation can be used for pasture recovery.

In terms of productive services, SLM practices increase net primary production and consequently secondary production increases at the same time as the availability of land suitable for production. Finally, considering the socio-cultural-economic services affected by degradation, implementation of SLM practices increases food security as a result of increased production and contributes to poverty reduction. Increased production helps to profit from trade and market opportunities. Quinoa crops have a cultural and historic value linked to indigenous peoples' identity and sovereignty.

Key actors in the implementation of SLM practices in this AGI are those who will carry out the actions as well as other project stakeholders. The organizations responsible for the implementation of the practices are the Secretariat of Production, Directorate of Livestock Development, the Secretariat of Productive Development, Provincial Directorate of Agriculture and Forestry Development, both organizations together with the Secretariat of Environmental Management of Jujuy province and the Secretariat of the Environment and Sustainable Development (SAyDS) at the national level are the implementing agencies for the regional project.

Also an important group of actors who could be potential candidates both for execution and replication of actions has been identified comprising the Municipalities in SIS locations, Institutes of Research and Extension (INTA, INTI), National agencies (SENASA), NGOs, Production cooperatives and local development agencies, among others.

AGI - Monte de Sierras y Bolsones

Prevention

- **Significant changes in the calendar of activities:** Carry out irrigation practices according to the requirements and to the phenologic and health status of the crops, as well as taking into account the water conditions of the soil.
- **Enhanced land vegetation coverage:** planting of pastures adapted to the region (megathermic) to increase fodder offer and land coverage.

Mitigation

- **Change of management/intensity level:** Changes in irrigation system and technology, using more efficient systems/methods (pressurized: drip, micro-sprinklers).
- **Design according to natural and human environment:** Water and soil quality monitoring, especially electrical conductivity and pH, in order to calculate quantity of water to be used.
- **Dam/Basin/pond:** improvement of water supply through the construction of works for meteoric water capture, and of wells.
- **Change in management or level of intensity:** construction of pens for rounding up of animals during the night.

Rehabilitation

- **Dam/basin/pond:** improvement in water resources supply through the construction of small-sized community works for water storage (of the drinking trough type) which will allow temporary supply of distributed water.

Cost of the Practices

Implementation cost of sustainable water and land management practices is for: Irrigation equipment for drip/micro sprinkler irrigation with a unit cost of USD 5,000, including drip irrigation heads, pipes and drippers/sprinklers; tensiometers, with an estimated unit cost of USD 300; water quality analysis, especially pH parameters, CE, soluble solids, water hardness, NA and others, with an estimated cost per test, including sampling of USD 25; and construction of community works for water storage of approximately 1000 m³ with a unit cost of USD 10,000 including materials and labour.

The cost of pasture planting is of USD 100/hectare, including seeds and soil preparation; structure for meteoric water capture USD 2,000 per unit including construction materials and labour; water wells USD 800 per unit, including materials and labour; and pens for round up of animals USD 1000 per unit, considering materials and labour.

Cost of labour for management of walnut plantations and for irrigation, including depreciation of machinery and farm facilities, as well as labour for goat handling are counterpart contributions by participating farmers.

Environmental and socio-economic benefits

Sustainable water and land management practices and goats handling implemented in this AGI, as well as in other irrigation sectors within the eco-region *Monte de Sierras y Bolsones* through replication, have a positive impact on ecosystem services, both as regards the supply of productive services, ecological regulation and support services and social-cultural services.

Previous studies and experiences also show the economic benefits obtained from applying these technologies. For example, regarding improvement in irrigation systems, shifting from a system of “gravity irrigation” to one of “drip irrigation”, though not documented for the Northwestern and Cuyo regions, are shown to increase certain crop production by percentages ranging from 10 to 40 percent when compared to soil, crops and management in other regions. Bibliography also mentions increases in irrigation efficiency (saving water) ranging from 30 to 60 per cent, according to edaphic conditions, crops and irrigation techniques, especially frequency of irrigation. Since water is not paid according to volume consumed, it would be very difficult to assess –or in any case it would be greatly undervalued- the economic dimension of water saved, unless an economic value is assigned to the increase of cultivated area resulting from saved water. Nonetheless IADIZA has assessed for one case the loss through infiltration in the conduction of water which represented 22 per cent of available water for arable land.

In connection with productive services, the practices implemented increase net production in terms of kilograms per hectare, increase water supply for irrigation as well as availability of drinking water, both for human beings and for animals, due to a more efficient use of the water resources. Also, the production of goatlings per hectare (Kg of meat) and pasture dry matter increases as a result of improved handling, efficient water use and controlled grazing.

On the other hand, environmental services involve the improvement of water resource management and result in diminished vulnerability in the face of extreme drought events, the improvement of edaphological aspects in terms of content of organic matter and improvements in soil structure and in the nutrient cycle achieved through pasture management, vegetation coverage and animal load management. Finally socio-cultural services are increased by an improvement and growth in production, which allows greater marketable volumes and revaluation of traditional productive aspects in the region. Income growth contributes to the creation of roots for family members who would otherwise migrate to cities. The role of women is also revalued in goat production as key actors throughout the productive cycle.

Stakeholders

Main stakeholder participating in sustainable land management practices in this AGI are the State Secretariat of Environment and Sustainable Development and the Under-secretariat of Agriculture and Livestock of Catamarca, and the Secretariat of the Environment and Sustainable Development at the national level (SAYDS), as executing agencies of the regional project. Also, potential participants have been identified, both for the execution and replication of actions comprising the Municipalities of SIS locations, research and extension institutes (INTA, Universities, national Agencies (SENASA), NGOs, Production Cooperatives and production and irrigation organizations at provincial level, among others.

AGI - Monte Llanuras y Mesetas

Prevention

- **Significant changes in the calendar of activities:** Implementation of irrigation practices based on the crop's phenological conditions as well as the soil's water conditions.
- **Enhanced land vegetation coverage:** Planting of pastures adapted to the region (megathermic) to increase fodder offer and soil coverage. Implantation/enrichment with carob trees to increase forest area.
- **Enhanced land vegetal coverage:** implantation of pastures adapted to the region (megathermic) to increase fodder offer and soil coverage.
- **Organic matter/soil fertility:** organic manure/compost

Mitigation

- **Change of management/level of intensity:** Changes in system and irrigation technology, using more efficient systems/methods (pressurized: drip, micro sprinklers).
- **Design according to natural and human environment:** Quality of water and soil monitoring, especially electrical conductivity and pH, in order to calculate amount of water to be used.
- **Walls/barriers:** Implementation of plant windbreakers (poplars) in order to decrease atmospheric demand (evaporation and evapotranspiration) and increase efficiency in use of water.
- **Change of management/level of intensity:** Grassland management in carob tree and creosote bush forests, adjusting animal load and by means of rotational grazing.
- **Significant changes in the calendar of activities:** Scheduling cow impregnation and deliveries to correspond to high fodder offer periods and by means of health management.
- **Change of management/level of intensity:** Grassland and pasture management in the woodlands, adjusting animal load and by means of rotational grazing.

Rehabilitation

- **Diversion dikes/drainage:** improvement of internal paddock drainage to avoid prolonged waterlogging and salt accumulation.
- **Change of management/level of intensity:** inclusion of selective low intensity rolling to improve the balance between shrubs and herbaceous species.

Cost of the Practices

The cost of implementing water and soil management practices is as follows: Irrigation equipment for irrigation by dripping/micro sprinkling with a unit cost of USD 5000, including drip irrigation heads, tubes and drippers/sprinklers; tensiometers, with a unit cost estimated in USD 300; Analysis of water quality, especially pH parameters, CE, soluble solids, water hardness, Na and others, with an estimated cost per test, including sampling of USD 25; sub-surface drainage works with a cost per premise of USD 1,000 including materials and labour; and forest barriers with an estimated cost of USD 5 per forest unit.

The cost of implementing livestock and silvopastoral management practices is as follows: sowing of pastures with a cost per hectare of USD150, including the seed, soil preparation and rolling; Analysis of dry material with an estimated cost per analysis, including sampling of USD 15; electrical fence for 50 hectares with a cost of USD 1,500 including the electric fence, battery, wiring and labour; sowing of carob trees with an estimated cost of USD 150 per hectare including trees, clearing of underwood and manual labour.

Meanwhile, implementation of goat management practices envisages the following costs: pasture sowing with a cost per hectare of USD 100, including seeds and soil preparation; Analysis of dry matter with an estimated cost per analysis, including sampling of USD 25; construction of a vermiculture station using guano and organic waste from houses, with an estimated cost of USD 5,000.-, including materials and labour; Construction of an interpretation center for education, transfer and tourism within the Huarpe community, with an estimated cost of USD 15,000.- including materials, labour and elements for its operation.

Labour costs for walnut plantation management and irrigation, depreciation of machinery, and site facilities are counterpart contributions from participating farmers. Likewise, labour costs for cattle management, including health handling of animals, vaccines and periodic disease and overall health control of the animals, as well as genetic improvement of cattle and improvement in product marketing, depreciation of machinery and facilities in the fields, are counterpart contributions of the participating farmers and the Government of Mendoza. Likewise, labour costs for goat management, including health management of animals and facilities in the fields as well as operation and maintenance costs of the vermiculture station and the interpretation center are borne by the same actors.

Environmental and socio-economic benefits

Sustainable management of soil and water practices and goat and cattle management implemented in this AGI, as well as in other sectors within the eco-region *Monte de Llanuras y Mesetas* through replication, result in positive impacts on the ecosystem services, both in the supply of productive services, ecological services for regulation and support purposes and socio-cultural services.

Economic benefits are many. For example, management of household livestock, pasture implantation, intercropping and pasture recovery can result in direct economic improvement measured in terms of greater productivity per head of cattle and per hectare, and in indirect improvement related to sustainability of results in the long term and in terms of the possibility of carrying out alternative productions on the same property by improving the overall management of the property. Economic results achieved vary in each case based of the type of cattle, their race and the agro-ecologic site where the activity is carried out, obtaining improvement in finished animals (more kilos, better finishing) and reduced production time (reduction in the time animals reach sale weight from three years to two, or less, according to the site conditions).

With regard to productive services, the practices implemented thus increase net production in terms of kilogramme per hectare; there is an increase in the supply of irrigation water and of drinking water for human and animal consumption given the more efficient use of water resources. Also, there is an increase in production both of meat and of dry matter. The increase in the number of tree species (carob trees) provides productive opportunities for by-products (algarroba, etc.).

Environmental services involve an improvement in the regulation of water resources and reduced vulnerability to extreme drought events, improvement of edaphological aspects in terms of organic matter contents and an improvement of the soil structure, increase in coverage and improvement in nutrient cycle. Also, increased biodiversity is a key factor in the supply of environmental services. Finally, socio-cultural services evidence an improvement and increase of food availability and production which leads to

greater marketable volumes and the revaluation of traditional productive aspects in the region. These actions have a very important component in the inclusion and revaluation of ancestral knowledge in the Huarpe community.

Stakeholders

Main stakeholders participating in the implementation of sustainable land management practices in this AGI are the Unit of Critical Projects, the Directorate of Renewable Natural Resources, under the Secretariat of Environment and Sustainable Development of Mendoza, IADIZA, the Provincial Livestock Directorate -Ministry of Agro-industry and Technology- and the Secretariat of Environment and Sustainable Development at the national level (SAyDS), as the executing agency of the regional project. Also, a group of important actors have been identified as potential participants both for execution and replication of actions: the Municipalities of the SIS, research and extension institutes (INTA, Universities), National Agencies (SENASA, CFI, Ministry of Agriculture), NGOs, Production Cooperatives and Production and Irrigation Organizations in the province, Huarpe Communities in the Guanache Lagoons: Community Andres Diaz in San Miguel and Lagunitas; el Retiro in the namesake community; Pinkanta community and El Junquillal and Guaquinchay community at El Puerto, among others.

Annex 7: Plan for involving Key Stakeholders

Participation of key stakeholders during PPG stage

Participation of key stakeholders in preparing the project document was divided into several stages, ranging from direct contact with key reference persons in each of the project target provinces, as well as with several scientific, academic, and management institutions among others (done by the consultants hired for that purpose), through to the participation, on 16 October 2013, in the Workshop on the Logical Framework held with representatives from national and provincial public agencies and representatives of our country's scientific and academic sector, and of civil society organizations, all of the above, strategic partners of the Project.

