ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

ENHANCING RESILIENCE TO CLIMATE CHANGE OF THE SMALL AGRICULTURE IN THE CHILEAN REGION OF O'HIGGINS

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat
1818 H Street NW
MSN P4-400
Washington, D.C., 20433
U.S.A
Fax: +1 (202) 522-3240/5
Email: afbsec@adaptation-fund.org

ACRONYMS

AGCI	Agencia de Cooperación Internacional de Chile. Agencia pública dependiente del Ministerio de Relaciones Exteriores que capta o entrega y administra recursos de cooperación internacional, tanto entrantes al país como entregados por Chile a países de igual o menor desarrollo.	Chilean International Cooperation Agency. Public agency under the Ministry of Foreign Affairs that channels, delivers and administers international cooperation resources, both incoming and outbound.
ATP - PTA	Asesor Técnico Principal	Primary Technical Advisor
CIREN	Centro de Información de Recursos Naturales. Institución de apoyo al Ministerio de Agricultura que proporciona información de recursos naturales renovables.	Natural Resources Information Center. Support institution under the Ministry of Agriculture that produces information on renewable natural resources.
CNR	Comisión Nacional de Riego. Persona jurídica de derecho público, dependiente del Ministerio de Agricultura, creada con el objeto de asegurar el incremento y mejoramiento de la superficie regada del país.	National Commission for Irrigation. Public institution under the Ministry of Agriculture, with the aim of assuring the growth and enhancement of the country's irrigated area.
CONAF	Corporación Nacional Forestal. Entidad de derecho privado dependiente del Ministerio de Agricultura, cuya tarea es administrar la política forestal de Chile y fomentar el desarrollo del sector.	National Forestry Corporation. Private institution under the Ministry of Agriculture that administers Chile´s forestry policy and promotes sectorial development.
CONAMA	Comisión Nacional del Medio Ambiente. Derogada en enero de 2010 con la creación del Ministerio de Medio Ambiente. Ver MMA.	National Commission for Environment, became the Ministry of Environment (see below) in 2010.
DGA	Dirección General de Aguas. Organismo del Estado dependiente del Ministerio de Obras Públicas que se encarga de promover la gestión y administración del recurso hídrico.	General Directorate of Water. State office under the Ministry of Public Works in charge of management and administration of water.
ECLAC	Comisión Económica para América Latina y El Caribe	Economic Commission for Latin America and the Caribbean
ENSO	El Niño Oscilación Sur	El Niño Southern Oscillation
FAO	Organización de las Naciones Unidad para la Alimentación y la Agricultura	Food and Agriculture Organisation of the United Nations
FIA	Fundación para la Innovación Agraria	Fundation for Agricultural Innovation
GORE	Gobierno Regional. Órgano público encargados de la administración superior de cada una de las regiones de Chile, tiene por objeto el desarrollo social, cultural y económico de la región correspondiente.	Regional Government. Public institution in charge of social, cultural and economic development of a given subnational administrative division called region.
IAG - AMR	Informe Anual de Gestión	Annual Management Report
IIE - EII	Evaluación Intermedia Independiente	Independent Interim Evaluation

IFE - EFI	Evaluación Final Independiente	Independent Final Evaluation
INDAP	Instituto de Desarrollo Agropecuario. Servicio descentralizado dependiente del Ministerio de Agricultura que tiene por objeto promover el desarrollo económico, social y tecnológico de los pequeños productores agrícolas y campesinos.	Institute for Agriculture Development. Decentralised service under the Ministry of Agriculture that aims at promoting the economic, social and technological development of small farmers.
INE	Instituto Nacional de Estadísticas	National Institute of Statistics
INIA	Instituto de Investigaciones Agropecuarias. Corporación de derecho privado sin fines de lucro y dependiente del Ministerio de Agricultura. Es la principal institución de investigación del ramo de Chile.	Agricultural Research Institute. A private not-for-profit corporation that depends upon the Miistry of Agriculture and is the Chilean main research institution in the field.
IPCC	Panel Intergubernamental de Cambio Climático	Intergovernmental Panel on Climate Change
ITA - QSR	Informe Trimestral de Avance	Quarterly Status Report
MIDEPLAN	Ministerio de Planificación (hoy Ministerio de Desarrollo Social)	Ministry of Planning
MINAGRI	Ministerio de Agricultura. Institución del Estado encargada de fomentar, orientar y coordinar la actividad silvoagropecuaria del país.	Ministry of Agriculture. State department in charge of promoting, orienting and coordinating the agricultural and forestry activity in the country.
MMA	Ministerio del Medio Ambiente. Órgano del Estado encargado del diseño y aplicación de políticas, planes y programas en materia ambiental y la protección y conservación de la diversidad biológica y de los recursos naturales renovables e hídricos.	Ministry of Environment. State organ in charge of the design and implementation of policies, plans and programmes in matters environmental and of protection of biological diversity and renewable natural and hydric resources.
NIE	Agencia Nacional de Implementación	National Implementing Agency
ODEPA	Oficina de Estudios y Políticas Agrarias. Servicio público centralizado, dependiente del Ministerio de Agricultura, que presta servicios especializados de asesoría e información.	Agricultural Policies and Studies Office. Centralised service under the Ministry of Agriculture that provides specialised advisory and information services.
PMU - UGP	Unidad de Gestión del Proyecto	Project Management Unit
PNUD	Programa de las Naciones Unidas para el Desarrollo	United Nations Development Program
POA - AOP	Plan Operativo y Presupuesto Anual	Annual Operating Plan and Budget
PRODESAL	Programa de Desarrollo Local (INDAP). Su finalidad es apoyar a los pequeños productores agrícolas y sus familias que desarrollan actividades silvoagropecuarias.	Local Development Programme (INDAP). Its aim is to support small farmers and their families in developing agricultural, forestry and livestock-breeding activities.
SAG	Servicio Agrícola y Ganadero. Servicio descentralizado dependiente del Ministerio de Agricultura cuyo objeto es contribuir al desarrollo agropecuario del país mediante la protección, mantención e incremento de la salud animal y vegetal;	Agriculture and Livestock Service. Decentralised service under the Ministry of Agriculture that aims at contributing to the agricultural development of the country through the protection,

	la protección y conservación de los recursos naturales renovables y el control de insumos y productos agropecuarios sujetos a regulación en normas legales y reglamentarias.	maintenance and enhancement of animal and plant health, the protection of renewable natural resources and the control of agricultural inputs and products that are subject of legal and procedural regulation.
SAT	Servicio de Asesoría Técnica (INDAP). Su objetivo es contribuir a mejorar de forma sostenible el nivel de competitividad del negocio o sistema productivo desarrollando las capacidades de los usuarios.	Technical Assistance Service (INDAP). Its objective is to contribute to the sustainable enhancement in business or productive-system competitiveness through users' capacity development.
SEREMI	Secretaría Regional Ministerial. Es el órgano desconcentrado de los ministerios de Estado de Chile, con la condición de representante del ministerio respectivo en la región.	Regional Ministerial Secretary. It is the subnational organ of State Ministries in Chile, having the condition of representative of the Ministry in a given region.
SIRSD	Sistema de Incentivos para la Recuperación de Suelos Degradados del Ministerio de Agricultura. Ayuda económica no reembolsable destinada a cofinanciar actividades y prácticas destinadas a recuperar los suelos agropecuarios degradados y/o a mantener los suelos agropecuarios ya recuperados.	MINAGRI's Incentive System for the Recovery of Degraded Soils. Non-refundable economic support the cofinances practices and activities that seek to recover agricultural or livestock-breeding degraded soils and/or the maintenance of recovered agricultural or livestock-breeding soils.
UNEA	Unidad Nacional de Emergencias Agrícolas y Gestión del Riesgo Agroclimático. Unidad operativa del MINAGRI que gestiona el Sistema Nacional de Gestión del Riesgo Agroclimático.	National Unit for Agricultural Emergencies and Agroclimatic Risk Management. Operational unit of MINAGRI that manages the National Agroclimatic Risk Management System.
UNFCCC	Convención Marco de las Naciones Unidas sobre Cambio Climático.	United Nations Framework Convention on Climate Change

ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	**REGULAR PROJECT**
Country/ies:	**CHILE**
Title of Project/Programme:	**Enhancing resilience to climate change of the small agriculture in the Chilean region of O'Higgins**
Type of Implementing Entity:	**NATIONAL IMPLEMENTING ENTITY**
Implementing Entity:	**AGENCIA DE COOPERACIÓN INTERNACIONAL –AGCI**
Executing Entity/ies:	**MINISTRY OF AGRICULTURE AND MINISTRY OF ENVIRONMENT**
Amount of Financing Requested:	**9.960.000 USD**

Important note: figures in the present document apply the international metric system and use coma (,) for the notation of the decimal marker unless otherwise stated.

Project / Programme Background and Context

Chile: national circumstances

Chile is a tri-continental country with territory that extends along the southwest portion of South America and includes Easter Island in Oceania as well as part of Antarctica to the south. Continental Chile is located between 17° 30' and 56° 30' Latitude South, while Chile's Antarctic Territory covers the area between 53° and 90° Longitude West and the South Pole. It is bordered by the Pacific Ocean along 8,000 kilometers of coastline.

In general terms, Chile has a temperate climate. Due to some variations caused mainly by differences in latitude and altitude, it gives rise to desert, tropical, Mediterranean, temperate, and polar climates, among others. Ecologically, the presence of biodiversity and specific plant formations in a given zone depends on the existing climate.

On the other hand, Chile's population grew quickly in the 20th Century, but growth has slowed in the past decade and is expected to decelerate even more towards the middle of the 21st Century. The total population was last recorded at 17.4 million people in 2012 from 7.7 million in 1960, changing 127 % , during the last 50 years.

The country's development has improved the quality of life of its inhabitants, and in

2010 Chile ranked 45th globally in the United Nations Human Development Index. Since 1990, Chile has experienced rapid economic growth and diversification and increased its reliance on exports. These developments can be explained by the country's stable government, political institutions capable of generating and maintaining consensus on key issues, and effective public policies.

Chilean climate change policies and plans

Under the UNFCCC criteria (article 4, No 8), Chile is considered as a country vulnerable to climate change with respect to its: low-elevation coastal areas, arid and semi-arid areas, afforested areas and areas exposed to deforestation and fragile ecosystems in the Andean and coastal regions.

In 2008 the Chilean Government adopted the "National Action Plan on Climate Change" as the strategic guideline for policy planning and implementation with respect to climate adaptation and mitigation issues. The Action Plan, among others, stipulates the elaboration of adaptation plans for seven key sectors, including the forestry and agriculture sector.

The adaptation plan for this sector has been co-developed by the Ministry of Agriculture and the Climate Change Office of the Ministry of Environment during 2012 and has been officially approved by both Ministries in May 2013. The plan involves 21 adaptation measures several of them are addressed to the poorest and the most vulnerable groups in this sector.

As an implementation strategy for this sectorial plan, the technical workgroups on climate change of the two ministries have identified a series of concrete actions as a "first step" towards the gradual implementation of the whole plan, which financing through the Adaptation Fund of the United Nations Framework Convention on Climate Change (UNFCCC) is subject of this request.

Climate change impacts in Chile

In its second national communication to the UNFCCC (2011) the Chilean Government highlighted the vulnerability of a variety of sectors to the expected future climate scenarios (Fig.1). These scenarios (generated with HadCM3+PRECIS) suggest changes in temperature and precipitation patterns from south to north and from the coast to the Andes:

- Temperature rises are expected between 1°C and 3°C in a moderate scenario (B2) and between 2°C and 4°C in a severe scenario (A2) across the country, at the end of the century.
- Rainfall patterns will change from north to south, resulting in water shortage especially in the central part of the country where 70% of the total population is living and in water abundance in the extreme southern part of Chile.
- Glaciers, which act as strategic water reserves, will continue to retreat.
- Snow storage capacity in the mountain areas will decrease because the increasing temperature will shift the snow-line to higher altitudes.

Rising temperature and changes in precipitation in addition to soil erosion due to storms and desertification processes, will impact strongly in the productivity of the agriculture, forestry and livestock sector and driving changes in land use patterns along the country. For most of the country, losses in productivity of annual crops are to be expected, especially for non-irrigated lands and also in regions with irrigation restrictions, due to water shortage. Also losses in productivity of vineyards are to be expected in the actual cultivated area, located in the northern and central parts of Chile, due to both, restrictions in water supply and the reduction of the fruit development period caused by higher temperatures.

Regarding pastures and livestock, the seasons for both the sheep and bovine cattle production is expected to change, depending on the geographical area. On the other hand, forest plantation production of *Pinus radiata*, is projected to decrease in the northern and central areas and improve its potential production from the Araucanía Region to the southern areas of the country.

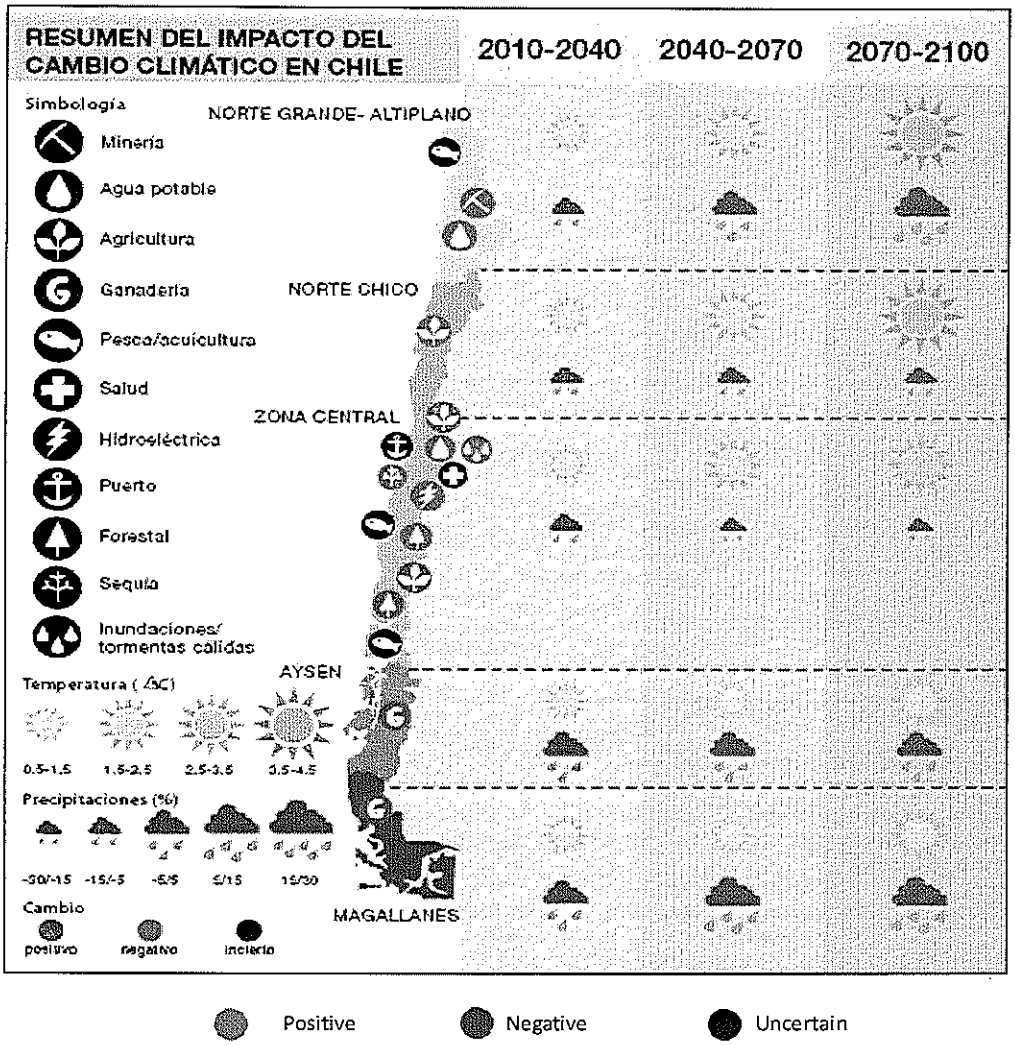


Fig. 1: Summary of climate change impacts on Chile for the period 2010-2100. Second national communication to the United Nations Framework Convention on Climate Change (2011)

Agricultural groups and regions most vulnerable to climate change

Central Region (29 deg. SL-34 deg.SL) , in which adaptation actions are needed in order to avoid or minimize negative climate impacts which threaten agriculture productivity and livelihood at both ends of the socioeconomic scale.