Joint work allowed the preparation of the necessary baseline for the project's development, and the identification of coordination needs among the different stakeholders. Based on the above, the following table on Key Stakeholders was prepared:

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
National Level			
<i>Federal Secretariat for the Environment and Sustainable Development (SAyDS)</i>	The Directorate for Soil Conservation and the Fight against Desertification (DCSyLcD in the Spanish acronym) carries out processes for political coordination, promotion and fostering of strategies regarding the fight against desertification. It promotes the National Plan of Action to Combat Desertification, the Sub-regional Plans of Action to Combat Desertification and participates in events at the international level. (http://www.ambiente.gob.ar/?idseccion=25).	Implement SLM/INRM in vulnerable areas, from an environmental, social and economic standpoint, to improve the living conditions of peasants. Institutional capabilities will also be reinforced for implementing the Provincial Plans of Action (PPA).	1) Project coordination and management (CD/CE/UEP) 2) Will participate in the development and application of each of the outputs developed within the project (see Part II: Project Strategy).
<i>National Observatory of Land Degradation and Desertification</i>	To provide information on the status, trends and risk of land degradation and desertification for preparing proposals and promoting prevention, control and mitigation measures which will be used by decision-makers in Argentina, in the public and private sectors. Furthermore, contribute to awareness-raising and inform society at large.	Train and reinforce the Project's objective as regards the implementation of SLM/INRM, as well as disseminate related practices and project outcomes.	1) Follow-up of the system of biophysical and socioeconomic indicators allowing time-space monitoring linked to output 1.1/1.3. 2) Drawing up of Interactive maps using an on line geospatial data repository of AGIs and SIS in which promotion and application of SLM and INRM activities are carried out in the project's three eco-regions with regard to output 2.1.

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
<i>Provincial Authorities (Environment, Production)</i>	To promote environmental and productive policies, coordinate management strategies, plans and programmes between the sectors involved in environmental and production topics, as pertinent.	Direct participation in the project's development at the provincial level.	1) Institutional support to developing Project outputs. 2) Provide the institutional Framework for developing PPAs.
<i>Ministry of Economy and Finance</i>	Its mission is to assist the President and the Chief of Cabinet Minister, according to each one's jurisdiction, as regards all matters inherent in economic policies, public finance management, domestic trade and economic, financial and fiscal relationships with the provinces and Buenos Aires City. The most important functions are those of preparing and controlling delivery of the General Expenditure Budget and the Calculation of National Administration Resources; and furthermore, the level of spending and public revenue; collection and distribution of national income.	The Project will strengthen the environment and production fields in the provinces to improve the quality of life of these populations by implementing SLM/INRM, contributing to the objectives proposed for the national level.	Assistance and collaboration in project development.
Ministry of Social Development	Its mission is to plan and implement actions targeted to fostering social integration and human development, caring for and reducing social vulnerability, ensuring equal opportunities, protecting the family and strengthening community organizations.	The project seeks to improve living conditions of rural populations, contributing to the objectives of this Ministry, working jointly with its decentralized agencies such as the National Micro-Loan Commission (CONAMI), the National Institute for Associativism and Social Economy (INAES), the National Institute for Indigenous Affairs (INAI), among others.	Assistance and collaboration in project development.
<i>Ministry of Agriculture, Livestock and Fisheries (MAGyP by the Spanish acronym)</i>	To coordinate the mainstreaming of SLM in the design and implementation of production, marketing and health plans and programmes in agriculture, forestry (planted) and agro-industry. Within the structure of the Ministry is the Under-Secretariat of Family Agriculture, the Under-Secretariat for Regional Economic Development, the Secretariat for Political-Institutional and Agricultural Emergency Coordination; and it is also in charge of enforcing the Goat Law (No. 26,141) and the Sheep Law (No. 25,423). It also has within its jurisdiction, decentralized agencies such as INTA, SENASA, INV (National Wine-Making Institute), INASE (National Seed Institute), among others.	Coordinate the application of SLM public policies in the productive sectors of livestock, agriculture and planted forests. Bring together key stakeholders to set up a framework of productive sustainability for the most vulnerable farmers. As regards the laws (Goat and Sheep) it underscores the need to carry out an analysis of forage resources, the carrying capacity, and/or the sustainability of the farms, as well as an attempt to improve production capabilities and produce marketing, by	Coordination with the project for applying a SLM framework in the drafting and implementation of farming production plans, programmes and policies, coordinating and reconciling the interests of the National Government, the provinces and the different sub-sectors. Interaction of the

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
		harnessing practices framed within economic, social and natural resource sustainability criteria.	training networks with the processes of preparation of guides and protocols; multi-sector committees for facilitating dialogue; implementing practices; and coordinating intervention funds. Participation in the review of operational manuals for the laws (goat and sheep) to consider SLM within their framework, Coordination of the laws' financial mechanisms as incentives for integrating therein the application of SLM practices. Facilitation of Dialogue with key stakeholders.
<i>Law on Minimum Standards for Native Forest Protection No. 26,331</i>	To establish the minimum standards for environmental protection to enrich, restore, preserve, harness and manage native forests in a sustainable manner, and for the environmental services they provide to society. Likewise, establish a promotion regime and criteria for allocating funds for the environmental services provided by native forests.	Contribute and interact in the formulation of the Plan for Soil Use in each Province (practices to be carried out in each of the areas so that they are sustainable) for mainstreaming good SLM practices.	Mainstreaming of SLM and INRM notions in the criteria for promotion and fund allocation.
<i>National Institute of Agricultural Technology (INTA)</i>	To promote the development and extension of farming technology. Furthermore, through the National Farming Information Network (RIAN in the Spanish acronym), provide follow-up of productive systems, information on Temperature and Rainfall, and monthly follow-up of the water status. Likewise, through the Institute for Small Family Agriculture Farms (IPAF by the Spanish acronym), appropriate technologies are generated, adapted and validated for the sustainable development of these sectors.	To have technical information applicable to the implementation of SLM practices. To strengthen the monitoring and evaluation network for implementing SLM. To promote the generation and dissemination of SLM Technologies for small farmers.	Coordination for the joint drafting of management criteria for livestock production, agriculture and mixed activities (such as silvopastoral) in all three project eco-regions.

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
<i>Centre for Technological Research and Development for Small Family Farms (CIPAF)</i>	To generate, adapt and validate appropriate technologies for the sustainable development of small family farms, by setting up a technology research and development network; systematic training with regard to technological matters; and facilitation and coordination of stakeholders with political decision-makers (national, provincial or municipal). Furthermore, establish a communication and outreach strategy.	Broad experience in field work with small farmers in the Project's eco-regions. Technical teams on-site, trained for working with the communities.	Information providers. Training in the monitoring and evaluation of SLM implementation. Participation in Multi-Sectoral Committees.
<i>National Geography Institute (IGN)</i>	To generate and coordinate information produced by official agencies, in a digital format, made available to the public over the Internet.	Provide the possibility of generating and coordinating information in Geographic Information Systems. Coordinate with the IDERA platform.	Information providers to the GIS System under Output 2.1. Supports the processing and analysis of spatial data (related to output 2.1).
<i>National Weather Service</i>	To generate useful information for implementing Sustainable Land Management (SLM) based on agro-climate information. Generate reports on Water Balance with a zone-based scale resolution data analysis. Furthermore, draw maps on "the water necessary for the next 10 days" in order to ensure a) good conditions, b) no initial stages of drought, c) no drought, and d) no excess water. It moreover provides monthly agro-climate bulletins divided into 10-day periods, information on soil humidity conditions, and the Standardized Green Index.	Apply predictive agro-climate models. Improve agro-climate information, validate forecasts.	Information providers (related to output 2.1).
Provincial Level			
<i>Secretariats of the Environment and Sustainable Development of the Project's target provinces.</i>	To draft policies to guarantee a proper environmental management of private and public activities, as well as community ones to minimize the negative effects on the environment. Develop sustainable natural resources programmes. Is responsible for the management, conservation, preservation and sustainable use of eco-systems and natural environments in the Province. Generate and propose regulatory and technical frameworks for the sustainable use of natural resources and the province's eco-systems. Contribute to the preservation of natural and rural eco-systems in the Province. Design a digital information system with a database on natural resource management, and particularly in coordination with the	Environmental management of public and private sector activities, as well as community ones, so as to minimize the negative effects on the environment; Outline strategies for adaptation and mitigation of climate change consequences; Prepare a GIS tool to plan, manage and make decisions to face the different environmental problems; Comprehensive management of water basins. Develop programmes on the sustainable use of natural forest resources; Evaluate forest eco-systems, such as	Provincial focal point. Participation in specific intervention sites. Information providers. Monitoring and evaluation of activities carried out within the Project. Coordination with other key project stakeholders (Universities, Research Centres, other government areas) to formulate and implement

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
	provincial Cadastre Directorate, a cadastral database (IT and in the GIS) including all properties involved in natural resource management.	bushes, grasslands and mixed ones; Outline programmes for the sustainable use of grasslands and native bushes; Set up native species nurseries, for repopulation purposes, among others.	PPAs. Training and outreach for developing outputs.
<i>Ministry of Production and Development. – Under-Secretariat of Agriculture and Livestock of the Project's target provinces.</i>	To improve the development of agriculture and livestock production; use water more efficiently; structure a control system to guarantee agri-food quality and promote rural development programmes, and foster rural development programmes as well as actions for transforming the productive profile of the province and its regional insertion.	Promote training, exchange and awareness-raising on SLM agricultural practices among farmers, specialized institutions, the State and society; Propose supplementary uses in existing production systems and study and promote new production alternatives; Foster new marketing opportunities for local produce; Strengthen integration and organization capabilities of micro, small and medium-sized livestock farmers for the implementation of SLM; Propose supplementary uses in existing livestock production systems, and analyze and promote new production options; Foster new opportunities for marketing the local produce; Promote the socioeconomic development of the region, encouraging a better use of natural resources. Implement an extension service network for production so as to make the implementation of policies for the economic and social integration, strengthening and consolidation of small productive farms (belonging to small and medium-sized farmers) more feasible. Promote the socio-economic development of the region, promoting a better use of natural resources.	Provincial focal point. Participation in specific intervention sites. Information providers. Monitoring and evaluation of activities carried out by the project. Coordination with other key project stakeholders. (Universities, Research Centres, and other governmental areas) to formulate and implement PPAs Training and outreach for developing outputs.

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
<i>Working teams of the Geographic Information System – Spatial Data Infrastructure</i>	To manage and allow access to vector and raster data (satellite images), basic essential data of the province, integrating the Cadastre and Road authorities, the Water and Environment Secretariat; the Under-secretariat of Water Resource Planning; the Ministry of Production and Development, among others.	Strengthen the Geographic Information Systems of each of the Project's target provinces and integrate the above into a national network (IDERA).	Information providers. Monitoring and evaluation of activities carried out within the Project (related to output 2.1).
<i>Statistics and Censuses Directorate</i>	To conduct and guide all official statistics-related activities carried out in the province. Organize and coordinate operations of the provincial statistics system.	Coordinate with the different areas generating primary data, as well as reinforce the collection and dissemination of data obtained within the Project.	Information providers.
<i>Under-Secretariat of Water Resources. Irrigation Directorate</i>	To manage water resources in the provinces, enforce and supervise compliance with the water law. Systematize studies and build works for water use.	Coordinate with the production and environment areas for outlining management plans for this resource within the project's framework.	Information providers. Monitoring and evaluation of the activities carried out within the project.
Research Centres			
<i>Argentine Institute for Research in Arid Areas (IADIZA)</i>	Specific research on topics related to arid zones; Preservation of renewable natural resources, through a use aimed at sustainable development, raising social awareness; Consideration of the desert-oasis system as a function unit; Multiple use of resources, considering ecosystems as production systems; Improvement of the inhabitants' living conditions; Education and transfer of notions and conclusions of its research at all community levels; Participation in government management related to renewable natural resources.	Coordinate with the project's objectives (output 1.1/1.2/1.3) for generating and disseminating information to provide knowledge about eco-systems and also a scientific base for planning the use and preservation of natural resources for implementing SLM in the target areas of the project that are studied by this Institution	Participation in specific intervention sites. Information providers. Participation in the monitoring and evaluation of project outcomes.
<i>Centre for Research and Transfer of Jujuy (CIT Jujuy)</i>	The research and transfer topics of CIT Jujuy focus on food (Andean crops, tropical fruit, camelid meat, honey and vegetables). These research areas include social and economic problems related to the Northwestern Region (NOA), specifically addressing issues in Jujuy Province.	Coordinate with the project for the application and validation of specific knowledge and technologies on SLM in the project's target area covered by this Institution.	Participation in specific intervention sites. Information providers. Participation in the monitoring and evaluation of project outcomes.
Universities			

Main Stakeholders	Relationship with SLM and Integrated Natural Resource Management (INRM)	Interest in the Project	Role within the Project
<i>Provincial Universities. School of Agricultural Sciences</i>	In the provinces targeted by the project there are Universities and several Schools within, that carry out research on, for instance, the spatial distribution of vicunas, identifying areas for their preservation and management; the production of bio-fertilizers and organic manure at family farms in Jujuy, among others. Likewise, some of them have been linked to projects for assessing land degradation and identifying SLM practices. They have different Institutes working on the topic proposed by the project.	Coordinate with the project for reinforcing the outcomes to be obtained by the project, through research and extension activities, based on the experience these institutions have in this field,	Participation in specific intervention sites. Information providers. Participation in the monitoring and evaluation of project outcomes.
<i>Civil Society Organizations</i>			
<i>Civil Society Organizations (CSO)</i>	Institutional strengthening, training, technical cooperation, assistance for accessing different programmes related to sustainable development, among others. Promoting improvement in the living standards and environmentally-sustainable production activities.	Coordinate among organizations that have a proactive attitude with regard to the development and implementation of SLM practices in local communities. Institutional strengthening and participation in the project to improve productive activities that include SLM and INRM components.	Participation in specific intervention sites. Participation in multi-sectoral committees tasked with replication.

Annex 8: Institutional Context and Provincial Capacities for SLM

Introduction

The Argentine Republic is a federal country which entails that “*the provinces own the natural resources in their territories*” (National Constitution, Article 124) and “*the National Government issues standards on the minimum levels of environmental protection, without altering local jurisdictions, although the provinces are in charge of supplementing such standards*” (National Constitution, article 41). Within this context, the minimum protection levels for the environments were provided for in laws, structured basically on the basis of General Environment Law No. 25,675, which establishes uniformity in the matter for the whole of the country.

The Environment and Sustainable Development Secretariat (SAyDS) is the responsible authority at the national level for environmental matters. The Under-Secretariat for Planning and Environmental Policies includes the Directorate for Soil Conservation and the Fight against Desertification (DCSyLCD), which is the National Focal Point for the UN Convention to Combat Desertification and Drought, and is the key element for fostering SLM practices. In each provincial jurisdiction, following the guidelines of the National Constitution and provincial constitutions, the environmental topics and those related to natural resource management are the responsibility of the areas created for this purpose under different names in each province. Nonetheless, it must be highlighted that several actors usually harness the soil according to the administrative structure in each province, or even in a single province, pursuant to the institutional changes occurring throughout time. Another approach to the use of soil in these arid regions is provided by the administrative units in charge of irrigation (Water Secretariats, Directorates, or institutes). Furthermore, according to the production line of the ministries/secretariats of “*agriculture and livestock*” or “*production*” (as per the name adopted in each province), each has intervention plans and programmes.

SAyDS / DCSyLCD promotes and fosters strategies to combat desertification, coordinating institutions and social actors, through the National Plan of Action to Combat Desertification (NAP), within the framework of Law 24,701, ratifying the UN Convention to Combat Desertification. It has also coordinated and still coordinates land degradation and desertification projects such as “Degradation of land in arid zones – LADA”; “Sustainable Management of arid and semi-arid ecosystems to control desertification in Patagonia – GEF”; “Regional thematic network of desertification reference points and indicators in Latin America and the Caribbean”. TPN 1; Sub-regional action programme for the Gran Chaco Americano GEF; Project on Sustainable Forest Management in the Transborder Ecosystem of the Gran Chaco Americano; Sub-regional Action Programme for the Gran Chaco Americano GEF; Increase in climate resilience and improvement of sustainable soil management in the southwest of Buenos Aires Province - Argentina (Adaptation Fund). Moreover, the office was also responsible for implementing the project “Strategic Financial Partnerships to consolidate the Argentina NAP”. At present, it presides over the National Observatory on Land Degradation and Desertification (ONDTyD).

ONDTyD is an inter-institutional network that coordinates activities carried out in the field of evaluation and monitoring of desertification by several science and technology, research and academic institutions in the country. ONDTyD aims at coordinating the management of land degradation and desertification in the country, addressing the problem from a scientific standpoint, and works on optimizing processes and facilitating the construction of new notions for prevention, control, adaptation, and restoration of the environments. Likewise, it provides a current framework of institutional sustainability which will allow the continuity of activities carried out within the project once it has been completed.

Within the framework of ONDTyD, the Federal SAyDS coordinates with provincial governments and the national intervention strata, such as the Ministry of Agriculture, Livestock and Fisheries (MAGyP), the National Institute for Agricultural Technology (INTA), and the National Council for Scientific and

Technical Research (CONICET), the School of Agronomy, Buenos Aires University (FAUBA), and the Center for Surveying Agricultural and Natural Resources (CREAN) – University of Cordoba, and Regional CONICET Centres such as the Argentine Institute for Research in Arid Zones (IADIZA), the Regional Centre for Scientific Research and Technological Transfer, La Rioja (CRILAR), and the National Commission for Space-related Activities (CONAE), and with the Environmental Management Secretariat, Provincial Directorate for Sustainable Development, Jujuy province, among others.

The eight provinces comprised by the Project (Jujuy, Salta, Catamarca, Tucumán, La Rioja, San Juan, San Luis, and Mendoza), are the second block of the poorest provinces in Argentina and this condition is reflected in their management structures regarding the composition and unfavourable ratio between general services staff and professionals, as well as the possibility of taking on more staff. Nonetheless, in the last ten years, the increase in the local university offer has given rise to a greater supply of professionals with specific training in accordance with local realities, thus bringing about a greater number of practitioners willing to join the public administration.

Summary

Both at the national and provincial levels, the capacities to address soil management are spread out in different administrative areas within the structure of different ministries. Overall the ordinary situation reflects that in *the environmental areas* there is a responsibility for natural resource conservation and, among these, that of the soil. However, the responsibility for generating economic development activities based on this resource lies in the hands of the *Ministries or Secretariats of agriculture and livestock or production*, according to the names used in each jurisdiction. Capacities for *extension and outreach practices* are also distributed among specific agencies such as INTA, the sector-based programmes, the different management areas of each provincial government, and the water authorities and/or irrigation consortia. The possibilities of accessing funds applicable to soil management by farmers are linked to sector-based programmes, and there is the potential for the smaller farmers to access funds through Social Development areas (coordinated by local CSO) of the national and provincial governments, which are not yet available, because SLM is not among their objectives.

The **environmental areas of the eight provinces** targeted by the project have limited human resources (21 people for eight provinces) with little training for preventing land degradation and for implementing and controlling SLM, since from the time of their setting up they have addressed processes linked to pollution, waste and creation of natural protected areas.

In order to manage GIS, the governments of all eight provinces have 15 people trained for entering data and managing databases under GIS formats, which they consider is insufficient for mainstreaming land degradation and SLM, with 25 people trained for field surveying (Geo-positioning).

However, the number of staff necessary to meet the demands of land degradation and SLM implementation activities increase considerably when taking into account the necessary staff available in the agriculture and livestock areas of the provincial governments where the staff available is three-fold. Furthermore, sector-based programmes provide technical staff with specific training and field experience (e.g. PROSAP, and family agriculture in each province) for the implementation of their practices, for becoming a part of the planning of multi-sectoral committees, and for extension, thus resulting in key stakeholders for replicating practices beyond AGIs.

Geographic Information Systems (GIS) are available in other areas of the provincial governments with the same amount of staff or even more staff than in the environmental areas, and these can be found at the ministries/secretariats of agriculture and livestock and at the provincial statistics directorates. Furthermore, in four of the eight provinces there are special units for managing information through GIS systems, within the structures of Spatial Data Infrastructure (SDI).

Current situation:

Land Degradation and SLM

Although all **environmental units in the provinces** have practitioners, technical and administrative staff to perform at least the operational functions, there are no management structures devoted to preventing land degradation and supporting SLM. This situation brings about a certain scarcity of human, material and budgetary resources. However, there is the possibility of relocating staff in other areas, or else of working in coordination with other provincial units such as ministries/secretariats of agriculture and livestock, production or water resources. There are a limited number of specialized human resources – practitioners and technicians- (21) with specific knowledge on land degradation and desertification. There is no specific information available on their level of education and training. Staff related to land degradation and SLM in the environmental units of the provincial governments, have a type of contract / bond with the provincial State which is either that of “Permanent Staff” or “Hired Staff”. They do not work full time and share their time with other activities inherent in environmental conservation, pollution prevention, and natural protected areas. There is no staff rendering land degradation prevention services and implementation of SLM under a temporary project. The environmental unit staff of the provincial governments carries out field activities only from time to time since there are currently no scheduled activities on land degradation or SLM.

According to their activities, the staff assigned to SLM and land degradation of the eight provinces could in the future receive incentives such as a) receiving local, regional or national training; b) participating in regional or national workshops for exchanges/updates; and c) interacting with other Provincial Government areas to create fora for information analysis.

None of the eight provinces have allocated budget funds to their environmental units for their allotment to land degradation and SLM.

The availability of material inputs (facilities, regional offices and vehicles) are appropriate for the current level of activities but will be limited should permanent field activities be carried out in the different provincial departments, if they do not coordinate with the other areas of the provincial governments (agriculture and livestock, or water resources) that have adequate mobility (4x4s) equipped for the environments and distances to be travelled.

Clearly, environmental authorities of the Provincial Governments find it difficult to identify areas suffering land degradation (LD) or sensitive to land degradation, and the stakeholders (from the public and private sectors) in the field of LD and SLM, as well as the implementation cost of the practices. Therefore, so far there is due willingness but no negotiation formats have been developed for exchanges, updates and/or for making information available to other areas of the provincial government, national agencies, research centres and/or universities for SLM and LD prevention.

All of the eight environmental authorities agree on the fact that they have insufficient human resources for assessing land degradation and for SLM. Furthermore, staff does not work full time on the matter because they alternate it with other activities in the organization. Only in Catamarca and San Luis provinces is staff trained or participates in training/update events in some SLM technique at least once a year. Provincial governments overall lack capabilities and practical experience in SLM for planning land use, and they do not have full capacity to mainstream SLM into their programmes. In many cases, knowledge of these technologies is scarce and provincial governments do not have a strategy to identify these technologies and/or relate to the research and local production sectors so as to generate actions to mitigate the effects of land degradation and, in turn, are productive and environmentally sustainable.

Other areas such as the **ministries/secretariats of agriculture and livestock or production** that have some sort of participation with regard to the “land” resource address the topic from sector-based approaches, and thereby focus on improvement in productive and socio-economic indicators. Different is the case of water resource management which applies the approach of “provision of irrigation services” without any special considerations to preventing land degradation or implementing SLM, and that has staff available for field tasks as well as for work under the GIS systems. Agriculture and livestock in the eight provinces have a total number of 20 (twenty) technicians working in sector-based activities related directly or indirectly to common topics of land degradation or SLM. There is no information on the level of education or training.

As regards **water resources**, the situation varies since in most provinces available staff is devoted to water management tasks while there are few technicians working on extension (a total of 12). However, due to their territorial distribution and direct contact with farmers, they are an important outreach and/or extension tool. There is no information available on their level of education. The training programmes on the proper use of water have been linked to intervention projects, such as the Provincial Farming Services Programme – PROSAP- which has been carrying out training activities to improve water management, with an average of seven extensionists per province in seven provinces (Mendoza, San Juan, La Rioja, Jujuy, Salta, Tucumán and Catamarca) in the last five years, for limited periods, and having foreseen similar activities during project implementation.

Other intervention programmes have provided human resources for training and extension as in the case of the Programme for Integrating Small Wine-making Producers – PROVIAR – which provided 164 agricultural engineers to assist 173 groups of producers (3,023 small wine producers). In 2014 the programme is starting its second phase.

The Programme for Inclusive Rural Development – PRODERI – that commenced its activities in 2013 is a continuation of the actions carried out by the Rural Development Project of the Northwestern Provinces – PRODERNOA – that during its implementation had eight permanent technicians and 15 field technicians on average for each provincial executing unit, with a total of 69 technicians hired by Catamarca, La Rioja and Tucuman. On the other hand, PROSAP has also provided significant training related to other activities besides that of irrigation mentioned above, such as the bovine cluster of Mendoza, the Walnut Cluster of La Rioja, the Dairy Cluster of Tucuman, and the Regional Development Initiatives (RDI) of the Albigasta region (made up of the provinces of Catamarca, Cordoba, Santiago del Estero and Tucumán, focusing on cattle and goats) and the RDI of the Valle Calchaquí region (comprising the provincial departments of Santa María and Belén in Catamarca Province, Tafí del Valle in Tucuman Province, and Cafayate, San Carlos, Molinos, Cachi and La Poma in Salta Province) related to livestock activities (sheep, goats and camelids), agriculture (grapes, peppers, aromatic plants, horticulture, medicinal plants and Andean crops).

For **research and extension** on the problem encompassing land degradation and SLM, INTA and CONICET provide important territorial coverage in NOA and Cuyo. **INTA** provides assistance to small farmers through two *Research and Technology Development Centres for Small Family Farms* (CIPAF) and their *Research and Technology Development Institutes for Small Family Farms* (IPAF), one for each region. Furthermore, INTA has regional centres in the area such as in Mendoza-San Juan”; “Catamarca-La Rioja”; “Salta-Jujuy”; “Tucumán-Santiago del Estero” and “La Pampa-San Luis” in the project’s area of coverage.