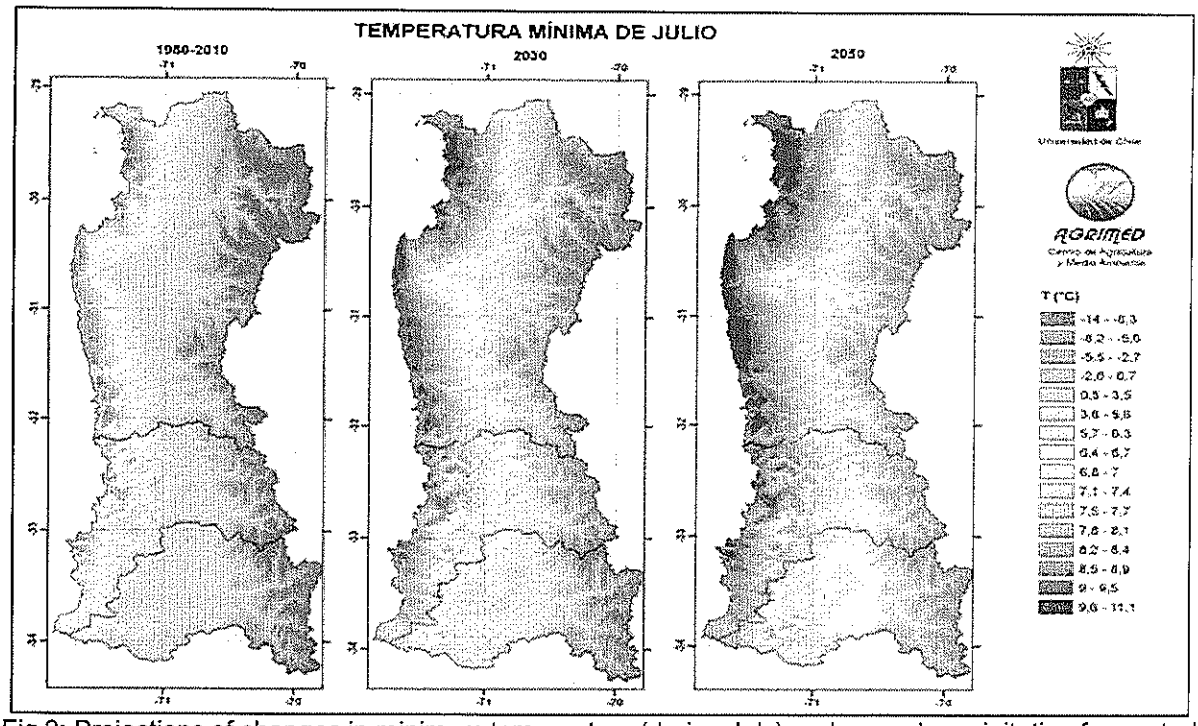


Fig 2: Projections of changes in minimum temperature (during July) and annual precipitation for central Chile; AGRIMED (2013)

Studies[1] (AGRIMED & ASAGRIN, 2011; AGRIMED, 2013; Fig. 2) suggest that the combination of rising temperatures and precipitation decline in this area will increase the process of desertification and soil erosion together with prolonged droughts and heat stress on traditional crops and livestock.

A field study, carried out in 2011 by AGRIMED & ASAGRIN, analysed climate change vulnerability of 20 different agricultural groups from the Aymara population in the north of Chile to the cattle farmers in the Patagonian pampa in the south. Their total vulnerability to potential climate change impacts has been estimated as the sum of 6 specific impacts, caused by: (i) soil erosion, (ii) water shortage in dry areas, (iii) water shortage in irrigated areas, (iv) plagues and diseases, (v) crop development (plant phenology) and (vi) heat stress on crops and livestock.

The results of this participatory survey (Tab.1) show that the most vulnerable groups are: (i) farmers in the dry areas of central Chile between the regions of Valparaíso and Biobío, farmers in the transversal valleys of the regions of Atacama and Coquimbo and

[1] Portafolio de propuestas para el programa de adaptación del sector silvoagropecuario al cambio climático en Chile, 2011. Centro de Agricultura y Medio Ambiente de la Universidad de Chile (AGRIMED) y Gestión de Agronegocios (ASAGRIN), Santiago.

Plan de acción para la protección y conservación de la biodiversidad, en un contexto de adaptación al Cambio Climático, 2013. Centro de Agricultura y Medio Ambiente de la Universidad de Chile (AGRIMED), Santiago.

the extensive cattle farmers in the dry areas of central Chile (Fig.3). For all these groups, water availability and management has been identified as the key issue related to climate threats, followed by heat stress on crops and livestock.

N°	Farmer communities or locations	Soil erosion	Water shortage drylands	Water shortage irrigated	Plagues, diseases	Crop development	Heat stress	TOTAL
1	Andean valleys	4	0	2	2	3	4	**15**
2	Aymara farmers of the Atacama region	2	0	0	2	1	0	**5**
3	Irrigated dessert valleys	2	0	2	5	4	5	**18**
4	Andean areas of Limarí, Petorca and Maipo	3	0	5	4	4	5	**21**
5	Transversal valleys	3	4	0	1	4	3	**15**
6	Extensive cattle farmers in drylands	4	5	4	3	2	3	**21**
7	Coastal drylands; regions V to VIII **	5	5	0	4	4	2	**20**
8	Drylands; regions V to VIII **	5	5	0	4	4	5	**23**
9	Fruit farming; annual plants; regions V,VII	1	0	4	4	3	5	**17**
10	Fruit farming; perennial plants; regions V to VII	1	0	4	4	3	1	**13**
11	Grain producers; regions VI-VIII	2	0	4	3	3	4	**16**
12	Vegetable producers; regions V and Metropolitan	2	0	3	3	3	3	**14**
13	Winegrowing; regions VI-VIII	1	0	4	4	3	4	**16**
14	Pre-andean drylands	0	0	0	0	0	0	**0**
15	Forestry; regions VI-X	4	3	0	2	0	3	**12**
16	Non irrigated coastal areas, regions IX-X	3	3	0	2	2	1	**11**
17	Non irrigated areas, regions IX-X	4	4	0	3	2	2	**15**
18	Farmers at the Chiloé island	4	3	0	2	2	1	**12**
19	Andean areas in the regions X and XI	2	1	3	1	1	1	**9**
20	Cattle farmers, Patagonian pampa and Tierra del Fuego Island	4	1	0	1	0	0	**6**
	TOTAL	**56**	**34**	**35**	**54**	**48**	**52**	

** In this regions the project area will be located.

Table 1: Vulnerability to 6 climate change threats for 20 agricultural groups in Chile (AGRIMED& ASAGRIN, 2011)

The numbers of table 1 refer to a scale from "0" (no threat) to "5" (very high threat) and represents the assessment of local farmers and experts who participated in the respective workshops.

The results of an opinion survey, carried out by the Ministries of Agriculture and Environment in 8 Chilean regions in the context of the public consultation process ("Consulta Ciudadana") of the Adaptation Plan for forestry and agriculture in 2012, showed that most of the proposed actions which have been identified by local agricultural groups as the first step in the implementation of the adaptation plan, are related to water supply and management.

Proposed project area

Based on the above noted findings and complementary studies carried out by the services of the Agriculture Ministry (INIA, SAG, INDAP, CNR, FIA, ODEPA, CONAF) and with the aim to include a variety of agriculture groups, the region of "Libertador General Bernardo O´Higgins" in the center of Chile has been chosen to implement the adaptation measures described in detail in the following paragraph.

The region of O´Higgins includes both, irrigated and non-irrigated agricultural systems managed on an intensive or extensive level either by small scale farmers or by export oriented ones. The Ministry of Agriculture in this region holds a network of services and already established activities related to capacity building, agro- technology transfer and climate change related research. We can therefore assume that the implementation of the climate change adaptation measures described in the following paragraph are meeting the very needs of that region and will be carried out in a management, evaluation and monitoring appropriate environment.

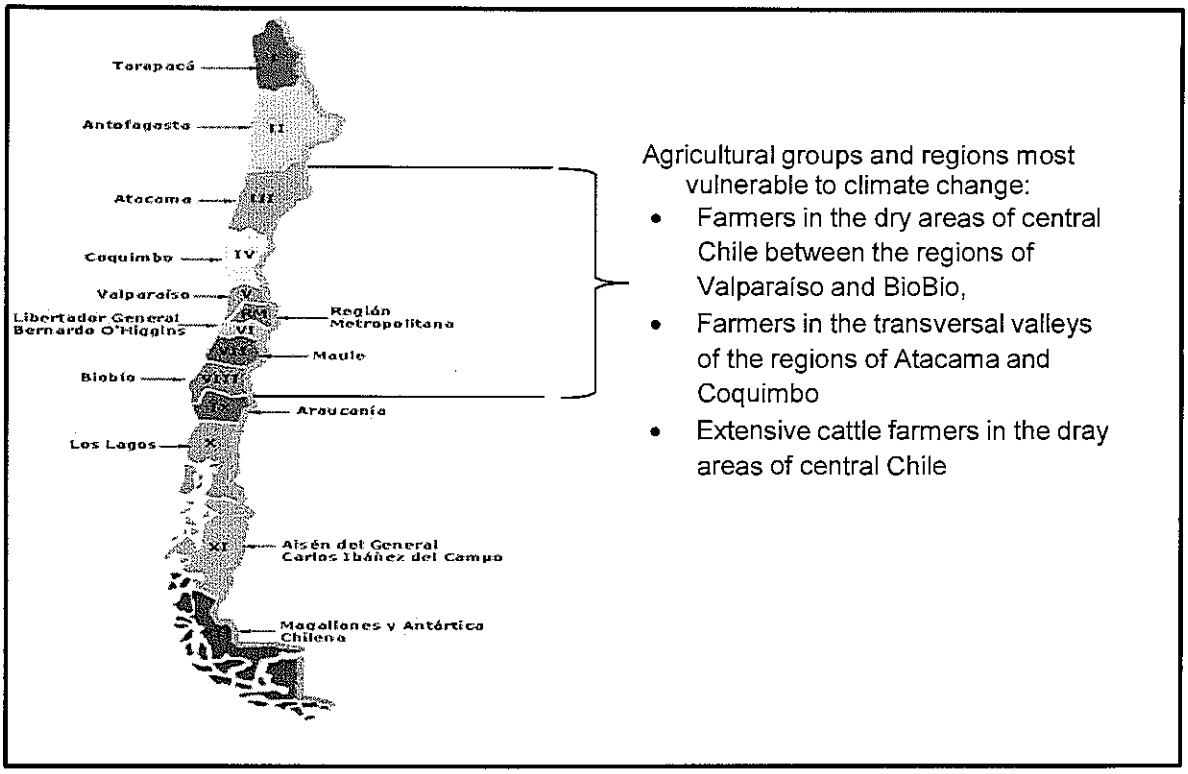


Fig 3: Regions and agricultural groups most vulnerable to climate change

The O´Higgins region (33°51' – 35°01' SL) includes 33 municipalities. Eight of them have been chosen as project area: Paredones, Pichilemu, Marchihue, La Estrella, Litueche, Navidad, Lolol and Pumanque (fig. 4).

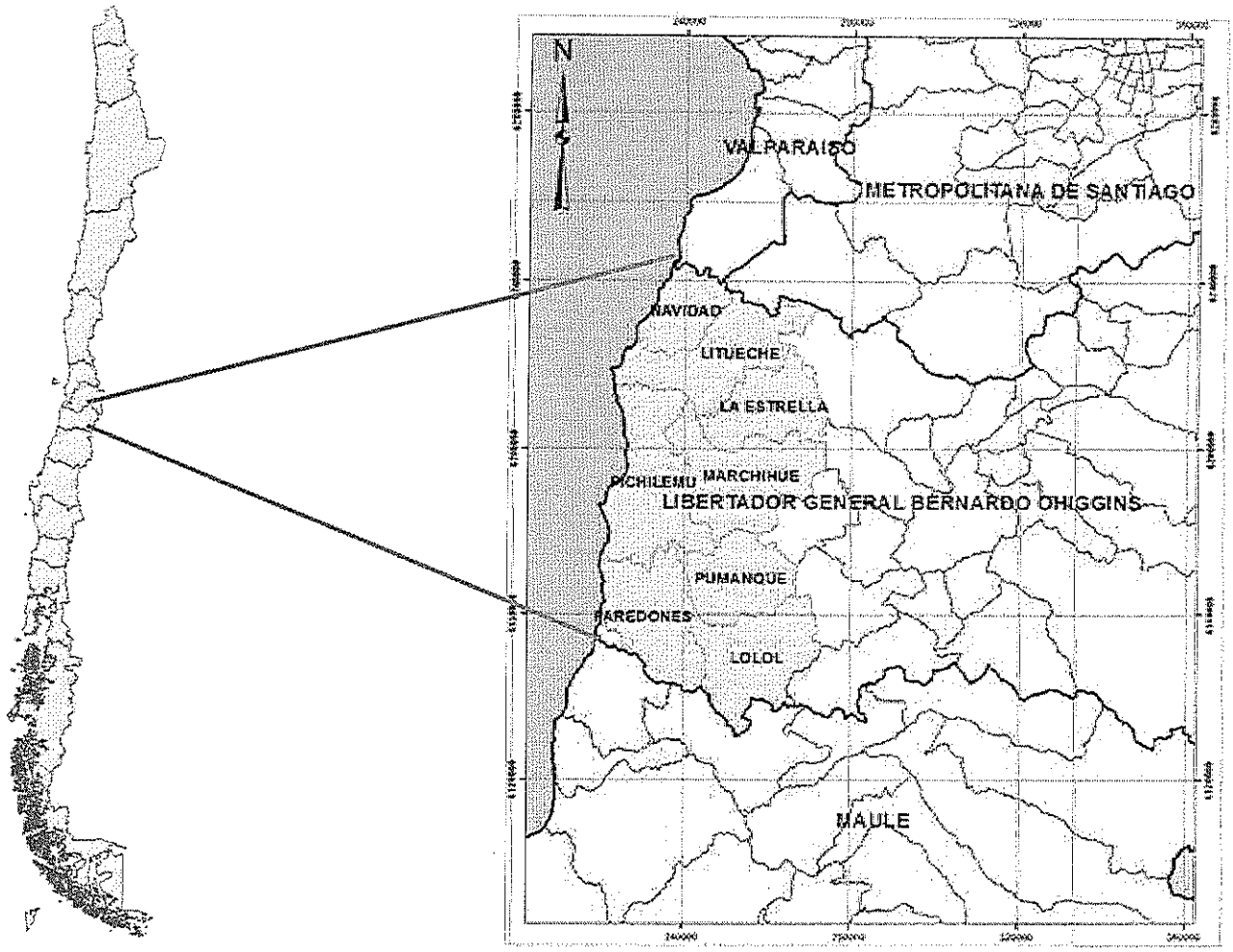


Figure 4: Municipalities in the project area in the O'Higgins region

Climate variability and climate change in the project area

Studies (AGRIMED, 2008) show for a 2040 climate scenario in the project area a 20%-25% decrease in the average annual rainfall and a temperature increase of about 3°C.

Statistics (fig.5) for the commune of Litueche are outlining the decreasing trend in annual precipitation during the last 45 years and highlight the extreme interannual variability in precipitation which varies as an average from 1100mm/year to 500ml/year with frequent extreme periods, when the inter annual differences reaches 700ml and more. This succession of extreme dry and relative wet years, which apparently are related to El Niño (red lines) and La Niña (blue lines) events, is one of the main threats to sustainable land use and water supply in the project area. Considering the current climate, dry seasons in the project area lasts between 6 and 8 months per year and this period will probably increase during the next decades. According to climate change projections, previously mentioned, this region is located among the area that will be most affected by precipitation decreases. Models show a high degree of certainty in this matter. This situation will certainly increase the difficulties that the small farmers of the area actually face, regarding water scarcity and soil degradation. It will affect not only their production, but also the already degraded soil quality, ecosystem services and biodiversity. It will intensify the current problems these populations of small and

subsistence farmers tackle, who are classified among the poorest of the region, exacerbating their poverty situation and increasing their vulnerability to climate conditions.