Five (5) Agricultural Extension Stations (EEA in the Spanish acronym) operate under the “Mendoza-San Juan” Regional Centre (RC) with 21 (twenty-one) Rural Extension Agencies (AER in the Spanish acronym); under the “Catamarca-La Rioja” RC there are 3 (three) EEA with 16 AER; in “Salta-Jujuy” 3

(three) EEA with 16 AER; under the “Tucumán-Santiago del Estero” RC 1 (one) EEA with 12 (twelve) AER; and under the “La Pampa-San Luis” RC, 1 (one) EEA with 7 (seven) AER, in the project’s target provinces, totaling 13 (thirteen) EEA for eight provinces, and 62 (sixty-two) AER, which amounts to over one hundred technicians distributed across the eight provinces, either directly or indirectly related to SLM. The provincial agencies have their own vehicles.

In the project’s area, **CONICET** has the Argentine Institute for Research in Arid Areas (IADIZA), and the Argentine Institute of Snow, Glaciers and Environmental Sciences (IANIGLA), both of them in Mendoza, and the Regional Centre for Scientific Research and Technology Transfer of Anillaco, La Rioja (CRILAR) and another 6 (six) transfer of technology centres in the provinces of Mendoza, Jujuy, Salta, Tucuman, Catamarca and San Luis, which act in association with local national universities (National Universities of La Rioja, Cuyo, Catamarca, Tucuman and Jujuy).

The **Family Agriculture Programme** of the Federal MAGyP has technicians in each of the eight provinces with a total, permanent presence of 20 (twenty) technicians, a number which can be increased by coordinating with other sector-based programmes and/or temporary hires. All provincial offices have their own vehicles.

Geographic Information Systems (GIS)

In all of the eight provinces covered by the project’s three eco-regions, the environment sectors have jurisdiction over GIS, and have hardware and software allowing them to process information in their own management units.

The provinces have a Digitized Map including the Rural Cadastre but all agree that they are outdated. The Cadastres as well as the relevant information for SLM are presented at different scales ranging from 1:20.000 to 1:100.000. In all cases, the Environment Sector interacts with the provincial Cadastre Unit at different levels of formality, through physical access and unintegrated remote access.

In all eight provinces there is agreement that the application of GIS is more related to native forests, to natural resource management and to pollution-related issues. Environmental authorities do not have access to land degradation information and come across difficulties to identify areas facing LD problems or are at a risk of facing them, in livestock and/or agricultural activities. Native forests, however, have been monitored and surveyed on several occasions in the last few years as a result of the development of the First National Inventory of Native Forests (2002-2005), and then as a result of the enactment of the National Law on Minimum Standards of Environmental Protection for the enrichment, restoration, conservation, harnessing and sustainable management of native forests³¹ (2007-2011).

The latter resulted in an opportunity for provincial environment authorities to include in their staffing table specific personnel with knowledge on SIG, while acquiring the necessary IT tools. Consequently, at present 21 of the 23 Argentine Provinces have Native Forest Territorial Zoning (OTBN by the Spanish acronym), 20 of them have it approved by their respective provincial laws, among which are the provinces covered by the project. The only peculiarity is La Rioja that suffered a partial veto after its enactment by the Provincial Executive Branch. This updated OTBN, with its pertinent support in GIS, allows them to access the National Fund for Native Forest Enrichment and Preservation.

Digital information on the use of land (for agriculture and livestock production) is available to the provincial authorities of the dryland provinces in the target eco-regions but is updated differently, and is spread out among different directorates (e.g. agriculture, forestry, livestock, statistics and censuses, water resources) in each provincial government and/or among scientific and technological institutions (CONICET, INTA), that compile, analyze and process that information for themselves and for the

³¹ National law 26,331 enacted on 28 November 2007

provincial governments. This information is structured on a territorial basis but not on the basis of management or application of soil conservation techniques, and has not been used for planning land use or as an SLM monitoring instrument.

INTA has several GIS that it integrates into “layers” according to the information generated on the different farms by its *National Institutes or Programmes*. Several of them are useful for land degradation and SLM, just like those related to Biodiversity; homogeneous agro-ecological and/or agro-economic regions, that compile and systematize space information of the main dynamics variables in the long-term (bio-physical, socio-economic and political-institutional), characterize the territory and are required by researchers and decision-makers for territorial planning and environmental management. It has updated information developed by trained staff, and of homogeneous characteristics for the area covered by the project. Likewise, the INTA information system on *Climate and Water* generates information through monthly maps on *Rainfall* and the *Green Index*. They provide the status of vegetation and its evolution throughout time, through MODIS sensors of the NASA Terra satellite. The *Centre of Technology Research and Development for Small Family Farms* (CIPAF) and its *Institute of Technology Research and Development for Small Family Farms* (IPAF), under INTA, have information of a national coverage, focused on small farmers, organized by regions of interest for this project (NOA, and Cuyo).

The Integrated System for Agriculture-related Information³² (SIIA) is a national project within the Provincial Programme of Agricultural Services (PROSAP). The project is funded by the Inter-American Development Bank (IDB) and the federal budget. Its main purpose is to survey, process, disseminate and analyze information, based on the consolidation of technical infrastructure, the availability of homogeneous and certified IT systems, and the adoption of GIS. This coordination is carried out by the “Directorate on Agriculture and Forest-related Information”, Federal Ministry of Agriculture, Livestock and Fisheries of Argentina that has a network of 42 (forty-two) delegations across the country.

CONICET, through its Laboratory on Desertification and Territorial Zoning (LADyOT) located at IADIZA, Mendoza Province, has the necessary infrastructure and equipment to carry out field work and implement the GIS DESER (Desertification-related GIS) with the purpose of providing support to research work, training of human resources, technical assistance and investment project management. GIS-DESER links field and laboratory work, using new digital technologies such as the Processing of Satellite Images from different remote sensors and Geographic Information Systems. It addresses the comprehensive evaluation of desertification processes focused on complex systems, which allows an understanding of the wealth of relationships between physical-biological conditioning factors (processes related to climate, water, relief, soil, biota) and the demands and responses of the human groups (socio-economic, institutional and cultural factors and processes). These outcomes are obtained by linking specific research on desertification, geomorphology, environmental history and use of natural and cultural resources, with regional planning, territorial zoning and management, particularly emphasizing the obtainment of desertification indicators and points of reference.

The *Centre for Surveying and Evaluating Agricultural and Natural Resources* (CREAN) is also placed within the structure of CONICET, and made up of teachers and administrative staff from Cordoba National University. Among its main activities are the “monitoring of drought”, which allows keeping the public sector and farmers informed on the drought conditions in the country’s central region. This is carried out jointly with professionals from the Secretariat for the Environment and Sustainable Development and the National Weather Service, with data from the National Weather Service. For its research it uses and develops the Standardized Rainfall Index (SRI); the Palmer Drought Index (PDI) and

³² <http://old.siiia.gov.ar/>

the Crop Moisture Index (CMI). Furthermore, CREAN has participated and is a part of the monitoring group for the project LADA Argentina.

The governments of the eight provinces targeted by the project have staff and equipment to develop GIS so as to monitor the status of land degradation and SLM (25 people assigned to field surveys, geo-positioning; and 13 people entering data and managing the database). In four of these provinces (Catamarca, Jujuy, Mendoza and Tucuman), Spatial Data Infrastructure (SDI) systems are implemented at different levels. The existence of an SDI linking nodes at the national and provincial levels guarantees the availability and incorporation of data easily accessible for monitoring, replicability of actions, and Integrated Natural Resource Management. These four provincial SDI have joined IDERA³³ and all what it means for training human resources, particularly in the use and migration of information towards free software.

All environment sectors in all eight provinces believe that the currently available human resources are scarce to - on their own- be able to meet the requirements for monitoring the status of land degradation (LD) and applying SLM within a Provincial Environment GIS (field work, database management related to graphic outputs) to allow planning, the evaluation of the LD status and monitoring of the SLM application. Available staff only works part-time on this because it carries out other tasks pertaining to their jobs. Furthermore, there are no formal links for accessing and coordinating relevant information with other provincial government areas (cadastre, water resources, livestock, etc). In six provinces, they have a permanent staffing table, while in two provinces staff is hired (temporary staff) and in another two provinces staff is stable in its job but hired too. Two of them also have staff hired by sectoral projects to carry out environment GIS tasks in their projects. In five out of the eight provinces, staff is trained or participates in training/update meetings at least once a year. In all eight cases field survey tasks are done randomly and do not comply with an M&E methodology. Anyhow, for the management and maintenance of GIS systems and the pertinent databases, four out of the eight provinces allocate staff to such tasks on a permanent basis. In five of the eight provinces staff assigned to environmental GIS participates in workshops to be trained through exchanges/updates, and/or to interact with other Provincial Government areas. Only the environmental GIS of Tucuman Province has funds allocated in its budget to guarantee these activities. In none of the eight provinces is there a (formal or informal) committee, panel or any other sort of organization to analyze periodically or when faced with a crisis, the data surveyed and stored on land degradation and SLM.

Both the National Biodiversity Observatory (OBIO), which is part of the National Geographic Institute, and the National Observatory on Land Degradation and Desertification, generate available information on the web for all users and stakeholders, through geo-referenced data with graphic outputs (GIS).

At SAYDS, GIS technology is included in several programmes and projects as, for instance, in the Native Forest Directorate, National Plan for Fire Management, Working Group on Water Resources, Territorial Zoning Directorate and the Federal System of Protected Areas (SIFAP).

Scarcity of agro-climate and productive information, and the weakness as to its availability caused by the dispersion and lack of compatibility because of the scales or forecasts, type of information cluster, etc. impedes an appropriate coordination of information for proper decision-making in productive sectors and provincial governments as regards insurance and financial instruments. As a basis for access to that information, the following sources of information and/or possibilities of integration into the system proposed by this project are identified (although some do not currently have information on the NOA and Cuyo regions but have the potential and the relative importance required): (i) Climate and Water

³³ Spatial data infrastructure of the Argentine Republic

Institute³⁴, INTA: (ii) Office of Agricultural Risk - ORA³⁵-, Ministry of Agriculture, Livestock and Fisheries; (iii) Provincial Water Administrations that have proprietary weather information (e.g. Provincial Water Institute, La Rioja - IPALaR³⁶).

In order to create Nodes at the provincial level there are important initiatives in 50% of the cases that already have SDI at different levels of progress. In all cases, it is necessary to adjust IT equipment and train staff for field and desktop activities related to GIS and SDI in the provinces, bringing into such methodology, the technicians from the institutions identified as key players (INTA, CONICET, and relevant sector-based programmes).

At the national level, integration into nodes has promissory precedents as in the case of SAYDS which integrates the “*National Environment Information System*”³⁷ –SIAN (created in 1998 and currently being updated and integrated into the Argentmap³⁸ services, National Geographic Institute), as well as the ONDTyD³⁹ and OBIO⁴⁰ observatories. Other sites integrating information are INTA and IDERA⁴¹.

³⁴ <http://inta.gob.ar/unidades/212000>

³⁵ <http://www.ora.gov.ar/>

³⁶ <http://seedclima.com.ar/ipalar/>

³⁷ It is a federal system, currently comprising 24 nodes representing government agencies in each province and at the national level (Secretariat for the Environment and Sustainable Development) and six nodes including other institutions related to environmental topics. <http://www.ambiente.gov.ar/?idseccion=55>

³⁸ <http://www.ign.gob.ar/argenmap/>

³⁹ <http://www.desertificacion.gob.ar/>

⁴⁰ <http://obio.bigtree.com.ar/>

⁴¹ <http://www.idera.gob.ar/portal/>

Annex 9: Project Monitoring Plan

Project monitoring will be carried out following UNDP/GEF procedures (see PART VI: MONITORING AND EVALUATION). Progress on these indicators will be reported annually in the Project Implementation Reviews (PIRs). In some cases, no change on impact indicators will be seen from year to year and therefore, progress will also be measured in each AOP using intermediate process indicators. This forms part of the annual planning and monitoring processes and will be carried out by the Project Technical Coordinator with the support of the ecoregional consultants.

The indicators included in the Strategic Results Framework and in the tracking tools will be monitored using different methodologies. Some of these methodologies will be defined within the context of the National Observatory on Land Degradation and Desertification (ONDTyD). This Observatory was created in 2010 to contribute to the evaluation, monitoring and mitigation of land degradation and desertification. Its main objective is to provide information on the state, tendencies and risk of LD and desertification in order to promote prevention, control and mitigation measures. It is based on the systematization of information related to LD and desertification and makes use of a system of indicators for temporal and spatial monitoring. National indicators for the measurement of LD and desertification are being developed by the Observatory in 2014, and the methodologies to measure these will be adopted by the project to ensure consistency. The indicators to be measured through the Observatory will include various indicators included in the tracking tools to measure global benefits, such as soil erosion, crop productivity, vegetation cover and irrigation flow-land area.