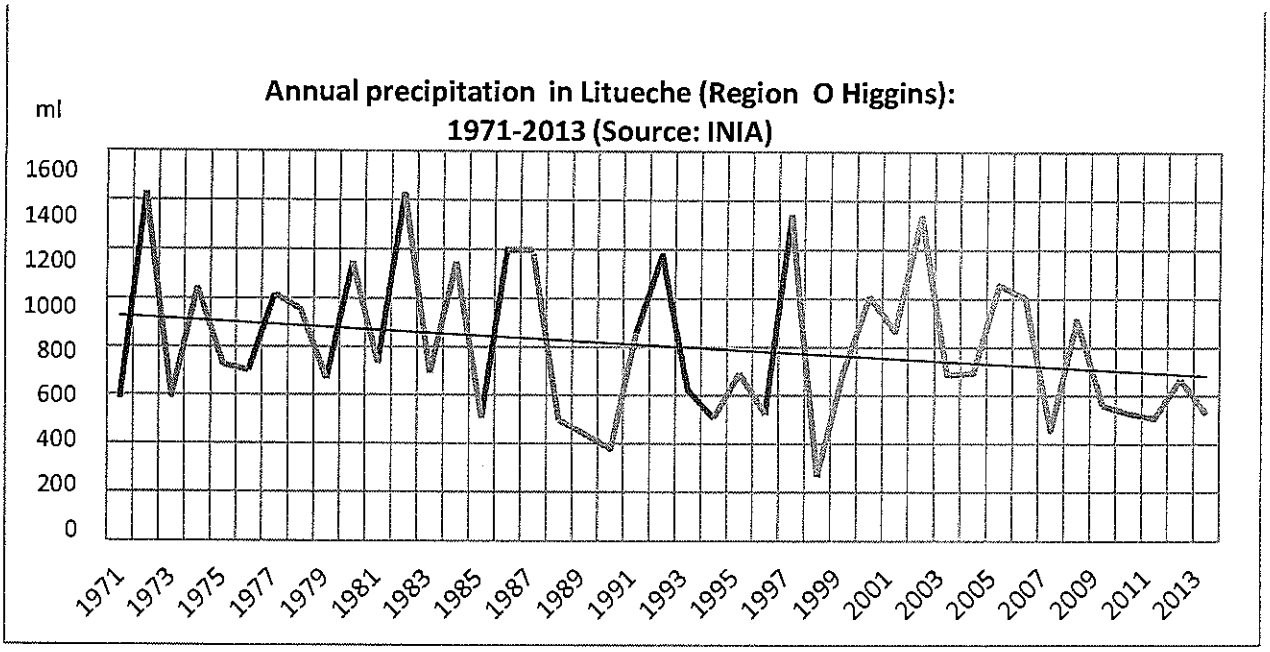


Figure 5: annual precipitation in one of the municipalities of the project area in the region of O'Higgins

Vulnerability to climate change impacts in the project area

The Second National Communication of Chile to the UNFCCC, (2011) indicates for the O´Higgins region a 44% loss in the crop cultivated areas by the year 2040 and a 68% loss in area by the year 2070, assuming an A2 scenario. Highest impacts are on wheat and corn production in non-irrigated land. The results of an extensive study on socio-economic vulnerability to climate change in the 8 municipalities of the project area, carried out by AGRIMED (2008, applying methodology described in Santibañez *et al.*2007) are given in terms of "impacts" in table 2 and in terms of "vulnerability indices" in table 3.

Municipality	Social and productive system impact	Economic impact
Pichilemu	Negative, low	Negative, low
La Estrella	Negative, high	Negative, moderate
Litueche	Negative, moderate	Negative, low
Marchigue	Negative, moderate	Negative, moderate
Navidad	Negative, low	Negative, low
Paredones	Positive	Positive
Lolol	Negative, high	Negative, high
Pumanque	Negative, low	Negative, low

Table 2: Expected impacts of climate change for the 8 municipalities of the project area

With one exception (Paredones), all the impacts related to climate change in the municipalities of the project area are considered as negative and are varying from low to high.

Municipality	FT	IDH	IRU	R/S	UCT	Vme	VSP	VSS	VSE	Cultivated surface
Pichilemu	0,15	0,68	0,20	0,93	0,07	0,25	0,67	0,36	0,15	2.729
La Estrella	0,19	0,70	0,50	0,81	0,38	0,50	0,54	0,40	0,44	2.225
Litueche	0,15	0,64	0,40	0,84	0,20	0,35	0,60	0,36	0,28	2.760
Marchigüe	0,16	0,67	0,60	0,43	0,63	0,75	0,32	0,47	0,68	6.111
Navidad	0,50	0,85	0,70	0,85	0,44	0,47	0,63	0,53	0,47	1.341
Paredones	0,50	0,63	0,60	0,89	0,17	0,32	0,69	0,49	0,25	1.109
Lolol	0,21	0,63	0,50	0,56	0,66	0,78	0,36	0,44	0,72	4.937
Pumanque	0,16	0,64	0,70	0,87	0,40	0,47	0,55	0,53	0,44	1.810

FT = land fragmentation index; IDH = human development index; IRU = rurality index; R/S = irrigation index; UCT =capital and technology availability index; Vme = market accessibility index; VSP =agricultural vulnerability index; VSS =social vulnerability index; VSE = economic vulnerability index

Table 3: Climate change vulnerability indices for the 8 municipalities of the project area

The range for the climate change related vulnerability indices in table 3 is from 0 (zero vulnerability) to 1 (high vulnerability) and varies notably among the municipalities, indicating their special needs with respect to climate resilience building.

Agricultural and social economic characteristics of the project area

Agriculture

The total area size of these eight municipalities is 420 thousand hectares, from which 78% are used for agricultural and forestry activities. The total number of farms in the project area is 5.767, 62% of them are small farms with less than 20 hectares farm size (table 4). The main agricultural activities are sheep cattle, cereal and vegetable production.

A summary of land use and livestock composition is shown in figure 6; details are given in tables 4-7.

Category: Farm Size (hectares)	Number of farms in each category	Percentage over sum	Number of hectares in each category	Percentage over sum	Number of hectares used AF&L*
< 20	3.549	62%	23.006,6	5%	18.970,9
< 50	4.534	79%	54.554,7	13%	44.291,4
50 - 100	599	10%	41.583,4	10%	32.479,5
100- 500	483	8%	98.468,9	23%	75.880,0
> 500	151	3%	225.481,4	54%	174.909,4
Sum	**5.767**		**420.088,4**		**327.560,4**

*AF&L: agriculture, forestry and livestock

Table 4: Farm characteristics in the project area; Source: ODEPA[2], Censo Agropecuario 2007 INE

[2] Available on: http://www.odepa.gob.cl/articulos/MostrarDetalle.action;jsessionid=E9CBBA51B56CEDE828FC92E882863BD0?i

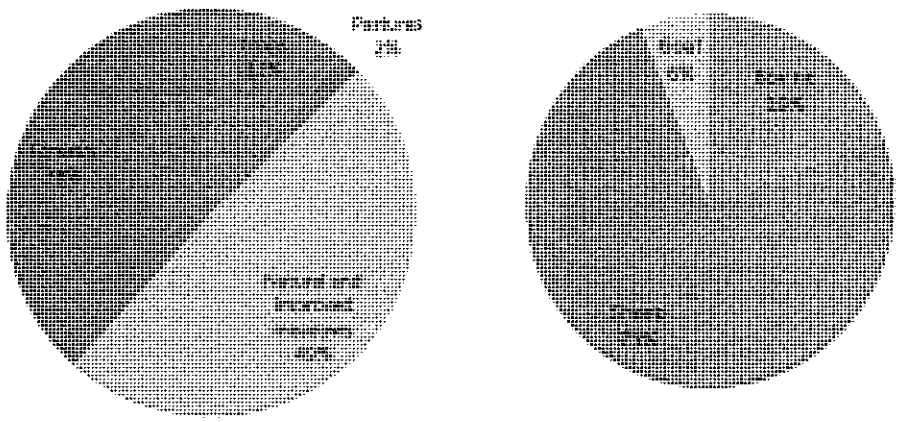


Figure 6: Land use and livestock composition in the project area

Considering the total area size used for agricultural, forestry and livestock activities, 11% of this area is dedicated to crop production, 38% is used for forestry plantations and 2% for livestock pastures. Forty nine percent of the area contains both, natural and improved meadows (table 5).

Production	Area (ha)	Area (%)
Crops	35.681,4	11%
Pastures	6.158,0	2%
Natural and improved meadows	159.681,2	49%
Forestry	125.778,2	38%
Total	**327.298,8**	**100%**

Table 5: Farming characteristics in the project area;
Source: ODEPA[2], Censo Agropecuario 2007 INE

The dominant crops in the area are vegetables (39%) Other crops of economic importance are: grains, fruits, grapes, vineyards and flowers (table 6)

Production	Area (ha)	Area (%)
Grains	4.806,7	13,5%
Legumes	1.078,9	3,0%
Industrial crops	227,1	0,6%
Seedbed	196,2	0,5%
Fruits	4.488,2	12,6%
Grapes and Vineyards	5.663,4	15,9%
Vegetables	13.881,2	38,9%
Flowers	5.339,7	15,0%
Total	**35.681,4**	**100%**

Table 6: Crop composition and respective areas. Source: ODEPA, Censo

dn=4534&idcla=12

The overwhelming part of land used for grain production is in non-irrigated land (≈92%). The varieties of grain crops cultivated are shown in table 7. The most important grain in the non-irrigated area is white wheat while the most important crop in irrigated land is corn.

Cereal type	Hectares under irrigation	Non-irrigated hectares	Production [quintals/hectare]	Number of Farms
White wheat	43,5	3.211,4	66.739	656
Bread wheat	0,0	55,5	1.491	14
Malting barley	0,0	2,6	78	3
Feed barley	0,7	202,4	3.706	79
Oat	39,6	719,2	14.325	228
Rye	0,0	6,6	43	3
Corn	335,4	130,7	32.807	279
Quinua	0,0	58,6	581	27
Other	0,0	0,5	*	1
Total	419,2	4.387,5		1.290

Table 7: Grain production considering species and variety in the project area
Source: ODEPA, Censo Agropecuario 2007 INE

With respect to water management, there are just few facilities of minor size for water storage. In general terms, the small farmers who irrigate their crops, do it at a very small scale and using precarious irrigation systems. Irrigation is used just during a short period of time and depends on water availability (FAO, 2010[3]). Table 8 gives the annual mean precipitation for 6 of the 8 municipalities.

Municipality	mean annual precipitation (mm)
Pichilemu	708
Marchigue	529
Navidad	708
Paredones	859
Lolol	696
Pumanque	696

Table 8: Mean annual precipitation for 6 municipalities of the project area.
Source: Atlas Agroclimático, Santibañez, 2004

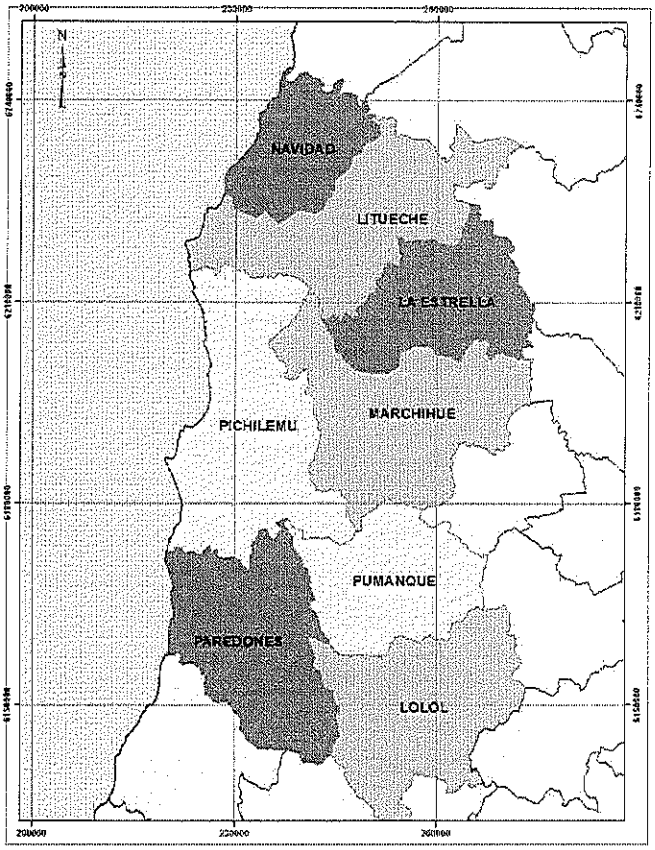
Soil erosion and desertification

Caused by non-appropriated forestry and agricultural practices, the upper soil layer has been removed resulting in increased soil erosion. Bad practices both in production processes and overexploitation of natural resources in non-irrigated areas have strongly impacted the zone and are one of the causes of an increasing desertification (FAO, 2010[3]).

[3] "Gestión del riesgo de sequía y otros eventos climáticos extremos en Chile. Estudio piloto sobre la vulnerabilidad y la gestión local del riesgo". FAO Publication, 2010

In the communities of Navidad, Litueche, La Estrella and Pichilemu, several zones can be identified where overgrazing has generated soil compression, decreasing the level of

permeability of the soil during rainfall events and increasing soil loss due to surface runoff.



Desertification level: Severe Moderate Slight

Figure 7: Erosion and Desertification in the municipalities of the project area. Source: CONAF- Programa de Acción Nacional contra la Desertificación / PANCD (2000).

Soil erosion and desertification are serious problems in the project area. The communities most affected by desertification processes are Navidad, La Estrella and Paredones (figure 7).

Livestock

Livestock raised in the projects area belongs principally to sheep cattle, followed by bovines and goats (table 9). Sheep cattle, vegetable and grain production are the main agricultural activities in the project area.

Livestock	Heads (no.)	Heads (%)
Bovine	33.910	19,4%
Sheep	129.972	74,5%
Goat	10.689	6,1%
Total	**174.571**	**100%**

Table 9: Number of heads in each category of cattle production
Source: ODEPA, Censo Agropecuario 2007 INE

Socio-economic characteristics

The target population of the project is the group of subsistence farmers with less than 20 hectares farm size. This group belongs to the rural population of the project area which is of 60% of its total population. This rural population has lower incomes and higher poverty (average index = 16,7%) than the regional and national averages, and unsatisfied basic needs are commonly detected in rural households. The poorest municipalities are Pichilemu (poverty index 17.6%) and Lolol (poverty index 16.7%).

Furthermore, migration of the younger generation, especially women, from its rural homes to the cities has changed the age and gender structure of the remaining population and therefore increased their social vulnera0bility. (PNUD, 2008[4]).

Table 10 shows a summary of some basic socio-economic characteristics of the farmers in the project area, considering issues such as connections to export markets, agro-industries and farmer organizations.

Characteristics	Women		Men	
	Number	Percentage	Number	Percentage
Total of farmers	1562	100%	3426	100%
Linked to export markets	33	2%	97	3%
Linked to agro-industries	25	2%	74	2%
Received financing (2005-2007)	201	13%	789	23%
Received other kind of support	323	21%	938	27%
Belong to a farmer organisation	65	4%	232	7%

Table 10: Social and financing conditions of target farmers in the project area, gender-wise
Source: ODEPA, Censo Agropecuario 2007, INE(Instituto Nacional de Estadistica)

Appropriate use of agroclimatic information requires the strengthening of local capacities

Climate information products and services in agriculture aim to provide a full range of assistance regarding climate, its impacts on crops, livestock and management practices to be followed in order to prevent, reduce and/or manage risks. This tailored information assists farmers in making management decisions to reduce the risks and benefit from the opportunities of a variable climate and enhances their adaptive capacity to climate change.

The Ministry of Agriculture has acquired much experience in this area thanks to

[4] Desarrollo Humano en Chile rural (2008). Programa de las Naciones Unidas para el Desarrollo. Santiago.

instruments like the Agro-Climatic portal (agroclimatico.minagri.gob.cl), the National Agro-Climatic Network (RAN) (agroclimatico.minagri.gob.cl/ran) and the Observatory for agro-Climatic risks (agroclimatico.minagri.gob.cl/observatorio).

The RAN network consists of 254 automatic meteorological stations located at relevant sites for agricultural decision making. The Observatory is an Information System that permits to inform and reduce the uncertainties based on three analytical components: learn from the past (historical information), monitoring the present (e.g. drought monitoring) and forecast future scenarios.

Given the complexity of the territory in the project area and the singular characteristics of the agricultural communities in the O'Higgins region, the climate information products and services required for the project area will have to be adapted to the local scale and to the special needs of the farmer communities.

Such a localized climate information service must consider community perceptions, local knowledge, livelihood patterns, vulnerability, gender and reliable communication channels and requires training and capacity building for the end-users with respect to decision making and the correct understanding of agro climate information. It is the component 2 of the project, which addresses this subject of agro climatic information needs.

Project / Programme Objectives

Main objective

To increase the resilience capacity of rural farm communities in the coastal and inner dry lands of the O´Higgins region with respect to actual climate variation and future climate changes.

Specific objectives

To implement a capacity building and training system to increment the resilience capacity of farm communities vulnerable to climate variation and climate change with respect to cattle, crop, water and soil management.
Implementation of measures and technologies for increasing water resources availability for rural communities in the coastal and inner dry lands of the O´Higgins region.
To improve the decision supporting agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities.

Project / Programme Components and Financing

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Component 1.-Capacity building in climate variability and climate change related to appropriate farming practices with respect to soil, livestock, water and crop management.		Increased capacity of support institutions and resilience capacity of rural farmer communities to the negative impacts of climate variability and climate change through: (i) Enhanced abilities in soil, livestock, water and crop management. (ii) Access to an agricultural machinery pool for soil management (iii) Increased water supply and crop productivity in 558 farmholds in the project area.	
Result 1.1.- Implementation of a capacity building and training systems to increment the resilience capacity of farm communities vulnerable to climate variation and climate change with respect to cattle, crop, water and soil management.	Output 1.1.1.- Creation of training and advisory teams for agro-technology transfer for each one of the 8 municipalities of the project area, coordinated and supervised by local INIA experts		1.258.630
	Output 1.1.2.- Implementation of 9 demonstration fields for agro-technology transfer (1.1.4, 1.1.5, 1.1.6 and 1.2.8) including its infrastructure and equipment (fencing, water troughs, electrical power supply, etc.): 4-5 hectares in each of the 8 municipalities plus one on INIA ground.		
	Output 1.1.3.- Acquisition (including maintenance and operating costs) of agricultural machinery for the 9 demonstration fields: Tractor, Regenerating pastures machine, Zero tillage seed drill machine, Horrow plow, Chisel plow, Subsoiler plow.		2.945.445
	Output 1.1.4: Training in sustainable soil management: plowing practices, fertilizing practices, soil fertility recovering practices, holistic soil management.		
	Output 1.1.5: Training in the use of crops (wheat, quinoa), forage crops (legumes, graminoids), fruit trees (olives, nuts) and livestock (sheep), tolerant to climate variability and climate change, including the acquisition of seeds, plants and animals.		561.982
	Output 1.1.6: Training in efficient water management on the demonstration fields (including the acquisition of the equipment) through the application of irrigation technology powered by renewable energy resources (sun, wind)		531.725
Result 1.2.- Implementation of measures and technologies for increasing water resources availability for rural communities in the coastal and inner dry lands of the O´Higgins region.	Output 1.2.7: Installation of rain water and surface runoff harvesting facilities in 558 farms including training and acquisition of materials and equipment (roof materials, rain pipes, mobile water cisterns, pumps powered by renewable energy resources (sun, wind), greenhouse installation).		3.167.821
	Output 1.2.8: Capacity building through knowledge sharing and good practice demonstrations: · Visits of foreign experts and visits of members of the training and advisory team (1.1.1) to this respective countries. · Guided visits of farmers from the O'Higgins region and neighbouring regions to the demonstration fields of the project area (planned number: 3000 farmers) · Elaboration of manuals and workshops for dissemination of appropriated farming practice		137.649
Component 2.-Installation of an information system for agro-climatic risk management and climate change adaptation.		Improved capacity of the MINAGRI staff in the O Higgins region in agro-meteorological data	
Result 2.1.- Improve the decision supporting	Output 2.1.1. Strengthening of the existing network of automatic meteorological stations		124.269

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities.	(AMS) in the project area: · Acquisition of 4 AMS and its installation in to climate monitoring relevant sites of the project area. · Integration of the AMS in the RAN- network, automatic data processing, continuously weather report generation and its dissemination to the local farmer communities.	collection, management, and climate risk assessment. Improved adaptive capacity to climate change of the farmer communities in the O Higgins region through agro climatic information oriented decision making. Increased agricultural production through "climate clever" decision making. This project component will serve as model for other regions.	
	Output 2.1.2. Capacity building in weather and climate data analysis and its integration in meaningful decision-making for farm management: · Consultancies (i) for the definition of appropriated agro-climatic indicators for water, crop, soil and livestock management in the project area, including software development, installation and connection to the MINAGRI information system and (ii) for the definition of appropriate media and communication strategies and channels for the dissemination of the respective information. · Implementation of the agro-climatic indicator system and the communication strategy through the local INIA office, and dissemination of the respective information to the farmer communities · Training of local INIA staff, farmer advisors and farmers in the understanding of the agro-climatic information and its integration in the decision- making process for farm management and climate change adaptation.		282.479
Project/Programme Execution cost			450.000
Total Project/Programme Cost			9.460.000
Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			500.000
Amount of Financing Requested			9.960.000

Between the presentation of the concept note and of this full project proposal, Component 1 has been divided in two subcomponents without affecting the project's structure of outputs: Subcomponent 1.1 groups activities directed towards the implementation of local demonstrative fields to support the carrying out of training and innovation-fostering activities, and thus includes also the bulk of the training plan, while Subcomponent 1.2 concentrates on individual work with 558 beneficiaries of water-harvesting facilities. This reflects the fact that the two subcomponents respond to different specific objectives and proceed along different implementation dynamics, and so contributes to the clarification of the results framework, while representing no change on the overall or detailed project structure. In order to facilitate the tracking, output numbers have been kept unchanged while the subcomponent identification has been added between component and output identification. Thus, for example, Output 1.7 becomes Output 1.2.7.

Also, a detailed budgeting process has been undertaken, which provides the cost summary provided in the table above and the budget summary and detail in Section III below. All costs are current market costs in Chile during the first half of 2015, obtained through enquiry to three or more providers. Significant cost savings have been possible to obtain in Output 1.1.5, due to the through selection of techniques to be promoted by the project in order to select already-proven, cost-efficient techniques that can presently be found in the project area.

Projected Calendar

Milestones	Expected Dates
Start of Project/Programme Implementation	2015 (2nd semester)
Mid-term Review (if planned)	2018 (1st quarter)
Project/Programme Closing	2019
Terminal Evaluation	2019

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

Component 1: Capacity building in climate variability and climate change related appropriate farming practices with respect to soil, livestock, water and crop management.

It is expected that through component 1 rural farmer communities will increase their resilience capacity to the negative impacts of climate variability and climate change through i) the enhancement of abilities in soil, livestock, water and crop management; ii) access to an agricultural machinery pool for soil management; and iii) an increase of water availability and crop productivity in 558 farm holds in the project area. The Component provides responses to two of the project's specific objectives, therefore being divided in two Subcomponents, the first of which (Result 1.1) tackles farming practices and the second of which (Result 1.2) tackles water availability. The methodology and main features of each component follow.

Detailed baseline

Component 1 starts with the establishment of a detailed baseline including local soils, vegetation and water availability. This is done through UAV photography providing RGB, multispectral, hyperspectral and thermal high-resolution images that allow the establishment of 1:5.000 GIS and cartography. This is then used for the establishment of a comprehensive monitoring system, the final selection of demonstrative units and further work, as well as for works in beneficiaries' farms. Main features of this baseline are:

an initial agricultural diagnosis of the project area and demonstrative units;
parameters to be validated in field works and soil pits; and
elevation models, runoff profiles and soil humidity electromagnetic models

This complete aerial photography mapping is repeated at least once at the end of the project, allowing for full agronomic impact evaluation.

The exploitation of this system allows for the adequate implementation of demonstration

units, for the evaluation of vegetative cover and pastures and cultivated areas and the zoning of the project area in terms of agronomic potential. As mentioned, this allows the full evaluation of the agronomic impact of the applied techniques and the project.

Demonstration units

The project establishes 9 demonstration fields including its infrastructure and equipment (fencing, water troughs, electrical infrastructure, renewable energy sources, etc.) to demonstrate appropriate farm management for climate adaptation and resilience building. One principal demonstration field will be located at the INIA experimental station "Hidango", in Litueche. The Hidango facility will be the model for all the management practices and technology transfer activities, applied in the 8 project municipalities. The other 8 demonstration fields will be established in each one of the municipalities of the project area: Paredones, Pichilemu, Marchihue, La Estrella, Litueche, Navidad, Lolol and Pumanque. Each demonstration field will cover an area of about 4 to 5 hectares and will be located in an accessible location for smallholders. A contract will be signed between the project and farm owner to detail the responsibilities of both parties. This installation allows for different local soil and climate conditions to be taken into account for the practices that will be demonstrated and transferred in the local demonstration fields (see also table 3).

Different agricultural species are tried in the demonstration fields for their yield in microlocal conditions:

Wheat
buckwheat
pea
quinoa
legume and grass fodder combinations

Adapted species are combined with different practice options:

zero tillage for cereals
subsoiling
pasture regeneration
stubble management
amendments and fertilising

Rain harvesting, storage and utilisation systems, along with greenhouses and renewable-energy systems are installed in the demonstration units, in order to keep a direct link with the beneficiaries and to test, fine-tune and monitor promoted technologies in the same microlocal conditions. A 40 m^2 greenhouse, for the demonstration of vegetable production, and efficient irrigation (drip) are also installed and promoted.

Finally, demonstration units bear also livestock (sheep), for the demonstration of adapted livestock management options, and beehives and equipment for beekeeping, which are provided to selected beneficiaries.

Smallholders benefit through: (i) the installation of the demonstration unit on their farmlands, (ii) the provision of the corresponding infrastructure, machinery, livestock, crop seeds and plants, (iii) the supervised implementation of climate-adaptation-oriented farming techniques and practices, and (iv) the continuing assistance, training and monitoring through the project's local training and advisory teams.

Monitoring system

Demonstration units are applied thorough a monitoring plan, focused on plant nutrition and showing plant's response to liquid and solid fertilisers, which are selected for being accessible to beneficiaries and eligible for SIRSD funding. Beyond the plant, the demonstration-unit monitoring system measures:

physical, chemical and biological properties of the soil;
results in each applied technique in the management of soil, water and yields;
response to plagues and diseases; and
water stress and irrigation needs, including occasional irrigation of permanent pastures.

Machinery pools

As described in the expected output 1.1.3, the project also considers the acquisition (including maintenance and operating costs) of agricultural machinery for the 9 demonstration fields. This equipment is going to be used for works on demonstration fields and also as a machinery pool at the disposal of registered and eligible small farmers in each municipality.

Small farmers, both direct beneficiaries of other project outputs and others qualifying (vulnerable small farmers) register in a machinery-pool applicant list. The Local Committee (see Part III) then organises the calendar for machinery utilisation outside the demonstration fields, considering the registered necessities. The requirements and employment of machinery by small-farmers are coordinated and monitored by the technician in charge of each demonstration field. Correspondingly, a mechanism will be established to authorize the use of machinery outside the demonstration fields.

Machinery types and justification for its use to enhance adaptive capacity to climate change can be found below:

Subsoiler: this implement is ideal to plough soils on non-irrigated and dryland areas. The tool works between 35 to 45 centimetres under, allowing the rupture of compacted soil layers or hardpan. This action contributes to reducing runoff and erosive processes due to sediment dragging. It improves water accumulation in the soil profile, enhancing root growth and vegetable cover such as grassland for animal feeding and others. It progressively improves physical and biological soil conditions, increasing organic matter amounts.
Chisel plough: likewise the subsoiler, but this plough works between 20 and 30 centimetres under. Crucially, both do not disrupt the soil profile.
Vibrocultivator: implement used for one-off seedbed preparation and non-chemical weed control for vegetative-propagation weeds

Stubble cultivator: the implement is used for the incorporation of stubble into the soil.
Offset disc harrow: the implement is used for liming and the incorporation of organic amendments or stubble into the soil.
Zero tillage seed drill machines: it allows direct seeding. The zero tillage method aims at enhancing and sustain farm production, conserving and improving soil, water and biological resources. The crops considered for zero tillage seeding are wheat and oat. The use of these machines permits sowing under the stubble of previous seasons. This action reduces erosion and damage to the soil structure, fostering natural fertility and improving physical, chemical and biological characteristics over time. Finally, with this method, production and yield improve. Zero tillage also contributes to keep carbon and humidity inside the soil profile, reducing CO_2 emissions and preserving water accumulation.
Pasture regenerating machine: allows direct seeding of pastures, with a minimum impact on soil similar to the zero tillage seeding drill machine: reduces erosion and damage to the soil structure, fostering natural fertility, improving physical, chemical and biological characteristics over time and contributing to keep carbon and humidity inside the soil, reducing CO_2 emissions and preserving water accumulation.
Manure spreader: the equipment is used for organic amendments.
Sprayer: the implement allows the application of organic amendments and the removal of invasive plants.
Wheat/Quinoa seeder: specific equipment that allows efficient and optimal seeding of promoted yields.
Stubble chipper: it facilitates the incorporation of organic material to the soil by increasing the contact surface.
Backhoe: it allows small conditioning works to be made efficiently.
Tractor: with a minimum power of 115 hp (86 Kw).
Small truck: allows the displacement of machinery pools (medium haul).
Flatbed wagon: allows the displacement of machinery pools (short haul).
Oil tank and manual fuel pump.
Manual hay baler: proven yet unaffordable technology in the project area, to be incorporated into machinery pools. It is sought for baling forages.
Honey extractor: extracts honey from honey combs without damaging the combs, thus allowing them to be reutilised. Honey extractors are available within machinery pools, but without being moved from the demonstration unit.
Strawberry picking assistant: the non-motorised equipment, originally developed in different versions for strawberry picking, can also help plant, weed and other agricultural tasks.

Work in beneficiary farms

The expected output 1.2.7 refers to the Installation of rain water and surface runoff harvesting facilities in 558 farms including the acquisition of materials and equipment (roof materials, rain pipes, mobile water cisterns, irrigation system, greenhouse installation) and training by the advisory teams in the use and maintenance of this facilities. This deliverable clearly improves climate adaptation and resilience building with respect to increasing water shortages and climate uncertainty and improves farm productivity in the 558 most vulnerable smallholder farms in the project area. Rain harvesting systems and irrigation materials lifetime is at least 15 years, according to their technical specifications. Each farmer will be responsible for the maintenance of her/his infrastructure. They receive proper technical support and training on

the collection of water resources, storage capacity management, cleaning processes and preservation of pipes, seals and other parts.

The usefulness of several alternatives of rain harvesting, storage and utilisation has been researched by INIA on farms located in the O'Higgins Region. The results of these investigations show that it is possible to collect and storage an important amount of rain water for agriculture and human consumption (for human consumption, a system to filter and purify the water is included). Five hundred and fifty eight (558) small-farmers and their families (more than 2.000 individuals) benefit from these systems that allow having fresh water for human and animal consumption and for agricultural production through the irrigation of small vegetable areas or greenhouses. During the last 5 years several alternatives of rain water harvesting and storage have been studied and new technologies have been proved in other countries, for example the use of movable tanks is a new alternative. The knowledge of rain harvesting has been increasing in the country. There are suppliers and companies capable to install and provide maintenance services for the systems at scale. An increasing interest has developed in the region for rain harvesting systems due to the results of pilot experiences. The project plans dissemination of results through the technology-transfer teams and further knowledge management activities.