Key Performance Indicator	Target (Year 5)	Sampling frequency	Significance	Methodologies
Objective level				
Area (in ha) in which SLM measures are being applied in the three target dryland ecoregions in NOA and Cuyo.	1,480,000 ha (Puna: 450,000 ha; Dry Valleys Scrub: 750,000 ha Plains and Plateaus Scrub: 280,000 ha)	Start of project; mid term and end	Indicates contribution to GEF-5 targets of hectares under SLM	Through the project's provincial focal points, information will be obtained from relevant institutions and programs, including, INTA/IPAF, Family Agriculture and PROSAP.
% of area with bare ground in 3 provinces	5% reduction	Start of project and then annually	Indicates impact of SLM practices on land degradation Also project impact on vegetation levels, which may be associated with biodiversity and climate change benefits.	This will be measured through the National Observatory on Land Degradation and Desertification.
% of producers associated with agriculture/ livestock organisations that support SLM (NGOS; Cooperatives etc)	Increase of at least one rank in the 8 provinces	Start; and end of project	Indicates project impact on social inclusion, which can facilitate promotion of SLM and eventually result in LD reduction	Ranking values for the baseline were determined based on data at the provincial level. A survey/interviews will be carried out within the first 3 months of project outset.

Key Performance Indicator	Target (Year 5)	Sampling frequency	Significance	Methodologies
Increase in equitable access to water as measured by % of small farms that access surface water for irrigation (with or without pumping)	% small farmers with access to water and targets to be defined in first semester for each AGI	Start; and end of project	Indicates project impact on land degradation and socio-economic factors	The current baseline data are based on all sizes of landholdings. A survey/interviews will be carried out with small farmers within the first 3 months of project outset to disaggregate the data and determine the % of small farmers with access to water. A follow-up survey will be carried out at project closure.
% of population with Unmet Basic needs compared to the national average (NatAv)	Increase of at least one rank in 6 of the 8 provinces	Start; and end of project	Indicates project's socio-economic impact, sustainability of project impacts and replicability potential	Unmet Basic Needs refers to the inability to provide for one's own and one's dependents food, clothing, housing and health care because of insufficient income and/or resources. This will be measured through a survey/interviews within the first 3 months of project outset and at project closure.
Outcome 1:				
Number of families implementing any of the SLM practices.	5000 families	Start; mid and end	Indicates project impact on land degradation	Through the project's provincial focal points, information will be obtained from relevant institutions and programs, including, INTA/IPAF, Family Agriculture and PROSAP.
Level of cross-sectoral coordination capacity for promotion of SLM and INRM as measured by Question 3.1 on the LD Tracking Tool.	At least 3 points obtained	Start; mid and end	Indicates institutional and program support for SLM implementation	The Project Execution Unit will apply the Tracking Tool at project initiation, mid-way point and closure in consultation with relevant stakeholders. This will be informed by an analysis of the minutes of the multi-stakeholder committee meetings.
Funding in US \$ allocated through revolving funds, microcredit programs and/or other financial mechanisms to facilitate SLM and INRM.	\$ 10 million	Start and annually from year 3	Indicates financial resources available for SLM implementation	Assessment of reports from CONAMI on the distribution of RF and MC as well as reports of the provincial focal points, the Project Execution Unit and the multi-sectoral committees.
Outcome 2:				
Level of replication of SLM practices in drylands of the three target ecoregions of the project	At least 20% of farm households in hotspots and high risk areas of 75 % NW	Start and annually	Indicates level of project impact at scales required to reduce land degradation trends	Through the project's provincial focal points, information will be obtained from relevant institutions and programs, including, INTA/IPAF, Family Agriculture and PROSAP. In

Key Performance Indicator	Target (Year 5)	Sampling frequency	Significance	Methodologies
	dryland provinces, replicate best SLM and IEM practices			addition, the level of replication will be measured through satellite images and interviews. The population will be stratified and representative samples of each strata will be interviewed. This will enable the level of replication from the SEIs to the rest of the hotspots within the AGIs to be determined (the area for replication therefore corresponds to an area smaller than the total area of the AGIs). The project team will assess at project outset whether additional methodologies will be required to assess the level of replication.
Area monitored for implementation of SLM, through provincial GIS systems that are linked to the national node	1,480,000 ha (Puna: 450,000 ha; Dry Valleys Scrub: 750,000 ha Plains and Plateaus Scrub: 280,000 ha)	Start and annually	Facilitates project impact monitoring as well as post-project monitoring of SLM implementation	Reports from the GIS systems of the provincial governments and the Observatory. The application of the SLM protocols will be measured through methodologies to be developed by the project's ecoregional coordinators, provincial focal points and key informants.
Percentage of staff in the environmental, production (agriculture and livestock management) and water management sectors working on LD issues that have been trained on SLM at the provincial level	100% of staff trained on SLM and employ the SLM guides and protocols	Annually	Indicates institutional capacity for SLM promotion	Project reports and reports of provincial focal points.
Number of Provincial Action Programs developed and beginning to be implemented.	At least 3 additional provinces have developed PAPs and are beginning to implement them (Catamarca, Mendoza and Jujuy)	Start ; mid and end	Indicates positive change in policy, strengthens local applications of NAP, and provides a framework for replication	Published PAPs Reports of the multi-sectoral committees on activities related to PAP implementation and reports of the Project Execution Unit.
Number of baseline	At least 2	Start and	Indicates change of	Review of operational manual

Key Performance Indicator	Target (Year 5)	Sampling frequency	Significance	Methodologies
programs that integrate SLM and INRM criteria and apply them in the field.	baseline programs incorporate criteria in operational manuals	annually	awareness in production sectors and potential for upscaling SLM over time through greater promotion of SLM and increased financial investments in SLM- hence mid to long term effects on LD	criteria and reports of the provincial focal points.

Annex 10: Summary and Analysis of Financial Instruments

The implementation of Sustainable Land Management (SLM) has barriers that must be overcome to obtain the economic, social and environmental benefits regarding the proper management of natural resources. Barriers may be institutional, technical, legal, cultural, political, or financial. The following main barriers were identified.

- Weakness of regulatory framework for implementing SLM.
- Lack of coordination and institutional fragmentation in planning, implementing and executing actions.
- Weakness of institutional capacities, regarding physical and human resources.
- Scarce or inexistent financial resources for specifically implementing SLM

Therefore, the strategy for fund allocation should be integrated into the different pillars that help to prevent LD so as to overcome the above-described barriers, by implementing and adopting Sustainable Land Management (SLM) practices, strengthening the institutional and legal framework so as to mainstream SLM in sector-based policies and programmes and in provincial and national budgets, trying to apply differentiated funding strategies.

Just like farmers in the rest of the country, they find their sources of funding in commercial loans from input suppliers, in self-financing through personal savings, and in sector-based programmes offered by the national or provincial governments. They do not resort to banks mainly because of the problems for demonstrating solvency and the few assets available in the way of guarantees.

The socio-economic composition of NOA and Cuyo farmers is prone to generating actions with a high impact on the eco-system, a situation that speaks to the need for considering incentives for adopting SLM, particularly as regards short-term practices. To that effect, certain funding sources and/or stimuli to the agricultural sector should consider the adoption of SLM and/or INRM in their goals and objectives' requirements, so that farmers gradually include them in their practices.

Identification of funding sources and modalities

In Argentina there are no precedents as regards specific funding proposals to avoid Land Degradation and encourage the adoption of SLM. Sector-based programmes make a great effort in fostering the best productive or social improvements among the target population and consider overall environmental aspects which are brought into different analyses such as the *Environmental Assessments* (PROINDER) or the preparation of *Social and Environmental Management Frameworks* (PROSAP) as a conditioning factor to access funds. These situations did not provide a clear outlook to help guide farmers, or governments in implementing SLM. Within this context, there is a clear guide towards a "*Proposal to Design an Integrated Regional Financial Strategy: Modalities and Actions to increase the flow of Financial Resources for implementing the UNCCD in Latin America and the Caribbean*", prepared by the Global Mechanism of the United Nations Convention to Combat Desertification, stating that for outlining an Integrated Regional Financial Strategy (IRFS) concerning the issue of soil degradation, three stages can be identified:

1. *Severe deterioration that is difficult to reverse.* This is the case of substantial damage entailing low economic returns, but that could be improved and become more profitable although at a risk of not being sustainable.
2. *Substantive damages with low economic returns,* but that can be improved. Public investments would have to include infrastructure works that allow the recovery of degraded soil and improve

water availability.

3. *Economically profitable*, but at the risk of not being sustainable. Public resources must prioritize education, technical assistance and awareness-raising among farmers so that they develop degradation prevention strategies.

For that purpose, it is necessary to identify funding sources and modalities. Public and private investment is funded under different conditions, according to the nature of the requirements and the benefits. Among the alternatives are public budget funds, stemming from mining resource royalties, external public indebtedness, donations by bilateral cooperation agencies, grants, bank loans, reinvestment of tax exemptions linked to climate change such as the Clean Development Mechanism (CDM), or voluntary funds offering opportunities to invest in SLM.

a) Bank funding sources

An analysis was carried out of the different bank financing sources, including national banks, private and public, that have lines of credit and other financial products for the farming sector. Nine financial entities were identified for the project's target area.

The only private financial institution of a cooperative type that was identified is the Banco Credicoop, with branches in San Juan, San Luis, Jujuy, Salta and Mendoza. It has two kinds of funding lines: productive investment, including loans for investments related to farming, infrastructure, procurement of fixed assets and working capital, agriculture and livestock production, and leasing of goods with an option to purchase them. The other eight banks (Banco Francés, Banco Galicia, Banco Hipotecario, Banco ICBC, Banco Macro, Banco Patagonia, Banco Santander Río, Banco de la Nación Argentina), have similar funding mechanisms to those of the cooperative-type bank and, in some cases, they also have funds for the development, creation and consolidation of micro-undertakings. Among the potential uses of these loans are the enlargement and/or improvement of facilities, purchase of fixed assets and obtaining the necessary working capital, setting up of pastures, grazing land, forage reserves and cattle retention systems; purchase of cattle for intensive paddock fattening; funding of manpower and sowing expenses; purchase of systems of irrigation, electrification and protection against hailstone. Banco Credicoop, however, in view of its cooperative nature and unlike other institutions, is the only one that does not only assess its partners/customers according to their financial and repayment capacity, capitalization and real guarantees but also by the use and productivity of their projects. Nonetheless, and just like other loan institutions, they lack the mechanisms that consider the status of land degradation to which the funding will be applied, and the possibility of generating a negative impact as a result of the funded activity. At the national level, there are no rules or conditioning factors obliging banks to include this kind of requirement. On the other hand, access to loans is restricted to those "customers" that have a credit file at the institution and they must provide evidence of their financial and loan capacity, have assets they can offer as real guarantees, and in many cases offer a third party as guarantor.

b) Reciprocal guarantee funds or Mutual guarantee companies (MGC)

The system applies overall to stages of the productive process that generate value as regards industrialization or marketing, national or international.

Reciprocal guarantee funds are based on securitization obtained on a tangible asset and applicable to a productive activity which is the object of the guarantee to ensure repayment of funds since the guarantee is applicable to the process of generating value. This foresees the consideration of farmers who are strongly included in formal banking and trade systems, and incorporated in such a way that they have access to credit markets known to the ordinary financial system.

The development of financial assets on less evolved constructions in the value chain has not been successful, save for a recent momentum to generate sustainability at the industrial or agro-exporting level. MGCs are still a funding tool that agricultural SMEs in the Northwest (NOA) and Cuyo find difficult to use. The Argentine experience in the matter has developed almost exclusively in other areas that include grain-related activities such as soybean.

c) Micro-loans and revolving funds

There are several mechanisms for accessing revolving funds and/or micro-loans, some related to national programmes and others to international funding sources such as IFAD, providing financial services to those economic units with less resources, generally of an informal nature, at a small scale and with no access to the formal banking system. For instance, *Impulso Argentino* (former FONCAP – Social Capital Fund), the purpose of which is to develop micro-loan programmes to enrich the social and productive fabric in the country through financing and technical assistance. The Ministry of Social Development (MSD) of the Argentine Government also has financial instruments such as the “Micro-Loan Institutions”. To that effect, it has a network of non-profits, government organizations and mixed ones that work in coordination with the “National Micro-Loan Commission” (CONAMI) (Law 26,117) with regard to technical and financial assistance for different undertakings. This Network has offices in the project’s target provinces (Catamarca-4-, Jujuy-20-, La Rioja-6-, Mendoza, Salta-7-, San Juan-2-, San Luis-5-, Tucuman-12-). They render assistance to productive undertakings, among others, that do not have real guarantees or do not meet the conditions to access traditional bank loans.