On the other side, regarding the use of solar energy for irrigation systems, this alternative has been very successful on rural areas because it has no costs associated to energy consumption. Pumping bombs powered by solar energy are used in the country with very good results. The power generated by solar energy is enough to lift water for irrigation systems such as those ones planned by the project. Other alternatives, for example electricity and oil, have higher costs of consumption. Furthermore, electricity is not always available for some rural areas, due to the lack of infrastructure and oil is not a sustainable alternative, and to promote its use will be in contradiction of climate change mitigation. The challenge about solar energy systems is its high initial investment costs. The project helps to further improve the conditions of the small-farmers providing the necessary funds for this initial investment in 100 cases, those who can most benefit in terms of resilience. It is expected that the capacity building activities of the project, the dissemination of lessons learned and a continuation in the price drop of the equipment will motivate the support of more solar energy systems for future projects.

As a result of the activities previously mentioned, the availability of water for efficient consumption is ensured for the 558 small-farmers, their families and their agricultural requirements, for a long period of time, thus augmenting their resilience in uncertain, but for sure worse, climate conditions.

Training

The agro-technology transfer concept of the Project focuses on facilitating that farmers, together with the local training and advisory teams, generate the expected concrete outputs 1.1.4, 1.1.5, 1.1.6, 1.2.8 and 2.1.2 within a comprehensive training strategy (see below). The capacity building plan and the management structures provided for it are further developed in annexed Capacity Building Plan and Part III.

Training activities are organised from the identification of two different target groups:

project beneficiaries (farmers) and technical staff directly linked to the project and its beneficiaries and area. The project establishes an orderly, systematic and adaptive communication system to ensure the fulfilment of the following objectives:

to allow and assure efficient and effective communication between different institutional and non-institutional actors;
to provide flexibility while keeping the communication plan able to be monitored; and
to establish channels that allow for both the dissemination of new practices and useful information and the feedback of users' information and perceptions.

For the implementation of training activities 1.1.4, 1.1.5, 1.1.6 and 1.2.8, there will be 8 local training and advisory teams for agro-technology transfer for each one of the 8 municipalities of the project area. These teams are composed of the local technical-assistance providers from different MINAGRI institutions plus the municipality and a representative of the demonstration field, supported by a local technician hired by the Project, and receiving coaching and technical advise from the project through INIA.
The responsibilities of these local technicians are:

to support joint programming and to manage agricultural labours and training activities at the unit and commune;
to establish and update a list of beneficiary small-farmers, and to identify their detailed conditions, capacities and needs, in order to fine-tune activities;
to coordinate a monthly and yearly schedule of activities to be developed in the demonstration field for agro-technology transfer;
to keep constant communication with small-farmers in the municipality;
to coordinate a monthly and yearly schedule of activities to be developed outside the demonstration field, in farmlands;
to coordinate all other issues related to the project at the local level.

The 8 teams will be coordinated and supported by INIA, the project management unit and the Project Director. The training activities of these advisory teams focus on three main subjects:

Training in sustainable soil management: ploughing practices, fertilising practices, soil-fertility recovering practices, holistic soil management.
Training in the use of crops, forage crops, fruit trees and livestock tolerant to climate variability and climate change.
Training in efficient water management and water harvesting and storage on the 9 demonstration fields and on 558 smallholder farms in the project area.

Special consideration is going to be made regarding the vegetable and grass hydroponic production, for family agriculture farming and use of rain water from harvesting systems. Another subject to address by the capacity building is the clean reproductive management and nourishing of sheep breeds adapted to water scarcity conditions. The target groups of on-farm technical support include the entire farm family, including women and teenagers in the smallholdings where the demonstration fields are located and in general, interested farmer families in the entire project area of the O´Higgins region.

Direct training activities are going to take place for at least 2,200 small- farmers on the project area. As the target population additionally considers rural schools and small-farmers' families and taking into account the characteristics of these rural communities, around 10,000 people will be benefited from the activities previously mentioned. The training activities will be supported by the elaboration and dissemination of didactic materials, including manuals describing appropriated farm management methods and techniques and the realization of respective workshops and events.

Furthermore, a strong training-of-trainers set of activities is also to take place, along with an important effort in the diffusion of best practices for replication purposes, both within the O'Higgins region and neighbour regions of Valparaíso, Maule and Coquimbo.

Component 1 includes diffusion activities with farmer communities from other Chilean regions with similar social and agroclimatic characteristics and needs for improving farm management skills, as well as knowledge sharing and good practice demonstrations from leading agricultural experts and institutions. In this context, the project will organize "field days" to the demonstration sites. These organized visits will promote a participatory "learning by seeing" process with a view to replicate results and good practice on a wider geographic scale.

The agro-technology transfer and capacity building activities of Component 1 will furthermore provide synergies with three already existing MINAGRI programs in the region: PRODESAL (local rural development program), SAT (technical assistance service) and SIRDS (Incentive system for sustainable agricultural soil management).

To achieve the desired synergies between the Project and the MINAGRI programs and to strengthen their joint impacts on rural capacity building and climate change adaptation, a cooperation agreement will be signed.

It is expected that through the knowledge and agro-technology transfer (including the provision of climate change adapted crops and animal breeds) small farmers will build capacities and develop better practices to: increase agricultural production, to improve soil moisture and reduce the vulnerability of soils to erosion and degradation and learn how to make an efficient management of water resources through mechanized irrigation, water harvesting, recirculation of water and greenhouse growing techniques

As a direct result of the project, areas under technified irrigation and within greenhouse are expected to increase. Furthermore, small farmers will have the possibility to cultivate new crops, which was not possible before, due to the lack of water or its inefficient management. INIA has developed varieties resistant to water and thermal stress that are made available at scale through the project.

Synthesis of the Capacity Building Plan

Activity	Instructor	Target audience	Duration (days)	Course editions (number)	Participants (total)	Year 1	Year 2	Year 3	Year 4
Direct training									
Soil and water conservation techniques	INIA or project professional	Beneficiaries		8	488				
Technical visit: soil and water management under semiarid conditions in the Brazilian North-East	EMBRAPA Semiárido, Petrolina, Pernambuco State, Brasil	6 farmers, 2 professionals	8	1	8				
Water harvesting, accumulation and efficient use	INIA or project professional	Beneficiaries		8	488				
Adapted crop management	INIA or project professional	Beneficiaries		8	488				
Adapted irrigation	INIA or project professional	Beneficiaries		8	488				
Technical visit: vegetable production in semiarid conditions	Universidad de Córdoba, Almería, España	3 farmers, 1 professional	10	1	4				
Adapted sheep rearing	INIA or project professional	Beneficiaries		2	122				
Adapted pasture management	National consultant, INIA or project professional	Beneficiaries		2	122				
Subtotal direct training				**38**	**2.208**				
Training of trainers									
Characterising and classifying water sources and vegetation on aerial photography	National consultant	Professionals and technicians		1	13				
Soil classification	National and international consultants	Professionals and technicians		1	13				
Soil micromorphology and soil profile	International consultant	Professionals and technicians		1	13				
Diploma on water harvesting and accumulation systems	Escuela de Postgraduados, Universidad de Chapingo, México	2 project professionals	12	1	2				
Regulation and maintenance of agricultural machinery	INIA professional	Demonstrative unit staff, professionals and technicians		2	26				
Regulation and maintenance of agricultural tractors	INIA professional	Demonstrative unit staff, professionals and technicians		1	13				
Field topography	National consultant	Professionals and technicians		1	13				
Technical visit: water and soil management and agroclimatic risk management under semiarid conditions	INTA, Salta and Santiago del Estero, Argentina	3 professionals	6	1	3				
Soil and water conservation techniques	INIA professional	SIRSD operators		3	39				
Interpreting agroclimatic indicators for decision-making	Company consultant	Project and institutions professionals and technicians, SIRSD operators		3	117				
Technical visit: water and soil management and agroclimatic risk management in Mediterranean conditions	University of Melbourne, Australia	3 project professionals	10	1	3				
Subtotal training of trainers				**16**	**255**				
Diffusion and replication									
Field day at demonstration unit	Project professionals and technicians	Beneficiaries, local and neighbour-region producers, agricultural schools		36	3.096				
Soil and water conservation techniques	INIA professional	Neighbour-region professionals and technicians		3	39				
Subtotal diffusion and replication				**3**	**3.135**				
Total capacity building				**57**	**5.598**				

Component 2: Installation of an information system for agro-climatic risk management and climate change adaptation.

The main goal of Component 2 is to strengthen the National Agro-Climatic Network (RAN, see p.17) in the project area, in order to improve its products and to make them available on a regular basis for climate hazard- and climate change-related decision making by the farmer population.

In this context (expected output 2.1.1, table 11), the project acquires and installs 4 automatic meteorological stations (AMS) for relevant sites of the project area and will enable their data transmission and automatic processing through to the RAN-network , including the elaboration of weather reports and forecasts and its dissemination to the local farmer communities. The 4 new AMS will be located in the municipalities of Navidad, Pichilemu, Paredones and Pumanque.

Component 2 (expected output 2.1.2, table 11) also considers capacity building in weather and climate data analysis, the development of farm management appropriated indicators and its integration in meaningful decision-making, through the following activities:

- Consultancies:

(i) For the definition of appropriated agro-climatic indicators for water, crop, soil and livestock management in the project area, including software development, installation and connection to the MINAGRI information system.

(ii) For the definition of appropriate communication strategies and media channels for the dissemination of the climate information.

- Implementation of the agro-climatic indicator system and the communication strategy through the local INIA office, and dissemination of the respective information to the farmer communities, through proper channels in straightforward language.
- Training of local INIA staff, project staff, advisory teams and farmers in the correct interpretation of the agro-climatic information and its integration in the decision-making process for farm management and climate change adaptation.

The media and communication strategies consider the special characteristics and needs of the small farmers, their families and their communities, and are integrated in the wider Capacity Building Plan. Training in the use of agroclimatic information is incorporated in all direct training and training of trainers activity from its availability during year 3. Adoption is expected to be very quick and widespread (way beyond direct beneficiaries) as a result.

The Component also includes the elaboration of diffusion materials for the target population: small farmers (men and women), adolescents, students from farm schools, etc., as well as the training of professionals and technicians in the interpretation and use of the provided agroclimatic information so they can provide adequate support to the implantation of the agroclimatic information system. The emission of bulletins,

climate forecasts and alerts keeps established with project investment and then on.

It is expected that through the Component 2, i) the local MINAGRI Institutions will strengthen and improve their technological and methodological capacity in climate data sampling, processing and analyses, and ii) the rural farmers communities will increase their resilience capacity to the negative impacts of climate variability and climate change through climate-wise decision making.

Because of its innovative character, it is assumed that the successful implementation of Component 2 will serve as a model for climate change adaptation oriented farm management.

B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The economic, social and environmental benefits of the project have been resumed in the following two tables. Table 11 shows the direct benefits considering the small farmers and specially women. Table 12 shows how the present situation is expected to improve through the two project components.

	Benefits		
	Economic	Social	Environmental
Small farmer (in general)	Increase in productivity results in higher incomes and generates competitive market advantages.	Increased live quality due to higher incomes and improved water supply. Avoidance of rural exodus because of: Improved opportunities for the younger generation and strengthened family ties due to the family integrating "learning by doing" approach of the agro-technology transfer process.	Reduction of soil loss and desertification processes due to increased water resources availability and improved irrigation techniques. Avoidance of ecosystem degradation through holistic farm management.
Women	Additional incomes from greenhouse and small animal production due to the increased availability of water resources from rain-harvesting and storing systems.	Increase economic benefits through more involvement of women in farm production will strengthens their role and participation in farm management decision making.	Women are more likely than men to adopt eco-friendly sound decision making. The strengthened position of women in farm management will have positive implications on the environmental consciousness building process at family level

			and will result in more environmental friendly farm practices.

Table 11: Economic, social and environmental benefits of the Project

Present situation	Expected Project Benefits
Small farmers face water scarcity from November to April.	Small farmers are better prepared for the dry seasons because of the support and capacity building in the use of rain water harvesting and storage facilities and more efficient irrigation techniques
Small farmers and their families receive water in tankers from the local municipality. However the amount of water distributed during the dry season is hardly enough to satisfy basic needs and insufficient to maintain water dependent agricultural activities.	The installation of rain water harvesting and storage facilities at 558 small farms will increase water availability for these families and allow to maintain water dependent farming activities even during dry seasons.
The younger generation migrates from the family farms to the cities for searching better economic and employment conditions and life quality. The average age of the small farmers at the project area is 52 years and they are not very open minded for changing conservative farming practices and apply new and innovative options.	The younger generation is more likely to adopt new and innovative farming practices and technologies which increase economic benefits and life quality. This will lower the rural exodus and contributed to farm modernization and more business oriented farm management.
Small farmers have very limited connections to agro-industries and very low participation in farmer organizations (see Tab.10).	The participative learning and training approach of the Project which includes guided visits of 3000 farmers to the demonstration sites will increase the inter-farmer communication and their readiness to join existing farmer organizations or create new ones and increases their connection to the agro-industries sector.
Increasing soil degradation and fertility loss due to erosion processes.	Soil degradation will decrease due to the application of soil recovering and conservation methods and appropriated land and pasture management.
Limited crop and pasture production due to poor soil moisture and water storage capacity of the upper soil layer.	Increased soil moisture and water storage capacity due to better soil management. Increased crop and pasture production due to adequate land management and the use of appropriated equipment (e.g. zero tillage planter)
Low climate adaptation capacity of small	

Present situation	Expected Project Benefits
farmers because they have no access to crop varieties and livestock races which are better adapted to climate change and extreme climate conditions. Small farmers do not have appropriate access to agro-climatic information and are not trained in applying this information for agro-management decision making. Low level of technical and financial support through government aid programs (Tab.10) due to lack of information and low capacity to accede to this programs.	Increased climate adaptation capacity because the Project provides crop varieties and livestock races better adapted to climate change and extreme conditions. The project generates and disseminates on a regular basis appropriated agro-climate information for farm management and trains farmer communities in its correct interpretation and application for climate-smart decision making. Small farmers are better informed about technical and financial support options and have improved abilities in the filing of the respective applications.

Table 12. Present situation in the project area and expected project benefits

The project does not present any risk of marginalization of minority groups or indigenous people.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

A main output of the project is the implementation of nine demonstration fields for agro-technology transfer. Eight of these fields will be located at farmers' property at the local (municipal) level and one on INIA ground. There is no need therefore to buy or rent these facilities or for expenditures for special surveillance measures. The infrastructure facilities on these fields will not be removed by project end.

The new crop varieties on the demonstration field will be distributed cost-free to the farm owners. If any, the economic benefits of the yield belong to the farmers. The development and test of varieties has already been developed by INIA. The agricultural machinery pool of the project will be available cost-free to the small farmers of the project.

The output 1.1.7 under Component 1 – Result 1.2, which consists in the installation of rain harvesting systems on 558 smallholdings, is the best way for the small farmers to have access to cost free water resources. The Chilean legislation is based on water rights for the use of water for an economic activity. To buy water rights and to install the corresponding dwelling and transport facilities, which needs a special permission from the General Directorate of Water, is too expensive for the small farmers of the project. Rain water however can be freely collected and utilised, so that the farmers do not need economic resources or special permission to use this vital resource. The installation of these facilities is cost-free for the farmers.

The agro-climatic information system of the project will be integrated in already-existing national agroclimatic information frameworks. The continuous dissemination of the respective agro-climatic information products for farm management will be cost-free.

There are scant feasible alternatives for providing support to the target population in adapting to climate change and climate uncertainty by means different to the ones provided for in this project. The *dryland* has been a worry of the Ministries of Agriculture and Environment for years, and support has been provided to the maximum possible extent through the available means for these government branches in charge of rural sustainability. Nonetheless, these efforts are unable to overcome the combination of climate change and existing socioeconomic and market conditions that threatens the sustainability of the target households, the most disadvantaged in the area.

For equipment, vehicles and other resources that could be either bought or leased (ie. those not included in machinery pools, which by definition are to be acquired), a sourcing efficiency analysis has been undertaken. Whenever equipment acquisition is planned, the volume of works in which it is to be utilised makes it cheaper to acquire the equipment than to lease it throughout the project.

An in-depth economic analysis has been conducted on the intervention strategy and expected outputs and outcomes of the project. The project provides a feasible solution at scale for the most vulnerable of these households to face those threats, providing at the same time a replicable intervention strategy that can be applied to the whole *dryland* areas of the country if successfully implemented hereby. Further detail on this replication potential is provided below.

D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub- national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The proposed Project is consistent with the "National Climate Change Action Plan 2008-2012" which demands actions for three strategic axes: (i) mitigation of greenhouse gases, (ii) adaptation to climate change and (iii) capacity building in adaptation and mitigation and with the National Adaptation Plan to Climate Change (NAP), approved in 2014.

The program is especially consistent with the "National Climate Change Adaptation Plan for Agriculture and Forestry"[5], published in 2013 by the Chilean Government (Ministry of Environment and Ministry of Agriculture) which includes 21 adaptation measures.

The two components of the proposed project are directly linked to the adaptation measures proposed in this national plan and can be therefore considered as pilot projects and "first step actions" for the gradual implementation of this plan on the

[5] The Plan can be downloaded from: mma.gob.cl/1304/articles-55879_InstrumentoFinalCC_Silvoagropecuario.pdf

country level. On this account, the experiences and lessons learned through the proposed project will be extremely helpful for the stepwise implementation of the national adaptation plan.

E. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

The implementation of this proposal counts on an active participation of government institutions (Ministry of Agriculture and Ministry of Environment) and full compliance with the existing legal framework and procedures, which includes direct and outsourced operations, via tender.

Actions and tasks considered in the implementation of small and medium-scale investments have technical standards, accredited by the National Institute of Standardization (INN), which are not legally binding in a direct way, but are considered as prerequisites in the terms of reference and/or in the accreditation of consultants and technical services certified for the execution of works financed with State resources.

Considering the current legislation in Chile (Law 19300 modified by Law 20417 that established the basis for environmental issues) and also considering the scale of the project and the nature of the activities involved in the proposal, this project does not have to present neither an evaluation nor a declaration of environmental impact.

In order to streamline the project implementation, the detailed-design phase has developed technical solutions for every output that ensure no authorisations such as municipal building authorisations are required. The only procedures upon which the project depends are therefore its own coordination, procurement and hiring processes, which are both incorporated in the intervention design and adequately habilitated in terms of time and dedicated staff (see Part III).

The proposal is categorised within Category C, considering there are not adverse environmental or social impacts. The project complies with the environmental and social principles as outlined in the Environmental and Social Policy of the Adaptation Fund.

F. Describe if there is duplication of project / programme with other funding sources, if any.

There are no other funding sources that would duplicate the measures proposed to be undertaken by this project.

Considering the components of the proposed project, the rain harvesting systems installation is the one activity that has been previously taken place in the project area, but on a small scale. There has not been any similar initiative in the region that contemplates the same goals and spatial and temporal coverage than the proposed project. In 2012, a project was developed in the region, in which 40 producers were benefited with rain harvesting systems installations. In 2013, a number of 160 units

were installed, by another initiative. Although both projects show that this infrastructure achieves its objective - collecting a good amount of water, considering the climate conditions of the area - there were no further 'capacity building' activities and no continuity on the process of knowing 'how to' use these resources on agricultural production. Furthermore, there were no activities of holistic management - soil, water and species- associated to these projects or training on how to take the best advantages of the resources.

The proposed project benefits a wholly new group of 558 small-farmers from the 8 municipalities in the project area. Farmers that were already benefited by the two initiatives previously mentioned are not considered among these 558. Despite that, those farmers will certainly have the possibility to take advantages of the capacity building activities and all the other activities of the proposed components, and will be able to improve the utilisation of the rain harvesting systems they already have and to develop a sustainable management of the resources on their farms. Permanent capacity building activities are carried out for producers and technicians, and also for students of rural schools of the area.

As already mentioned in Part II.A, the proposed project is consistent with three existing MINAGRI programs in the O'Higgins region: PRODESAL (local rural development program), SAT (technical assistance service) and SIRSD (Incentive system for sustainable agricultural soil management).

Both PRODESAL and SAT are productivity-oriented technical assistance programmes, which therefore cannot provide the needed adaptation support. Nonetheless, the project provides training-of-trainers to professionals involved in these programmes, so as to ensure that resilience and sustainability are incorporated into the technical assistance the programmes provide. These professionals participate in the project cost-free.

In the case of SIRSD, which is a soil conservation incentive programme, the project also provides training to professionals involved in programme management, in order to ensure that resilience building is considered. It is expected that the project will allow its beneficiaries to access machinery and knowledge that will qualify them for SIRSD co-financing, which otherwise does not occur because of minimum-capacity requirements in the programme (farm area, working capital, market orientation and so on). The project will thus enhance the sustainability of its provided support.

Due to its importance for the project outcomes, coordination with PRODESAL and SAT has been established at the nearest possible level (see Part III) through the participation of the local heads of the programmes in the eight Local Committees.

In the case of SIRSD, where coordination is needed at a higher, though still local level, coordination has been established through the participation of SIRSD Regional Committee members in the project's Executive Committee. Both Committees are chaired by the SEREMI of Agriculture for the O'Higgins region.

G. If applicable, describe the learning and knowledge management component to

capture and disseminate lessons learned.

The agro-technology transfer model consists in a combination of a "learning by doing" and a "learning by seeing" methods. In this context, farmers, local MINAGRI experts and local advisory teams work together to understand and to implement land use and farm management practices which are appropriated to climate change and climate variability and which, in general, improve and secure agricultural productivity and water resources management.

The "learning by seeing" component refers to the guided visits to the demonstration fields of farmers from the Project area and from outside the project area, totalling more than three thousand farmers. This combined learning and knowledge sharing approach will be enriched by learning from best practice experiences from leading agricultural institutions of countries with similar conditions to the *dryland*, through a number of activities (training of professionals, farmer technical visits and others). Best practice identified for example: Argentina (climate change adaptation), Brazil (farm management in dry ecosistems), Spain (efficient water management), México (rain water collection and management) and Australia (risk communication).

The project implements a monitoring system to evaluate the results of the agro-technology transfer activities and the effectiveness of the agro-climatic information dissemination in the wider context of climate change adaptation and resilience building. This monitoring and evaluation system allows an estimation of the degree of achievement of the projects objectives and, if necessary, the application of corrective measures during project implementation.

No specific component of the project deals with learning and knowledge management given that the whole project does so, providing state-of-the-art knowledge, a comprehensive training and dissemination strategy and the material conditions for the acquired knowledge to be applied at scale. Further, specific knowledge management tools intended for targets within and beyond direct and indirect beneficiaries are planned and resourced, such as:

- a project website that provides outreach and feedback capabilities for all applied techniques and methodologies;
- professional services for communication activity and commensurate budget for social media, local radio and other channels;
- targeted replication and diffusion activity;
- the publication of a manual of best practice.

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The actions of the proposed project are strongly linked to the adaptation measures of the first draft version of the "National Climate Change Adaptation Plan for Forestry and Agriculture" which has been identified in 2010 through a participatory process (farmers and MINAGRI experts, see table 1) on country level, including the region of O'Higgins, where the Project area is located. Furthermore, for the elaboration of the final version of this national plan, the proposed adaptation measures has been presented and discussed during 2012 in eight workshops in different Chilean regions, including the region of O'Higgins. This process of public consultation ("Consulta Pública") has been carried out with a broad stakeholder participation including farmer communities, agribusiness representatives, public sector officials and academics. One of the main goals of this process was the identification of pilot projects as a first step towards the implementation of the national plan on a local scale and oriented to the needs of climate change adaptation at the local level with special regard to small farmers. The proposed Project therefore is the direct results of this stakeholder driven pilot project identification process.

Of special importance in this context of stakeholder consulted project identification is the Institute for Agriculture Development (INDAP) of the O'Higgins region. This institution, which belongs to the Ministry of Agriculture, is focused on the development of small farming activities and responsible for strengthening the human and economic capacity of this sector with the aim of sustainable poverty reduction and increased competitiveness. The inclusion of this institution from the beginning of the project formulation process guarantee that the projects components and the proposed methodology meet the needs and special conditions of the small farmers in the Project area (both man and women) and their families.

During the months of April to June 2015, a project-specific consultation process was carried out on the project's objectives and expected results. This process included in-depth interviews to long-time practitioners in the area (mostly INDAP professionals, table 13), three workshops in the project area which were attended by more than 150 persons (table 14 and figure 8) and individualised assistance to the filling of a

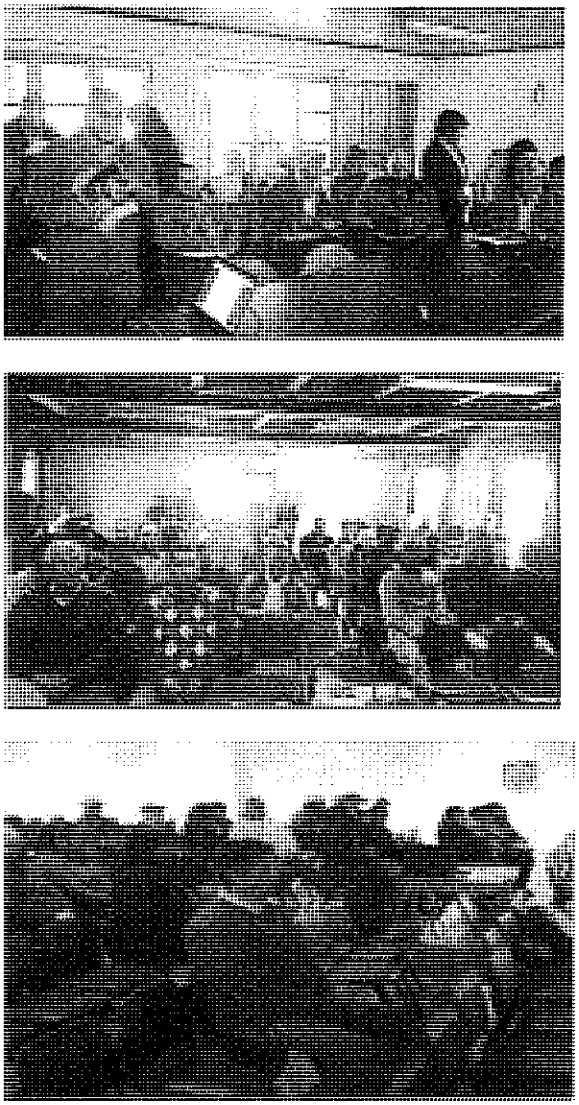


Figure 8: top to bottom, consultation workshops held in Litueche, Marchigüe and Pichilemu

multi-objective format which provides detailed information on the project's target population, and that became an individual interview that provides very relevant profiling information. This last activity ended up with the collection of 558 selected-beneficiary files (list of participants see annex).

Municipality	Interviewed person
[illegible]	Mr. Daniel Bascuñán
[illegible]	Mr. Gustavo Jorquera
[illegible]	Mr. Rodrigo Clavijo
[illegible]	Mr. Sebastián González
[illegible]	Mr. Rodrigo Valenzuela
[illegible]	Mr. Juan Francisco Rubio

Table 13: Key informants interviewed

Municipality	Date	Place	Meeting size
[illegible]	28 May 2015	Litueche Church Hall	50 persons
[illegible]	27 May 2015	Rafael Casanova Community Centre	50 persons
[illegible]	27 May 2015	PRODESAL Centre	70 persons

Tabla 14: Participative workshops

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Climate change and climate variability impacts in agriculture and livestock systems have a high economic, social, and environmental cost in dry-land areas of the O'Higgins Region of Chile, especially due to water scarcity and draught. Current efforts to overcome this situation and mitigate the magnitude of these impacts have been limited to reactive responses. Regarding the events of draught, these reactive responses seek to solve the most urgent problems by providing water for human consumption through "water tankers" but without satisfying the demand for agriculture activities.

However no medium term preventive actions have been put in place to manage the effects of water shortage, considering the current situation and the climate future projections. Therefore the communities in the project area are highly vulnerable to water shortage that threatens human consumption and agriculture. It is urgent to implement a mid and long term strategy to improve the adaptive capacity of the rural population in these areas.

The Chilean Government recognizes the urgent need of adapting to climate change within the context of sustainable development and has elaborated the "National Climate Change Adaptation Plan for Agriculture and Forestry ",Its implementation however is aggravated by budget limitations. There is therefore a keen need for external support to enable the implementation of pilot projects in the project area to afford medium and long term preventive actions related to water supply for human consumption crop and livestock management. These pilot protects, which are understood as a first step towards the implementation of the national adaptation plan, additionally will contribute to strengthen the capacities and expertise of the Ministry of Agriculture and its local institutions to create examples of best practise and to promote its application on a national level.

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.

The two components of the proposed project have been designed considering that their implementation permits the sustainability of the results over time.

It is assumed that this sustainability will be ensured by the combined effort of the local beneficiaries of the project with support from the local MINAGRI institutions. Sustainability in this context refers to: (i) the continuity and steadiness of the applied new practices in farm management and agro-climatic information management and (ii) the maintenance of the infrastructure facilities and agricultural equipment provided by the project

At the end of Project, local advisory teams will be part of the Technical Assistance Programs of INDAP, SAG and INIA and will, among others, disseminate and apply the technology transfer experiences gained during the projects execution period.

The special agro-climatic information system developed by the project will be integrated in the existing information technology facilities and additionally supported by the National Unit for Agro Emergencies and Agro-climatic Risk Management (UNEA) of the MINAGRI.

Local Committees guarantee the continuous access of farmers to the local agromachinery pools instated during the project. The first year of the proposed project will be focused on the delivery of outputs 1.1.1, 1.1.2, 1.1.3 and 2.1.1. Scaled incorporation of small farmers to the activities has been estimated as follows:

Year	% of total small-farmers benefited*
1st	10%
2nd	30%
3rd	40%
4th	20%

*The target group are 2,200 small farmers. The table shows the percentage of these farmers that participate each year in activities conducive to outputs 1.1.4, 1.1.5, 1.1.6, 1.2.7 and 1.2.8

The installation of rain harvesting systems, output 1.2.7, is completed in the year 4, with 558 units installed, while 2,200 farmers are provided training, technical support and access to machinery pools.

These activities will also benefit the small farmers families and will consider the integration of rural and farming scholars of the project area so as they would be benefit by the capacity building activities too. Considering the characteristics of the rural communities, more than 10,000 people will be directly or indirectly benefited from the project components.

On the other hand, around 12,600 small-farmers are located in the O'Higgins region and nearby regions of Coquimbo, Valparaíso and Maule. It is expected that more than 3,000 among these benefit from exchange and demonstration activities of the project.

INIA and INDAP technology transfer programs secure the diffusion and capacity building activities and will allow expanding the number of farmers benefited. Also, SAG through its support programmes contributes to the dissemination of adaptation practices linked to the demonstration units. The agro-technology transfer and capacity building activities are going to be incorporated inside the "Plan of Work" carried out by the following three programmes already in execution under the Ministry of Agriculture: PRODESAL, SAT and SIRSD. The project activities develop synergies with these programmes.

The objective of the PRODESAL programme is to support rural families in order to enhance their agricultural and forestry activities, through technical advice and investment funds, so as they increase their incomes and improve their quality of life. This programme is implemented with the assistance of Municipalities.

The objective of the SAT programme is to improve business and productive system competitiveness, under a sustainable framework, building capacity through agro-technology transfer, advising about management and articulating the efforts with other support programmes.

PRODESAL and SAT teams will include constant visits to the demonstration units, among the activities in their agendas.

In the case of the SIRSD programme (Incentive System for Agro-environmental Sustainability of Agricultural Soils), carried out by SAG and INDAP, the main objective is to recover productive potential of degraded soils and keep those improvements. The smallholders would be able to receive economical resources to implement soil conservation practices to increase their adaptation capacity to climate change.