At the level of the Project’s participating provinces there are cooperatives or civil associations using micro-loans or revolving funds as a financial tool to promote family agriculture in their area. For instance, the *Asociación Civil Red Puna y Quebrada*, the objective of which is to improve livestock and agricultural production among peasants, through appropriate practices, allowing a sustainable management of natural resources and the development of artisan production using revolving funds. La *Cooperativa Agropecuaria y Artesanal Unión de la Quebrada de Humahuaca y Valles* that produces and trades its ancestral products as well as fruit and vegetables, and revalues old production techniques. The *Cooperativa Agropecuaria de Provisión, Transformación, Comercialización y Consumo Ibatín Ltda* brings together small sugar cane producers, and stands out for rendering services and funding to its members: semi-mechanized harvesting, fully mechanized, transport, inputs supply and marketing of the sugar produce. The organization *BE.PE. Bienaventurados los pobres*, promotes and manages revolving funds for family agriculture, and the *Asociación Civil Red de Valles de Altura* works on rural development matters.

Conclusions on funding sources and modalities

Although banks provide loans to the farming sector for production purposes, in no case were requirements identified for Sustainable Land Management and for avoiding land degradation as an incentive parameter with regard to the granting of the different lines of credit. The same happens with reciprocal guarantee funds and associations or cooperatives that provide micro-loans or revolving funds.

It is important to highlight that once the problem of land degradation has been identified as a contribution to outlining a Financial Strategy, the use of regulatory instruments and incentives is an important option, for inducing sustainable practices and for discouraging others. In this regard, an interesting policy framework could make recommendations and train the regulatory agency on loan policies of the financial and bank system, that is to say, the Central Bank of the Argentine Republic, on the adoption of practices including incentives for the implementation of SLM and the avoidance of land degradation.

Sector-based programmes

An analysis was carried out of programmes planned and funded as part of the national laws and sectoral investments at the federal and provincial levels that could be adapted to the project's objectives (adopt measures to avoid land degradation and/or provide incentives to farmers so that they meet SLM and/or INRM), to close a small gap, without altering their current implementation and that should be included in the FSP.

In the eight provinces included in the Project (Salta, Jujuy, Tucumán, La Rioja, Catamarca, San Juan, Mendoza and San Luis), sector-based programmes were identified in the fields of livestock, agriculture, forestry, water resources and wine-making, which are underway or have already been implemented. Further details on these programmes can be found in *Part IB: Baseline Programmes*. Resources assigned to the beneficiaries of these programmes consist of Grants (ANR), donations or inputs from bank loans, that is to say, those that entail public or private debt for the jurisdiction (provinces), with the resulting need for indebtedness-related legislation. The programmes include the following:

- Programme for Integrating Small Wine Producers - PROVIAR
- Project for Socio-economic Inclusion in Rural Areas - PISEAR
- Project for the Rural Development of Argentina's Northwestern Provinces - PRODERNOA-PRODERI
- Programme on Provincial Farming Services - PROSAP
- Programme in support of reinforcing economic integration and sustainable development in MERCOSUR - ECONORMAS

Conclusions on sector-based programmes

The little presence of land degradation on the public agenda leads to a lack of coordination of investments and a lack of efficiency in resource allocation, with a very low level of both. Thus SLM actions are scarce in quality and in management capacity, in the public and private sectors. Territorial intervention programmes allocate funds to farming and non-farming activities, generating jobs and income that bring about economic and social sustainability, without taking into account SLM or strong environmental criteria to reduce pressure on the land, in the conditions for the approval of funds or loans, since there is little information showing the economic benefits at plot level of better technological practices, management and investments for SLM.⁴² Within social and cultural considerations of sector-based programmes, the benefits for farmers were considered and the requirements programmes and projects request from beneficiaries are not included or considered incentives to avoid land degradation and/or incentives for SLM. There are no protocols including an SLM technique, to ensure the inclusion of environmental criteria in the process of approval for the allocation of loans and subsidies, although they have interesting approach tools (Environmental Assessments, Social and Environmental Management Frameworks) as in the case of PROSAP, PRODERI, and ECONORMAS. The mainstreaming of SLM in sector-based programmes allows a permanent supply of funding sources to rural farmers for the continuous use of SLM. .

2) Programmes planned and funded as part of the national laws.

With regard to programmes planned and funded as a part of national laws, it is worth highlighting Law 25,422 for the Recovery of Sheep Livestock – the Sheep law – which provides a financial mechanism for channeling national resources through grants (ANR in the Spanish acronym), and loans for small and medium-sized sheep farmers so as to implement sustainable livestock practices. Article 3 establishes the evaluation of pastures to determine the carrying capacity of the applicant's land as a pre-requisite for the

⁴² Reports can be found on research work carried out by CATIE in Central America www.catie.org

approval of financial resources, and it also requires the monitoring of natural grasslands throughout time, and determines the carrying capacity for the approval of loans, subsidies and incentives to livestock management activities, as a partial input to SLM practices.

The annual national budget for activities under this law is ARS 20 million (approximately 3.48 million dollars). In the provinces involved, there are low stocks of sheep and this activity is supplemented by others. Since the law provides contributions according to the provincial stock, it is not a significant source for the NOA and Cuyo regions.

Law 26,141 for the recovery, promotion and development of goat production – the Goat Law -, has the purpose of improving goat production capabilities, and the marketing thereof, through the use of practices framed within sustainable economic, social and natural resource criteria. It provides resources for improving infrastructure, management of grasslands to reduce the number of animals per area unit, and promote improvements in production (meat, fiber, milk and their byproducts). Focusing mainly on the Northwestern region, the “Goat Law” offers an opportunity to reduce overgrazing and, therefore, land degradation. Nonetheless, it has been designed from a purely sectoral standpoint and does not take into account other potential uses of the land, and neither have practices been adapted to the areas where land degradation calls for different practices and/or adjustments in animal stock. The Goat Law is of national scope and has a minimum annual budget of ARS 10 million (approximately USD 1.83 million per annum). The NOA and Cuyo regions account for over 35% of the national stock so they have the possibility of delivering over 50% of the national budget since there is a broad distribution of small farms that do not compete for these resources in other regions.

Law 26,331 on the “Territorial Zoning of Native Forests” (OTBN) sets forth minimum standards for the conservation, sustainable use, and management of native forests and ecosystem services. The law established a temporary moratorium regarding deforestation activities until the provinces prepared their territorial zoning plans for native forests and these were approved by SAYDS. It includes payments to private owners for the preservation of forests that have very high conservation values and must not be transformed, or those of an intermediate value for conservation as per the provisions of provincial laws. The intermediate value category for conservation allows land uses (sustainable use, tourism, scientific collection of information and research) but there is no specific guide on SLM in these areas, beyond the provisions of the forest management plans. Several projects are being outlined and implemented for productive agriculture and forest development, as well as rural development in which the fight against land degradation and a better supply and use of water is set forth explicitly but just like other initiatives that have included SLM in their objectives, these have no direct linkage to the NAP. The OTBN Law has an annual budget of around USD 80 million, and approximately USD 16 million has been estimated for the NOA and Cuyo regions, taking into account delivery levels in the region during the last four years.

Conclusions on programmes planned and funded as part of national laws

The funding of national programmes guaranteed by laws that commit a part of the national budget offer a special opportunity to address land degradation prevention and incentives for SLM implementation, while placing the topic on the public agenda of other state agencies (national and provincial) besides SAYDS. Except for the Sheep Law and Forest law, funds for national programmes are approved without a framework to ensure that investment is compatible with land sustainability, under the scheme proposed by LADA, although they do promote different environmental assessments not to generate a negative impact. Without an SLM framework, economic development packages cannot be targeted to specific, sustainable investments to avoid LD, or even worse, can bring about conditions that could worsen the situation.

Overall, as regards the latter, it can be stated that the above incentives are only marginally included in the Goat Law and are included in the Sheep Law and Native Forest Law.

3) Methodology for analyzing costs and budget for estimating the set of activities necessary for implementing financial mechanisms.

It is necessary to become aware of the costs imposed by LD and the benefits of the different SLM practices applied to the different production systems. To this effect, an analysis forum will be provided for the main land use systems (LUS), their “Gross Margins” (GM), and the benefits of applying SLM. Furthermore, the outcomes of the appraisal of the costs/benefits of the different SLM practices and production systems will become an essential input for establishing bonds with the financial agents of revolving funds (RF) and micro-loans (ML) to assist the farming sector in adjusting to SLM.

The strategy for fund allocation will be established according to the severity of land degradation (Severely Degraded Areas, Moderately Degraded Areas and Preserved Areas). Where LD is severe and difficult to reverse, and therefore the economic outcomes of the productive activities carried out are low, with the risk of becoming unsustainable, the allocation of investment resources to SLM should be targeted to recovery programmes, for instance, reforestation and creating new opportunities for those who live in these areas where “traditional” production is no longer feasible. In those cases in which LD is significant and brings about low economic returns but it is anyhow feasible to improve the situation, irrigation works and drainage which will allow a recovery of degraded soil and better water availability could be the most effective option. Other SLM techniques such as sustainable livestock or forest management (silvopastoral management) could help improve degraded land. When production activities are economically profitable but are carried out in sites where there is a risk to alter land sustainability, public resources must prioritize technical assistance and awareness-raising among farmers so that they adopt preventive practices vis-à-vis degradation.

Analysis concerning the benefits of SLM implementation should find a soundboard for transmission among farmers through peer workshops, among sectoral programme technicians, as well as through a broad communication strategy.

4) Strategy for fund allocation

The fund allocation strategy will act in an overarching manner as a trigger of national and provincial cooperation actions focused on strengthening the operational base⁴³, over and above the limited objective of becoming a mechanism for making funds available. Besides it will promote different actions at several supplementary levels, provincial and eco-regional. Approaches shall, in principle, be defined by multi-sectoral committees (during the implementation of SLM practices), and subsequently in the PPA, in line with the NAP and Ten-Year UNCCD Strategy, and will be consistent with the methodology used for selecting SIS, as regards the hierarchical approach to address land degradation (mitigation, prevention, restoration and rehabilitation) and, therefore, shall define different strategies for (i) Severely Degraded Areas; (ii) Moderately Degraded Areas; and (iii) Preserved Areas.

When setting up PPAs (Output 2.2), greater efforts will be made to outline and reinforce the fund allocation strategy (Output 1.4), with the purpose of providing sustainability to fund allocation so as to prevent LD and favour the implementation of SLM. Three principles will be established for outlining a financial strategy: (i) Synergy to increase the flow of resources. It is necessary to roll out a set of actions at the provincial level to help towards a greater flow of resources to each province. (ii) Act as a process trigger (trigger effect) to capture and harness existing funding mechanisms to address the problem of land degradation. (iii) Recognize the elements for a better operational basis in each province (training of human resources, structuring of effective actions, availability of financial resources, rules for more

⁴³ For instance, the quality of human resources, the structure for effective actions, availability of financial resources, rules for efficient, non bureaucratic actions, and effective collaboration among entities.

efficient, non bureaucratic actions, and effective collaboration among entities to ensure synergy in their actions). Specific training and workshops will give rise to actions that will contribute to promoting private investment (of farmers at all scales, agri-industries and other companies located in the rural environment), while public investment will play a differentiated role for which different objectives shall be assigned.

The project's instruments for fund allocation envisaged in Output 1.4 (incentives) include grants (ANR), Revolving Funds (RF) and Micro-Loans (ML) which stem from the integration of the money available in the intervention programmes that include SLM in their regulations, and from the agreements with the Social Development Ministry and its "National Micro-Loans Commission" (CONAMI) to be established at project start-up, by coordinating farmers, provincial governments and non-profits in each province related to ML.

With a view to sustainability actions, besides the mechanisms established by multi-sectoral committees in PPAs for fund allocation, the National Government will foster the creation of a technical team comprising SAyDS, MAGyP and the Federal Ministry of Economy (MECON) to outline a proposal including technical guidelines to be submitted to the Central Bank, spelling out the conditions that banks should include in their credit lines for the agricultural sector to avoid LD and promote SLM.

5) Implementation needs

In order to achieve the objectives set forth, it will be necessary to provide to members of the participating institutions and the project team, the necessary tickets and per diem to allow coordination among agencies, technicians and farmers, and to establish GM and the benefits of applying SLM measures. Training and outreach workshops will be held for technicians and farmers on the analyses carried out and the implementation experiences. Guides will be drafted to disseminate incentive and funding mechanisms, access methodologies, and resource distribution criteria, by hiring a temporary consultant. For this purpose, publications will be printed and distributed to farmers, farmer associations, technical teams of the provincial governments, Universities, extensionists, among others. It is necessary to ensure the participation in these activities of consultants, the TCP, junior agriculture consultant (economy-oriented) and the accounting expert of the project for carrying out the activities foreseen in achieving this output.

Annex 11: Terms of Reference - Main Activities of Staff and Consultants

A series of consultants will be hired to achieve project objectives. The main responsibilities of each are listed below. The Terms of Reference will be completed at project start-up.

Consultant - Technical Project Coordinator (TPC):

The cost of TPC will be covered by government co-financing. The TPC will help to carry out the activities during project implementation and will participate in the inception and closing workshops, and in regional workshops. Furthermore, he/she will support the organization and preparation of multi-sectoral committee meetings with the authorities involved, civil society representatives, and academic and research institutions to ensure mainstreaming of SLM so as to avoid land degradation. The consultant will also contribute to a permanent coordination of instruments and tools in support of the project's objectives via the interaction of provincial governments and sector-based programmes. TPC will act as co-coordinator of the PEU and will be in charge, overall, of project implementation and supervision of PEU staff. TPC will work under the guidance of the National Director and in coordination with the DCSyLCD and Provincial Focal Points, as well as other stakeholders to ensure adequate project implementation. He/She will coordinate and advise Consultants in agricultural, environmental and eco-regional matters, a junior expert in agricultural-environmental matters, and other specific consultants to interact and coordinate with stakeholders. TPC will collaborate and assist provincial focal points in planning actions to be carried out at SIS related to sustainable land management. He/she will collaborate in actions aimed at fulfilling POAs.

For achieving such objectives, under the supervision of the National Project Director (NPD) and National Project Coordination (NPC), the consultant will carry out the following activities

- Establish internal working procedures for the PEU, and the coordination mechanisms with Provincial Focal Points, such as the inter-institutional coordination mechanisms.
- Supervise the activities of PEU staff, which includes the analysis and approval of work plans and activity reports.
- Ensure compliance with UNDP procedures for project implementation.
- Prepare work plans and annual budgets, ensuring appropriate coordination between the priorities and regional and national activities, and submit them to the approval of the Project Steering Committee (PB)
- Supervise drafting of TORs for project activities as well as analyze and approve technical reports.
- Prepare project Progress Reports as required by UNDP/GEF.
- Design the project M&E system and ensure appropriate M&E.
- Provide support to UNDP staff field missions as well as in the Mid-term Review and Final Evaluation.
- Carry out field missions to project sites as part of the overall supervision of the project's implementation, and prepare field mission reports.
- Ensure an adequate inter-institutional coordination as well as appropriate participation mechanisms for stakeholders during project implementation.
- Act as Secretary at the Project's Executive Committee and Steering Committee meetings.
- In charge of organizing and participating in inception Workshops, as well as in the relevant workshops on eco-regional activities, and Steering Committee and Executive Committee meetings.
- Prepare the project visibility plan and ensure an appropriate dissemination of project outcomes and lessons learnt, following the communication strategy designed by the expert consultant.

- Prepare work plans and activity reports (Project Progress Reports -PPRs; Quarterly Project Implementation Report; Project Implementation Review -PIR) and submit them to the approval of the UNDP Country Office.

KEY PERFORMANCE INDICATORS

Expected Outputs:

1. Reports of the inception and closing Workshops, including feedback of stakeholders and list of participants.
2. Report of workshops in which TPC participates, summarizing recommendations and feedback of stakeholders, including list of participants.
3. Project Progress Report – PPRs: Quarterly Reports on Project Implementation; Project Implementation Review – PIR.
4. Preparation of POAs, implementation and adjustment proposal to PNC.
5. Reports consolidating results of all consultants' reports.
6. Final Project Report and other reports, as necessary.

Required competences:

The consultant will have the following professional profile:

- 1) Graduate degree in related disciplines, with a major in sustainable agriculture management. Preferably hold a post-graduate degree in environment-related topics.
- 2) At least 10 years' experience in project management and implementation, and significant direct experience with regard to the project's scope.
- 3) Should preferably have experience in environmental governance and capacity-building.
- 4) Experience in organizing and conducting meetings and drafting documents.
- 5) Excellent human relations skills and team work capabilities in multi-cultural and multi-disciplinary environments.
- 6) Excellent analysis, coordination and intra and inter institutional relationship capabilities in the country.
- 7) Computer skills and capacity to work under pressure, timely meeting goals.

Contract term:

60 months

Remuneration:

Cost will be covered by SAYDS since technical staff from this Secretariat will fill the post.

Consultant - Project Accountant:

Under the direct supervision of the National Project Director (NPD) and National Project Coordinator (NPC), and in coordination with the Technical Project Coordinator (TPC) and members of the PEU, the accountant will perform the following tasks:

- Ensure appropriate administrative and financial management pursuant to UNDP procedures, and manage administrative, accounting and financial files.
- Maintain periodic meetings with NPC and TPC on administrative and financial matters.
- Provide assistance to prepare POAs and supervise budget delivery of POAs
- Prepare disbursement requests and record project disbursements.
- Ensure fulfillment of UNDP procedures in project implementation, with regard to budget delivery.
- Prepare bidding specs for contracts, goods and services.
- Carry out procurement of the project's goods and services.
- Prepare Project Progress Reports as required by UNDP/GEF with regard to budget delivery.

- Design the project's M&E system and ensure appropriate M&E as regards budget delivery.
- Prepare financial-economic reports for Project Executive Committee and Steering Committee Meetings.
- Provide assistance for the mid-term review, project final evaluation and audits.
- Prepare budget sections of the Project Progress Reports – PPRs; Quarterly Reports on Project Implementation; Project Implementation Review – PIR, for their approval by the UNDP Country Office.

Consultant in Agricultural-Environmental Matters

Under the direct supervision of the TPC, and the DCSyLCD – SAyDS team, the consultant will perform the following tasks:

- Coordinate with PEU and eco-regional consultants, the objectives for the LADA evaluation of SIS, helping to outline the ranking of critical sites and vulnerability, considering SLM practices according to the hierarchical structure.
- Make contributions to and coordinate with relevant stakeholders, the design of SLM guides and protocols at the eco-region level and in eight provinces.
- Participate and collaborate with the organization of coordination workshops (local and/or national), helping to set up multi-sectoral committees through technical inputs and knowledge about sector-based programmes (national and provincial) in force, of regional extension and science and technology organizations.
- Assist and coordinate with the Focal Points, eco-regional consultants, members of PEU, and provincial key actors from government and extension and research agencies in the final selection of SIS, the decision on practices by province and by type of SIS, their evaluation, and contribution to the implementation of SIS actions (includes replicability), and the establishment of evaluation and follow-up indicators.
- Generate inputs and coordinate with key local actors the economic and impact assessment of SLM implementation by productive sectors: livestock and grasslands, vineyards, walnut plantations, Olive plantations, etc. to outline the economic case.
- Participate in the workshops at the SIS to present and validate the economic analyses, and in the dissemination workshops in the provinces, integrating economic, productive and environmental aspects. Furthermore, contribute to organizing coordination workshops with multi-sectoral committees and the PPAs to favour SLM replicability and scaling up.
- Contribute within his/her field of professional expertise to the drafting of sector-based protocols for the monitoring and evaluation of implementation after the selection of SIS and Practices.
- Coordinate technical aspects with the consultant hired for designing Meta-Data Protocols of the necessary databases for SLM and Livelihood, and with the consultant hired for the design of GIS protocols for monitoring SLM, in the environmental sectors of each of the provinces.
- Render assistance, within his/her field of professional expertise, to provincial authorities and PEU to create provincial nodes and the national node, and its formal linkage with the ODTyD, to monitor and follow-up on the status of LD and SLM implementation. Furthermore, provide technical inputs for preparing a base document (instructions) for drafting PPAs, supporting the SAyDS team and the consultant hired for designing PPAs, to ensure the participation of specific actors in the provinces and the private sector in developing Provincial Plans of Action.
- Participate in the workshops to foster the exchange of information and experiences based on demonstration projects in the SIS, with several provincial and national institutions.
- Render assistance in his/her field of professional expertise to the SAyDS team and the consultant hired for designing the communication and advocacy strategy to mainstream technical and environmental notions of SLM and INRM. Furthermore, identify and help to integrate in technical and scientific mass media, the project's SLM strategy and LD prevention. Also assist in all other requirements from the Project Coordination Office.

Junior Agriculture-Economy Consultant:

Under the direct supervision of the TPC and the DCSyLCD – SAYDS team, the consultant will perform the following tasks:

- Promote and collaborate with PEU, the economy consultant, the agriculture-environment consultant and eco-regional consultants, the ONDTyD and INTA, among others, to establish the costs imposed by LD at the SIS, the cost of implementing SLM, and the analysis of benefits arising from its implementation.
- Coordinate with Focal Points, eco-regional consultants, PEU members and key actors of the provincial governments, extension and research organizations, and collect data, in collaboration with the economic consultant, to assess costs/benefits by province and eco-region of implementing SLM practices at the selected SIS for project implementation and its replicability, generating cost-efficiency analysis related to implementation.
- Participate and collaborate with the organization of coordination workshops (local and/or national) of multi-sectoral committees through technical inputs and knowledge about sector-based programmes (national and provincial) in force, of regional extension and science and technology organizations with regard to the financial resources that allow SLM implementation by small farmers.
- Collaborate with the economic consultant to generate inputs and coordinate with key local actors, the economic and impact evaluation as regards SLM practices by productive sectors (livestock and grasslands, vineyards, walnut plantations, olive plantations, etc.) to outline the economic case.
- Collaborate with the economic consultant to follow-up on and evaluate economic variables, reviewed and adjusted every two years with the participation of the Ad-Hoc Team of ONDTyD, DCSyLCD – SAYDS- and PEU members.
- Participate and collaborate in the organization of workshops at the SIS to present and validate economic analyses and their follow-up, and in dissemination workshops in the provinces, bringing together economic, productive and environmental aspects. Also contribute to the organization of coordination workshops with multi-sectoral committees and the PPAs to favour replicability and scaling up of SLM, including the supply of sector-based economic resources.
- Assist within his/her field of professional expertise, in the drafting of sector-based protocols for monitoring and evaluating implementation after the selection of SIS and Practices.
- Assist, within his/her field of professional expertise, the provincial governments and PEU to design PPAs, to integrate accessible economic aspects for small farmers in developing Provincial Plans of Action (PPAs).
- Coordinate the technical aspects of his/her professional expertise with the consultant hired for designing the Metadata Protocols of the necessary databases for SLM and Livelihood, and with the consultant hired for GIS protocols to monitor changes in the use of land within the environmental sectors of each of the provinces.
- Assist in his/her field of professional expertise, the SAYDS team and the consultant hired to design the communication and advocacy strategy to integrate the economic aspects of SLM and INRM. Also identify and help to integrate in the technical and scientific mass media, the economic-financial strategy of SLM and LD prevention implemented by the project.

Eco-regional Consultant (3):

Under the direct supervision of the technical project coordinator (TPC) and the DCSyLCD-SAYDS team, the experts will perform the following tasks:

- Collaborate with and assist provincial focal points in planning, implementing, monitoring and evaluating actions carried out by SIS in the provinces assigned to the consultant, acting as liaison between PEU and the province.
- Collaborate with the Technical Project Coordinator in institutional-organizational relationships, as well as in all aspects linked to Project implementation overall.
- Follow up on all activities carried out, undertaking responsibility for fulfillment of the project schedule in the eco-region assigned to the consultant.
- Participate in Multi-Sectoral Committees, Working Groups and others instances related to project actions.
- Prepare monthly progress reports and Final Reports.
- Collaborate with project consultants when necessary.
- Cooperate in solving potential conflicts between stakeholders in a given eco-region.

Consultant or consolidated Working Group for implementing SLM practices at SIS (2 posts or a working group):

Under the direct supervision of the Technical Project Coordinator (TPC) and the DCSyLCD – SAyDS team, and in coordination with the eco-regional consultant/s, the expert will perform the following tasks:

- Collaborate with the TPC, Eco-regional Consultants and PEU in applying the LADA methodology in Specific Intervention Sites – SIS – in the three provinces that include the project’s target eco-regions.
- Identify SLM practices to be implemented at the SIS.
- Organize workshops to reach agreements on SLM practices at SIS and plan their implementation, including budget analysis and decisions on procurement.
- Design and draft SLM guides/protocols and criteria, including a gender and indigenous peoples approach.
- Prepare monthly progress reports and Final Reports, including the process for drafting SLM guides, with participants’ feedback.