All these programmes and resources that already exist will be focused on small-

farmers' needs during and after the proposed project, under the framework of adaptation to climate change. As mentioned in Part II.A., a cooperation agreement between the project and these programs will be signed which will contribute, among others, to the continuous maintenance of project infrastructure and equipment.
The Unit of Agricultural Emergencies and Climate Risk Management (UNEA) under the Ministry of Agriculture will allow promoting the demonstration units and the adaptation measures implemented. UNEA has a special component for Capacity Building and Dissemination and works coordinately with the regional teams of the Ministry of Agriculture, through Regional Commissions for Agricultural Emergencies (CREA). These commissions have permanent participation of the regional services under the Ministry. Furthermore, UNEA permanently works in collaboration with private institutions to enhance the capacities of small-farmers, especially the most vulnerable, in order to face variability and climate change. Among other actions, some activities previously made are: local workshops, field days, distribution of technical materials such as manuals with agro-climatic information and adaptation practices for extreme events (water scarcity and drought)

On the other hand, the Ministry of Agriculture has a regional budget that will be focused on activities that will ensure the sustainability of the proposed project. Some economic instruments managed by the Ministry, will be redirected to support other communities not included in the proposed project in order to develop new projects and activities to replicate the results of the current components. Agreements with local and regional governments are going to be signed in order to address the same goals.

It can be furthermore assumed, that the capacities, skills and knowledge obtained through the activities described in the project components, will be kept by the local communities and strengthened over time through the ongoing operation of these fields.

In the case of the machinery, there will be a formal agreement between Ministry of Agriculture, Municipalities and farmer associations for the responsibility during the project and after it.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	✓	
Access and Equity	✓	
Marginalized and Vulnerable Groups	✓	
Human Rights	✓	
Gender Equity and Women's Empowerment	✓	
Core Labour Rights	✓	
Indigenous Peoples	✓	
Involuntary Resettlement	✓	
Protection of Natural Habitats	✓	
Conservation of Biological Diversity	✓	
Climate Change	✓	
Pollution Prevention and Resource Efficiency	✓	
Public Health	✓	
Physical and Cultural Heritage	✓	
Lands and Soil Conservation	✓	

The proposal is categorised within Category C, considering there are not adverse environmental or social impacts. As it was described previously in Part II, letter B, the project has many benefits both social and environmental and meets the national standards as it was mentioned in letter e above.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

The Government of Chile (GoCh) will implement the project through National Implementation Agency (NIE) the Chilean International Cooperation Agency (AGCI). Implementing partners for the project are the Ministry of the Environment through its Secretariat for the Environment, and the Ministry of Agriculture (MINAGRI) through its Secretariat for Agriculture, its Regional Ministerial Secretariat for O'Higgins (SEREMI VI) and those agencies reporting to the Agricultural Policies and Studies Office (ODEPA), the Agriculture Research Institute (INIA), the Institute for Agricultural Development (INDAP) - in particular through its Local Development Programme

(PRODESAL), implemented in coordination with the municipalities, the Agricultural and Livestock Service (SAG), the Technical Advisory Service (SAT) and the National Unit for Agricultural Emergencies and Agroclimatic Risk Management (UNEA).

The Chilean International Cooperation Agency (AGCI) is the National Implementing Entity (NIE) for the Project, to be implemented in collaboration with the Chilean Ministry of the Environment and the Ministry of Agriculture.

AGCI as the NIE is responsible for the general management of the Project. This includes the financial administration of the Project as well as follow up and presentation of reports before the Adaptation Fund.

To fulfill the Agency's obligations as the NIE, a highly specialized team will be established to carry out the following financial and technical management duties and responsibilities of the Project:

Manage two currency accounts for the Project, one will be in U.S. Dollars and the other in Chilean Pesos.

Prepare and submit requests for withdrawal of Grant funds before the Adaptation Fund.

Prepare and sign a Subsidiary Agreement with the Ministry of Agriculture for the implementation of the Project. This Agreement will establish the following: the obligations and responsibilities of the Ministry, the amount in US Dollars that AGCI will transfer to the Ministry for Project implementation, the norms and standards that will regulate the procurement plan, the rendering of accounts that the Ministry shall present to AGCI.

Manage the financial administration of the Project utilizing the national financial and accounting system in both currencies (U.S. Dollars and Chilean Pesos), according to international accounting standards.

Review and register the accounts rendered by the Ministry of Agriculture to AGCI. During this revision, AGCI will verify and confirm the implementation of the procurement plan, that expenses are in accordance with the Project's implementation and that they are supported by necessary documentation.

Project monitoring and evaluation according to the indicators established under the Project's logical framework approach and Gantt chart.

Present to the Adaptation Fund all financial and technical management reports.

Contract the financial auditing services for the Project.

Carry out the Project in accordance with the guidelines and regulations of the Adaptation Fund.

Other entities that may participate in governance structures and project management, in the framework of their existence, powers and functions as recognized by Chile's legal system, are the National Forestry Corporation (CONAF), the National Irrigation Commission, the Ministry of Public Works' Directorate General of Water, the Regional Government of the Region of O'Higgins (GORE VI), and the Municipalities of Paredones, Pichilemu, Marchihue, La Estrella, Litueche, Navidad, Lolol and Pumanque, particularly in relation to INDAP's Local Development Programme.

MINAGRI and MMA will sign the agreement with AGCI for implementing and managing the project as a whole. The responsibility for project implementation on the ground rests with MINAGRI, who will appoint the Regional Ministerial Secretary of Agriculture for the Region of O'Higgins as National Project Director.

INIA will appoint a Chief Technical Advisor for the Project who will advise the National Director on all technical and capacity-building aspects of the project. INIA will also assume institutional responsibility for these technical and capacity-building aspects and will have a central role in the support and training of field personnel from the institutions and project beneficiaries.

UNEA is the main executor of Component 2 of the project, which will increase the capacity for the production of agro-meteorological knowledge applicable in particular to the management of agro-meteorological hazards (drought, frost risk) and the improvement in efficiency regarding soil and water resource use. This knowledge and its applicability will feed the project's training plan, allowing access by experts and beneficiaries to data and contextualised analysis through familiar means and at appropriate times.

INDAP has a significant deployment of technical assistance in the project area, in particular the presence of PRODESAL technicians who are the primary source of technical assistance for the project's farmer beneficiaries, as well as the Technical Assistance Service (SAT). As such, INDAP staff will be involved with all the project's decision-making bodies (see below), including the local committees which constitute their most important presence in the field.

AGCI, MINAGRI and MMA will collaborate with those implementing other programmes and projects in order to identify opportunities and facilitate mechanisms to achieve synergies. This collaboration will be made through informal communications between programme and project managers and technicians and exchanges of information and other material.

In order to ensure that the opportunities for coordination and collaboration between different initiatives materialise, we have included specific coordination functions in the scope of work of the Steering Committee (see below).

MINAGRI - through the National Project Director and the Project Management Unit (PMU), set up for this purpose, and the UNEA, SAG and INDAP implementers (see below) – will be the institution responsible for project implementation in the field,

particularly: (i) the technical implementation of project activities; (ii) monitoring project progress and achievement of results; and (iii) financial planning and planning for the procurement of goods, minor works and services, which will be supervised by the PMU. The PMU will prepare for the National Director, who shall send them to the Steering Committee, quarterly project status reports (QSRs), detailed annual operational plans and budgets (AOPs), and Financial Management Reports (FMRs) (see below).

The project has the following management and coordination bodies: Steering Committee, Executive Committee and Local Technical Committees (see formation and functions below).

The Steering Committee is a collegial body that oversees and supports the smooth running of the project from the national level. It is composed of the Ministers of Agriculture and the Environment and the Executive Director of the Agency for International Cooperation. The Committee receives reports from the Project Manager, ensures project coordination and synergies with other instruments and programmes and recommends measures. Its functions are a) to review and approve AOPs and annual management, budget and financial reports for the project b) provide general strategic and implementation guidance to the National Project Director. The Committee meets once a year as a general rule and there are no quorum requirements.

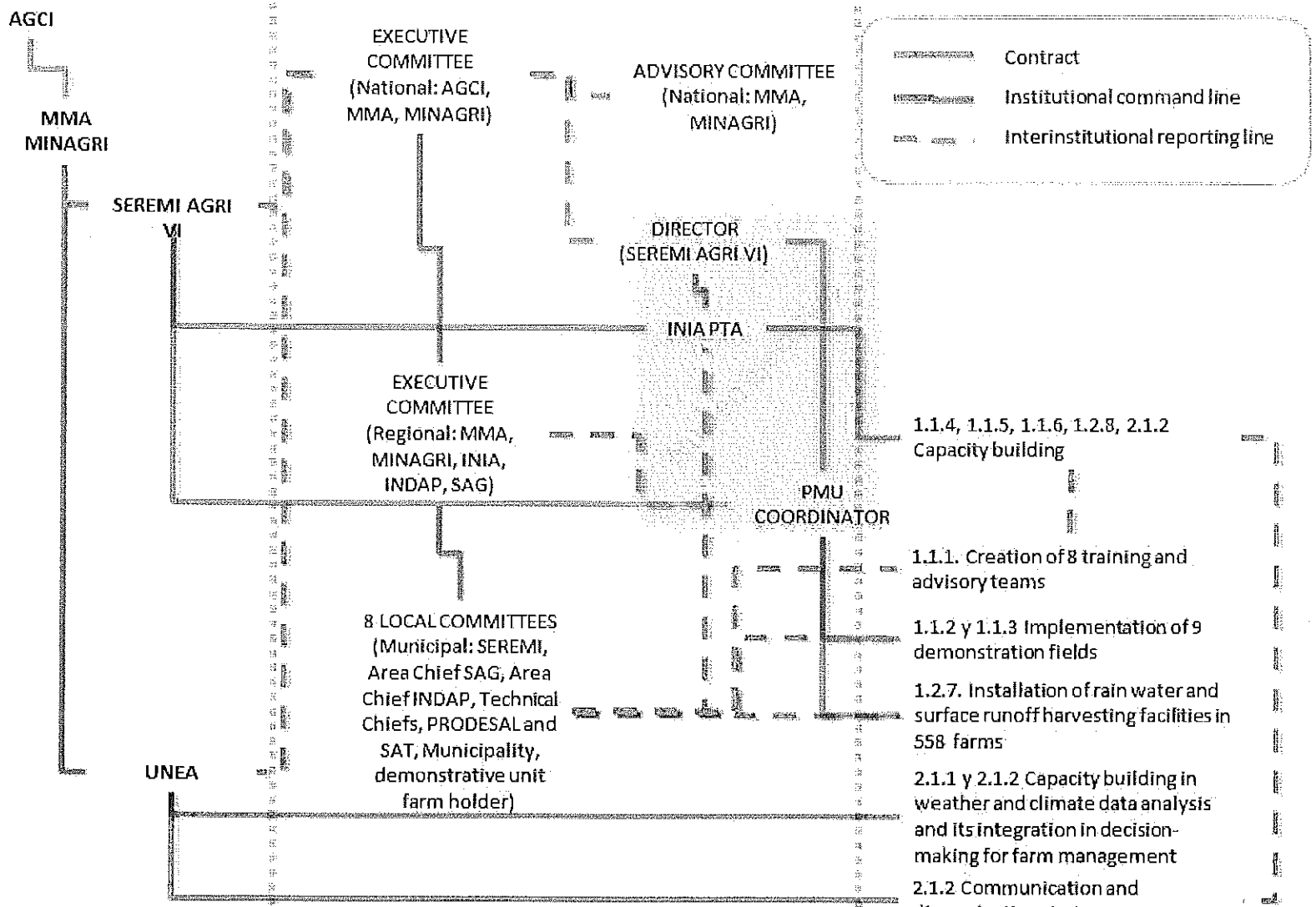
The Steering Committee uses the Advisory Committee for identifying opportunities, giving expert advice and the application of their decisions. The Advisory Committee is made up of representatives from the MMA and MINAGRI (national level). Other participants (such as CONAF, CNR, DGA, DMC or the Regional Government of O'Higgins, GORE VI) may be invited to Steering Committee meetings, as deemed necessary.

The Executive Committee is the official body in charge of specific project coordination and supporting and advising the National Director on technical and operational aspects and matters concerning inter-regional coordination. It is made up of the National Project Director (who calls and presides over meetings) and the highest regional authorities from MMA, INIA, INDAP and SAG. The Committee shall meet at least once a quarter. Its procedures and mechanisms will be established at its first meeting. If deemed appropriate the National Director will invite to meetings experts in the matters to be discussed. They will report to the Committee.

Finally, eight local project committees will be established, operating at municipal level in the municipalities of Paredones, Pichilemu, Marchihue, La Estrella, Litueche, Navidad, Lolol and Pumanque. Each of these committees shall comprise the SEREMI or its delegate, the SAG Area Manager, the INDAP Area Manager, the Technical Managers of the SAT and of the PRODESAL for each municipality, and a representative of the corresponding demonstration plot. These committees will coordinate training activities in the municipality (both those intended for farmers and those for technical staff from their institutions) and they will supervise the use of the machinery from the demonstration unit. In the case of the ninth demonstration unit, located in the Hidango INIA facilities, this will be supervised by the Executive Committee.

The relationship between the project bodies is as follows:

IMPLEMENTATION ARRANGEMENTS



The main responsibilities for activities are shown in the table below:

Componente/ Producto	Institución/es responsable/s
Component 1.-Capacity building in climate variability and climate change related to appropriate farming practices with respect to soil, livestock, water and crop management.	
Result 1.1.- Implementation of a capacity building and training systems to increment the resilience capacity of farm communities vulnerable to climate variation and climate change with respect to cattle, crop, water and soil management.	
Output 1.1.1.- Creation of training and advisory teams for agro-technology transfer for each one of the 8 municipalities of the project area, coordinated and supervised by local INIA experts.	INIA, SAG, INDAP, Municipalities
Output 1.1.2.- Implementation of 9 demonstration fields for agro-technology transfer (1.1.4, 1.1.5, 1.1.6 and 1.2.8) including its infrastructure and equipment (fencing, water troughs, electrical power supply, etc.): 4-5 hectares in each of the 8 municipalities plus one on INIA ground.	INIA, UNEA, Local Committees
Output 1.1.3.- Acquisition (including maintenance and operating costs) of agricultural machinery for the 9 demonstration fields.	PMU
Output.1.4.- Training in sustainable soil management: plowing practices, fertilizing practices, soil fertility recovering practices, holistic soil management.	INIA, Local Committees
Output 1.1.5.- Training in the use of crops (wheat), forage crops (legumes, graminoids), fruit trees (olives, nuts)) and livestock (sheep), tolerant to climate variability and climate change, including the acquisition of seeds, plants and animals.	INIA, Local Committees
Output 1.1.6.- Training in efficient water management on the demonstration fields (including the acquisition of the equipment) through the application of irrigation technology powered by renewable energy resources (sun, wind)	INIA, Local Committees
Result 1.2. Implementing measures and technologies to increase availability of water resources for the rural communities of the coastal *dryland* and interior of the O'Higgins Region	
Output 1.2.7.- Installation of rain water and surface runoff harvesting facilities in 558 farms including training and acquisition of materials and equipment (roof materials, rain pipes, mobile water cisterns, pumps powered by renewable energy resources (sun, wind), greenhouse installation).	PMU
Output 1.2.8.- Capacity building through knowledge sharing and good practice demonstrations	INIA, Local Committees
Component 2.-Installation of an information system for agro-climatic risk management and climate change adaptation **Result 2.1.- Improve the decision supporting agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities**	
Output 2.1.1.- Strengthening of the existing network of automatic meteorological stations (AMS) in the project area.	UNEA
Output 2.1.2.- Capacity building in weather and climate data analysis and its integration in meaningful decision- making for farm management.	UNEA, INIA

MINAGRI and MMA, at the proposal of MINAGRI, will appoint the SEREMI of Agriculture in the O'Higgins region as National Project Director. This professional will monitor activities, ensure timely delivery of government contributions and will be fully responsible to the Government for products and results. The National Director will not be paid with project funds.

Daily management of administrative matters, monitoring and accounting will be done by the Project Management Unit (PMU). This will be made up of a Coordinator, who directs, an Accounting/Administrative Assistant, and a Coordinating and Monitoring Assistant (all three paid with project funds)

The PMU will be responsible for operational coordination, preparation of AOPs and financial reports, monitoring and support for project evaluation. It will be supervised by the National Directorate and responsible for the daily management of the project, in particular: (i) operational and logistic coordination of project activities; (ii) the daily monitoring of project progress and achievement of results, and (iii) financial planning and planning of procurement of goods, minor works and services, which will be conducted through the public procurement system. The PMU will prepare and submit to the Project's National Directorate quarterly project status reports (PSRs), operating plans and detailed annual budgets (AOPs) and Annual Management Reports. Additionally, the PMU will be responsible for coordinating all other aspects that contribute to the good progress of the project.