Consultant or working group for outlining an impact evaluation methodology for the implementation of SLM practices:

Under the direct supervision of the Technical Project Coordinator (TPC) and the DCSyLCD – SAyDS team, the expert will perform the following tasks:

- Coordinate with PEU, the agriculture-environment consultant, the eco-regional consultants, other specific consultants, ONDTyD and INTA, among others, to establish the costs of LD in the SIS, the cost of implementing the different SLM practices/measures, and the analysis of the benefits stemming from their implementation.
- Coordinate with Focal Points, Eco-regional Consultants, PEU members and key stakeholders of the provincial governments, extension and research institutions, and collect information and assess the costs by province and eco-region of implementing SLM practices at the SIS selected for project implementation, and analyze the possibility of replication, generating a cost-benefit analysis for implementation.
- Generate inputs for and coordinate with key local actors the economic evaluation of implementing SLM practices/measures in different productive sectors: livestock and pastures, vineyards, walnut plantations, olive plantations, etc. to decide on the economic case. Follow up and evaluate economic

variables, carry out revisions and adjustments every two years with the participation of the Ad Hoc Team comprising ONDTyD, DCSyLCD – SAsyDS and PEU members.

- Participate in workshops at the SIS for presenting and validating follow-up economic analysis, and in outreach workshops in the provinces, bringing together the economic, productive and environmental aspects. Furthermore, help in the organization of coordination workshops with multi-sectoral committees and PPAs to favour replicability and scaling up of SLM, including sectoral economic resource offers.
- Assist within his/her field of expertise in the drafting of sector-based protocols for monitoring and evaluation of implementation after the selection of SIS and Practices.

Consultant for designing guides based on resources distribution from Revolving Funds (RF) Micro-Loans (ML) and other sources

Under the direct supervision of the Technical Project Coordinator (TPC), and the DCSyLCD – SAsyDS team, working in coordination with the eco-regional consultants, the agricultural-environmental consultant and the junior agricultural-economic consultant, the expert will perform the following tasks:

- Establish definitions and follow-up mechanisms at the provincial level to monitor the effectiveness and the need for adjustment of the financial instruments and guides.
- Develop guides with recommendations on RF and ML resource allocation and also on other financial tools to include and promote SLM practices. They must set forth the basic criteria about degradation severity, production sustainability and/or livelihood of farmers, technical assistance available, and the need for raising awareness among farmers so that they adopt preventive practices vis-à-vis degradation.
- Hold outreach workshops in all eight provinces to validate and subsequently disseminate the drafted guides.

Consultant or consolidated Working Group to Prepare Metadata for the regional and national databases for monitoring the status of LD and the application of SLM in the Northwest (NOA) and Cuyo regions:

Under the direct supervision of the technical project coordinator (TPC) and the DCSyLCD – SAsyDS team, and in close cooperation with the consultants in the design of GIS protocols and GIS nodes, the expert will perform the following tasks:

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- Coordinate the design of metadata protocols with the consultants on database design, creation of provincial GIS Nodes for monitoring the status of LD and SLM implementation, with the agricultural-environmental experts, and with those responsible for existing provincial SDI, and with the reference institution for the National Node (ONDTyD – SAsyDS).
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- Develop document (protocol adjusted to national and international standards, coordinated by provincial and national SDI) containing detailed Metadata of each of the components (records) of the databases used for M&E of the status of LD and application of SLM in the Northwest (NOA) and Cuyo. It shall contain the design of Metadata Protocols for the necessary databases to monitor the status of LD, the status of SLM implementation, desertification and INRM, and Livelihood (Biophysical and Socio-economic), identification of layers to be included (in coordination with the database design consultant), identifying information providers and setting forth the responsibilities as regards data update, safety, sources, etc.

- Train professionals and technicians from Environmental offices and SDI nodes in the provinces, and from ONDTyD, in the application of metadata protocols, their importance and relevance in the process of keeping GIS updated and reliable, besides their usefulness for M&E.

Consultant for the creation and coordination of National and Provincial Nodes to facilitate GIS-based M&E on the status of LD, desertification, SLM and INRM:

Under the direct supervision of the technical project coordinator (TPC) and the DCSyLCD-SAyDS team, and in coordination with the eco-regional consultant/s, the agricultural-environmental consultant, the junior agricultural-economic consultant, the metadata consultant, the GIS protocol consultant and the Provincial Focal Points, the expert will perform the following tasks:

- Diagnose the current status of SDI in the provinces of Catamarca, Mendoza, Jujuy and Tucuman, and make a proposal to adjust such structures for the integration of LD and SLM into the provincial node and, in turn, into the national node.
- Carry out a diagnosis of the current status of the environment offices in the provinces of Salta, La Rioja, San Juan and San Luis for implementing a provincial SIG, and its linkage and coordination with the National Node.
- Survey the feasibility to establish SDI systems in the provinces of Salta, La Rioja, San Juan and San Luis.
- Carry out a detailed survey of the software and hardware capabilities of each node –current capabilities or to be installed in the future- and define the needs for software and hardware in each jurisdiction.
- Train Node users.

Consultant or consolidated working group for GIS-based Protocol design:

Under the direct supervision of the project technical coordinator (PTC), the DCSyLCD-SAyDS team, and in coordination with the eco-regional consultant/s, the agricultural-environmental consultant, junior agricultural-economic consultant, metadata consultant, node consultant, and Provincial Focal Points, the expert will perform the following tasks:

- Identify the pertinent and relevant data to be integrated into a GIS to allow monitoring of the status of LD, the status of SLM implementation, and its use as a tool for decision-making. This task shall be carried out together with the Metadata consultant and in consultation with ONDTyD.
- Identify, in coordination with the Provincial Focal Points, those who will be responsible for GIS data generation. Collaborate in contacts with those responsible in the provinces for data generation on LD, SLM, desertification and INRM.
- Identify the needs and/or minimum basic conditions for staff and the necessary inputs for the proper implementation of GIS-SDI.
- Identify information loopholes (lack of necessary databases for the GIS) and design protocols for the necessary databases to integrate GIS-SDI monitoring of the status of LD, status of implementation of SLM, in coordination with the Metadata Consultant.
- Collaborate in the organization of technical meetings and the local, provincial and national levels (Observatory)
- Training GIS users/implementers in the provinces and at the national level in the use of databases.

Consultant or consolidated working group to draft sector-based protocols for monitoring and evaluation of implementation (2 posts or two working groups, one in Livestock and another in Agriculture, with good knowledge of irrigation matters):

Under the direct supervision of the Technical Project Coordinator (TPC), the DCSyLCD-SAYDS team and in close collaboration with ONDTyD, the Provincial Focal Points, eco-regional consultants, agricultural-environmental consultant, junior agricultural-economic consultant, provincial experts in managing provincial SDI or GIS, consultant will perform the following tasks:

- Hold technical meetings with the ONDTyD team, Provincial Focal Points, eco-regional consultants, agricultural-environmental consultant, junior agricultural-economic consultant, provincial experts in management of provincial SDI or GIS, to establish available parameters for SLM M&E, information gaps and the way to solve them.
- Coordinate with other key actors, by participating in the meetings and/or workshops or in field activities to prepare documents that will then be validated in participatory processes.
- Prepare sector-based protocols for monitoring and evaluation of: land degradation (considering the LADA methodology); implementation of SLM practices that will be developed at the SIS, and in their replication, serving as an M&E instrument during project implementation and beyond project completion. A protocol will be established for each practice (one for Agriculture, one for Livestock and one for Irrigation) which will assess (i) the participation of stakeholders established for each case (farmers, extensionists, civil society organizations, technical areas of the provincial and national governments, and science and technology academic centres, among others), (ii) coordination mechanisms used, (iii) fulfillment of the objectives of SLM implementation and its execution terms, (iv) measurement of environmental, economic and social achievements (from an IFAD approach), (v) access to funds for implementing practices, (vi) fulfillment of the gender and indigenous peoples approach.
- Participate in the necessary field meetings to achieve outcomes together with eco-regional consultants.

Consultant for the design of Provincial Action Plans (PAPs) to combat desertification, droughts and Land Degradation (LD):

Under the direct supervision of the Project technical Coordinator (PTC), the DCSyLCD team from the SAYDS, and in coordination with Provincial Focal Points (PFP) and eco-regional coordinators the specialist will carry out the following activities:

- Identify through articulation with the PFP, and the eco-regional coordinators, those institutions which regulate, promote or condition the implementation of SLM practices and promote LD in each of the eight provinces to be incorporated into the development and operation of PAPs and will identify current regulatory aspects.
- Prepare a mapping of relevant stakeholders to be incorporated into the PAPs, in each of the eight provinces, including public and private institutions, CSOs, indigenous peoples, research and development centers and the universities among others, all these activities to be carried out under a gender approach which will ensure the participation of women, young people and more vulnerable population. For the purpose, he/she will build upon the multisectoral committees created in Result 1, output 1.2.
- Analyze jointly with SAYDS and officers from PAN available information and formulate the corresponding PAPs proposals, indicating integration, participation and operation mechanisms and regulatory and/or normative needs. Identify infrastructure, communication and information needs for the operation of the PAPs (jointly with the agricultural-economic consultant). For this purpose,

he/she will prepare a general PAP proposal for the 8 provinces which will be the initial document to be adapted subsequently in each province taking into account the proposals from the multisectoral committees. Submit the proposal in participatory workshops within the framework of the mentioned committees.

- Prepare and deliver in the participatory workshops basic guidelines of the contents which should be integrated in the provincial rules which will substantiate the PAPs, in order to provide a platform for regulatory discussion within the framework of the multisectoral committees. Through these and other interactions, put forward and promote different kinds of regulatory instruments which the provincial governments might adopt (provisions, resolutions, decrees and/or laws).
- Inform and deliver training for provincial actors in those relevant aspects of PAPs operation, and especially through the multisectoral committees which are at the base of the PAPs structures.

Consultant in Strategic Design, Communications and Advocacy:

Under the direct supervision of the Project technical coordinator (PTC) and the DCSyLCD team from SAYDS the consultant will carry out the following activities:

- Liaise with government organizations to create a partnership for the inclusion in their news bulletins and institutional webs specific information of LD, SLM, and INRM and launch a uniform communication campaign in the three eco-regions which are targeted by the project.
- Develop a uniform design for brochures, newsletters, posters, banners and electronic banners: containing information on LD, SLM and the INRM on the issues addressed by the project, having in mind the segmentation of the target audience.
- Develop jointly with the Project team basic contents for publications on LD, SLM, and the INRM, including managing actions for broadcasting the spot mentioned below.
- Suggest and motivate agreements with other State organizations for carrying out different communications on LD, SLM, and the INRM.
- Coordinate jointly with the PTC and the SAYDS team contents for the development of TV spot on the consequences of LD and the benefits from SLM and INRM.
- Design jointly with the PEU and SAYDS an Advocacy/Communication/Awareness Strategy which will focus on different aspects of SLM (socio-productive, economic, environmental virtues) to be incorporated in the agenda of decisions makers. The consultant will design also articulatory mechanisms between the PEU, SAYDS and national sectoral programs setting 3 working levels in the strategy: i) Local-provincial level, ii) National-Provincial Level and iii) National sectoral level where SAYDS and the PEU will articulate national sectoral programs to integrate SLM into their work plans and budgets.
- Participate in workshops as required.

Gender and Indigenous Peoples Consultant:

Under the direct supervision of the Project technical coordinator (PTC) and the DCSyLCD team from SAYDS the specialist will carry out the following activities:

- Contribute to the planning and carrying out an initial workshop and coordinate with academic research institutions to get the involvement of key actors in Project execution under a gender approach and the inclusion of young people and vulnerable groups.
- Identify together with Provincial Focal Points (PFP) key actors for their participation during Project execution, prepare working agendas considering local, social and cultural calendars for each province for the training workshops and for outreach and implementation of SLM, in close connection with the general coordinator and with SAYDS.

- Interact with officers responsible for social programs at national and provincial level, with INTA, CONICET, and from the 8 provinces to identify and articulate gender and indigenous peoples approach concepts which will ensure the participation of women, young people and vulnerable sectors. This approach will be harmonized with the existing approach of other ministries and institutions or with programs like the one prepared by the Ministry of Social Development, the MALF, the INTA, the PROSAP, PRODERI, and others, and will be part of the guidelines and protocols to be developed during project execution and which will be inputs for the development of PAPs.
- Prepare guidelines for the inclusion of a gender and indigenous peoples approach which will ensure the participation of women, young people and vulnerable sectors. Those guidelines will be destined to Project teams and to members of those sectoral programs which will be incorporated into the Project activities.
- Establish necessary contacts between provincial authorities and PEU to ensure the incorporation of the gender and indigenous peoples approach, establishing clearly those mechanisms for the activation of the approach, and to determine whether previous free and informed Consultations with Indigenous population are necessary.
- Provide training workshops for key actors involved (PTC, PEU, eco-regional Consultants, and technical teams from INTA, MAL&F, and CONICET participating in Project execution), especially from government and other institutions having capacity and responsibility for Project execution in those aspects related to gender and indigenous peoples approach, in order to ensure the participation of women, young people and indigenous peoples.