B. Describe the measures for financial and project / programme risk management.

Critical risks for the implementation of the project were analysed in the design phase with the participation of the principal stakeholders. The risk management mechanism of the project will be set out in detail below. The most important risks and measures to mitigate them are as follows:

Identifier	Type	Risk	Classification	Mitigating Measures
1	Climate	Climate change is greater than what was projected by the analysis and studies	Medium	The Mediterranean ecoregion is the most vulnerable region to climate change in Chile, according to the best and most recent information available. The actions contribute to the adaptation of the most vulnerable people by increasing their ability to maintain and improve their livelihoods in conditions significantly more adverse than at present (approximately + 25% T and -25% P in medium and unfavourable scenarios) using drought-resistant species/varieties, increasing the availability of water, improving soil management and other.
2	Operative	The beneficiaries resist changes in practices	Low	The systems for mitigating predicted risks (eg support in capacity building for beneficiaries, appropriate rates for the disbursement of grants, working in a flexible way that responds to the strengths and weaknesses of the beneficiaries, regular follow-up visits) support maintaining or improving capacities. The project also reduces risk, supporting the replication of best practices. The participatory process undertaken detected a high demand for the solutions proposed in the sample.

3	Political	The government or institutions does not attach enough priority to the programme.	Low	Institutions participating in the project are strongly committed to it, which represents an opportunity to trigger a process of adaptation at an appropriate scale in the Chilean *Dryland* beyond the project area. The Undersecretaries of Agriculture and Environment are the highest political authorities involved in the project and the highest ranking of all the implementers.
4	Operative	Lack of incentives or financial capacity of beneficiaries to invest in restoration or improvement can lead to ineffective results in land use and other expected results.	Low	The project provides skills and investments to vulnerable populations from which the project design does not expect or presuppose investment capacity. At the same time, the project's Partners Committee has confirmed the participation of the most important organisations in the country in terms of land use and rural development, including CONAF and INDAP, who have agreed to coordinate their development tools for the purposes of achieving project results.

A fundamental component of the project's management activities includes a comprehensive risk management strategy. The Steering Committee will provide support to the project team and implementers for the constant monitoring of risks, which will be monitored and reported in the project's annual reports.

Additionally, a budget specifically for the purposes of monitoring and evaluation has been assigned as part of the implementation costs (see below).

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.

The project reinforces the existing training and technical assistance structures and prepares them to accompany the adaptation process through technical support and training of professionals and technicians; it implements demonstration fields where technologies for soil management, crops, livestock and water are demonstrated in conditions that are real and similar to those of the beneficiary farmer conditions; it provides access to equipment and machinery needed for its implementation; and extends proven technologies for water harvesting and use on an adequate scale to ensure widespread, large-scale deployment. Component 2 locally strengthens the national agro-meteorological network in a way that allows for data and information to be collected and made available to technicians and farmers by familiar and often used means, in the form of applicable knowledge and the alerting to agro-meteorological risks.

Given the above, and the fact the project deals with issues that are not controversial areas in terms of the interests of the participants, the project has a category C, in accordance with the Adaptation Fund's Environmental and Social Policy document, and as such neither an environmental impact assessment is required, nor complementary analysis of environmental impact. The Environmental and Social Review Form is annexed.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

The monitoring and evaluation of progress in achieving project results will be based on targets and indicators established in the Project Results Framework (see below). Monitoring and evaluation activities will follow the AGCI and Adaptation Fund's policies and guidelines

for monitoring and evaluation. The monitoring and evaluation system will also facilitate learning and the replication and scaling of the results and lessons of the project.

The functions and responsibilities of monitoring and evaluation, specifically described in the Project Monitoring Plan (see below) will be implemented through:

the continuous monitoring and supervision missions of the project's progress (Advisory Committee, National Directorate and PMU);

the technical monitoring of progress in the installation and availability of equipment (PMU);

the monitoring of capacity building and knowledge management indicators (Advisory Committee, National Directorate and PMU); and

intermediate and final evaluations (independent consultants and Advisory Committee).

For the implementation of the project the PMU will establish a system for monitoring project progress. Participatory mechanisms will be put in place for the collection and recording of data to support the monitoring and evaluation of outcome and output indicators. During the project launch workshop (see below), the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project's Results Framework with all project stakeholders; (ii) review of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will need to be included in consultants' contracts to ensure compliance with monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders.

Continuous monitoring of the project will be the responsibilty of the PMU and will be guided by the preparation and implementation of a AOP, backed by QSRs. The AOPs will show project activities proposed for the following year and will offer necessary details on product goals and QSRs will include information on the monitoring of the implementation of activities and and the achievement of product goals. At least one annual meeting of the Steering Committee to review project progress and planning will be held in order to evaluate and approve the AMR from the previous period and the AOP of the next period. The AOP shall be drawn up in accordance with Results Framework in order to ensure proper compliance and the monitoring of project outputs and outcomes. On approval of the project, the AOP of the first year will be adjusted to synchronise it with an annual reporting calendar (January 1 – December 31). In the following year the AOPs will follow an annual scheme, in line with with the reporting cycle described below.

The reports that are prepared specifically in the context of the monitoring and evaluation plan are: (i) the project launch report, (ii) the Annual Operating Plans and Budgets (AOPs), (iii) Quarterly Status Reports (QSRs), (iv) Annual Management Reports (AMRs), (v) technical reports and (vii) the Final Report.

Project launch report: after project approval by the Adaptation Fund and once the PMU is running, a launch workshop will be held. Immediately after the workshop, the PMU will prepare a project launch report in consultation with the Advisory Committee. The report will include a description of the functions and institutional responsibilities and coordination activities of the project actors, the progress made in establishing the project and start-up

activities and an update on any change in external conditions that could affect the project. It will also include a detailed AOP for the first period (to December 31 of the present year) and a detailed monitoring plan based on the monitoring and evaluation plan presented below, including indicators. A draft of the launch plan will be distributed by the Advisory Committee for review and comments before the plan is finalised within three months after the start of the project. The project will be approved by the Advisory Committee.

Annual Operating Plan and Budget (AOP): The PMU will submit to the Steering Committee a draft of the AOP before January 20 of each full year of project operation. The AOP should include detailed activities to be executed for each of the project's products in monthly periods, and the dates on which the goals and milestones of output indicators will be achieved over the year. Also included will be a detailed budget for project activities to be undertaken during the year, along with all the necessary monitoring and supervision activities. The Coordinator will circulate a draft of the AOP to the Advisory Committee and the Executive Committee for review. The final AOP will be presented by the National Director of the Steering Committee for approval.

Quarterly Status Reports (QSRs): The PMU will submit quarterly status reports to the National Directorate within 15 days from the end of each quarter. The QSRs will be used to identify constraints, problems or bottlenecks that impede the timely implementation of project activities and to take appropriate corrective measures. They shall be drawn up based on the systematic monitoring of performance indicators and products identified in the project's Results Framework. The National Directorate will forward these reports to the members of the Advisory Committee and Executive Committee.

Annual Management Reports (AMRs): The project's National Directorate shall prepare, with the support of the PMU, an Annual Management Report covering the period of the last applicable AOP. This will compare the substantive results and financial performance for the period with the AOP and identify measures to correct and improve, which will be incorporated in the next AOP. The National Directorate will forward these reports to the members of the Advisory Committee and Executive Committee.

Technical reports: technical reports will be prepared as part of the project outputs as well as for documenting and disseminating lessons learned. Drafts of all technical reports should be submitted by the PMU to the National Directorate, which in turn be will presented by them to the Executive Committee for review and approval and to the Advisory for their information and possible comments, before they are finalised and published. Copies of finalised technical reports will be distributed to the Advisory Committee, the Executive Committee and other project stakeholders, as appropriate.

Final Report: within three months prior to the date of completion of the project, the National Director will present to the Executive Committee and Advisory Committee a draft of the final report. The main purposes of the Final Report are to provide guidance to ministers and senior officials on political decisions necessary for following up the project and to present the donor information on the use of funds. As such the final report will consist of a brief summary of the main products, findings, conclusions and recommendations for the project, without unnecessary background, descriptions or technical details. The report is aimed at people who are not necessarily technical specialists, who understand the implications for public policy of the findings and technical recommendations to ensure sustainability of the project

results. The final report will include an assessment of activities, a summary of training and recommendations expressed in terms of their practical application. This report shall specifically include the findings of the final evaluation, as described below. A project evaluation meeting should be held to discuss the draft Final Report with the Advisory Committee prior to its finalisation by the National Directorate and approval by the Steering Committee.

At the end of the first 24 months of the project there will be an Independent Interim Evaluation (IIE) with one or more independent consultants. The purpose of IIE is to review the progress and effectiveness of project implementation in terms of the achievement of objectives, outcomes and outputs. The conclusions and recommendations will be crucial to bring about improvements in overall project design and implementation strategy, if needed, for the remaining period of the project. The Steering Committee will implement necessary arrangements for the IIE, in consultation with the National Directorate and the Advisory Committee. The IIE shall include at the least the following elements:

an analysis of the project's implementation in terms of effectiveness, efficiency and compliance with set timeframes;
an analysis of the effectiveness of the cooperation mechanisms between the parties;
identifying issues requiring decisions and corrective actions;
A proposal for interim corrections and/or adjustments to the implementation strategy, as necessary;
a description of the technical achievements and lessons learned arising from design, implementation and project management.

Shortly before the completion of the project an Independent Final Evaluation (IFE) will be made by one or more independent consultants. The purpose of the IFE is to describe project impacts, sustainability of results and the degree of achievement of long-term results. The IFE should also indicate any future actions needed to ensure the sustainability of project results, expand the impact in successive phases, integrate and increase products and practices and disseminate the information obtained amongst the authorities and institutions with competencies in adapting to climate change in rural areas, so as to ensure the continuity of the processes initiated by this project.

Some of the critical elements to which both the IIE and the IFE must pay particular attention are:

the degree of acceptance and involvement of the beneficiaries, communities and local organizations in the information and alert systems established;
the level of incorporation, among the direct beneficiaries, of practices from the agrotechnology transfer activities;
the level of understanding and awareness among decision makers and beneficiaries of the need and importance of measures for adapting to climate change;
the level achieved in terms of preparation, monitoring and adaptation;
the reduction of negative impacts achieved in different areas (environmental, social, economic);
the level of incorporation of measures to adapt to climate change in the policies and action plans and territorial development at regional level and their efficient implementation;
the degree of participation and representation of women in the planning, training, and

implementation of project activities and the project's effect on the productive activities of the region.

The table below offers a summary of the main monitoring and evaluation reports, those responsible for each and the deadlines:

M&E Activity	Responsible Party	Timeframe / Frequency	Budgeted Costs	Budgetary Reference
Launch Workshop	National Director, PMU and Advisory Committee	Three months from the start of the project	2.273	M&E included in project cost
Project Launch Report	PMU	days after the launch workshop	3.000	PMU and PTA are included in project cost
Field Impact Monitoring;	PMU; NIE	Ongoing	21.600	M&E included in project cost
Monitoring and Progress Evaluation Visits in AMR	Advisory Committee, National Director and PMU	Annual, or as needed	3.600	M&E included in project cost
Quarterly Status Reports (QSR)	National Director and PMU, with contributions from the implementing institutions	Quarterly	14.400	PMU and PTA are included in project cost
Annual Management Reports (AMR)	National Director and PMU	Annual	3.450	PMU and PTA are included in project cost
Evaluation of Technical Reports	Advisory Committee, Executive Committee, National Director and PMU	As required	n.c.	PMU and PTA are included in project cost
Independent Interim Evaluation (IIE)	External consultant/s, National Director, PMU and others	Halfway through project implementation	15.000	M&E included in project cost
Independent Final Evaluation (IFE)	External consultant/s, National Director, PMU and others	At the end of project implementation	25.000	M&E included in project cost
Final Report	Advisory Committee, Executive Committee, National Director and PMU	Three months before the completion of Implementation Agreement	6.000	PMU and PTA are included in project cost
TOTAL			**94.323**	

E. Include a results framework for the project proposal, including milestones, targets and indicators.

Objective/ Result	Indicator	Baseline	End-of-project target	Verification means	Risks and assumptions	Responsible
Project Objective: to increase the resilience capacity of rural farm communities in the coastal and inner dry lands of the O´Higgins region with respect to actual climate variation and future climate change	Number and type of institutions with the best capacity to minimise exposure to risks of climate variability. Number of people with reduced risk from extreme climatic events	Degradation of agricultural and livestock-based land is produced by improper practices. The younger generation migrates from the family farms to cities in search of better economic or working conditions and quality of life	Land degradation decreases by applying soil conservation techniques and appropriate soil, water and vegetation cover management practices. 13 institutions (5 Ministry of Agriculture services and 8 municipalities) with greater capacity to minimize exposure to risks of climate variability 558 holders (direct beneficiaries, at least 170 women) with reduced risk for extreme weather events 5000 holders (at least 1500 women) with reduced risk for extreme weather events (SAT 0-> 3) 3000 farmers in other regions and municipalities trained	Agriculture census, project reports. Access records, message logs, training records, direct interviews	Assumption: the exchange rate CLP/USD remains over 550	MINAGRI
Component 1.- Capacity building in climate variability and climate change related to appropriate farming practices with respect to soil, livestock, water and crop management	13 institutions (5 Ministry of Agriculture services and 8 municipalities) with greater capacity to minimise exposure to risks of climate variability	Cultivable area of the O'Higgins region will be reduced by 44% and 68% respectively (scenario A2). The most vulnerable group of farmers (under 20 ha) includes 4988 farmers (1562 women) and their families.	Greater capacities for managing soil, livestock, water and crops. Community access to soil management machinery Increased water availability and productivity in 558 holdings. 5000 farmers (at least 1500 women) with reduced risk for extreme weather events (SAT 0-> 3) 13 institutions with greater capacity to minimise exposure	Project reports: technical reports, annual reports; interim and final evaluations. Training records	Risk: climate change is more intense than projected by analyses and studies	MINAGRI, INIA

Objective/ Result	Indicator	Baseline	End-of-project target	Verification means	Risks and assumptions	Responsible
			to risks of climate variability.			
Result 1.1.- Implementation of a capacity building and training systems to increment the resilience capacity of farm communities vulnerable to climate variation and climate change with respect to cattle, crop, water and soil management	Number of staff trained to respond to and mitigate impacts of climate events Increased staff capacity from selected institutions to respond to and mitigate impacts of climate events	Low level of access to technical and financial assistance. Low engagement with the agribusiness value chain and low participation in organisations	At least 117 officials from 13 institutions (5 Ministry of Agriculture services and 8 municipalities) trained to minimise exposure to risks of climate variability. 5000 farmers (at least 1500 women) with reduced risk for extreme weather events (SAT 0-> 3)	Project Reports: technical reports, annual reports; interim and final evaluations. Interviews with direct beneficiaries	Risk: the government or the institutions do not assign sufficient priority to the programme	MINAGRI, INIA
Result 1.2.- Improve the decision supporting agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities	Number of people affected by climate variability	Limited productive capacity. Small farmers face water shortages from November to April. They receive water in municipalities' tanks , but it is insufficient for the maintenance of agricultural activity	558 farmers (direct beneficiaries, at least 170 women) better prepared for drought. 3000 other farmers trained.	Project Reports: technical reports, annual reports; interim and final evaluations. Interviews with direct beneficiaries	Risk: beneficiarieslack of incentive or financial capacity to invest in restoration or improvements can lead to ineffective results in land use and other expected results	MINAGRI
Component 2.- Installation of an information system for agro-climatic risk management and	Percentage of population covered by adequate systems for risk reduction	Small farmers lack agro-climatic information and capacities for agricultural decision making	Adequate information which is disseminated through appropriate means is generated. Along with training, it improves decision making. 5000 families with reduced	Project Reports: technical reports, annual reports; interim and final evaluations. Access and	Risk: the beneficiaries are resistant to changes in practices Risk: the	MINAGRI, UNEA

Objective/ Result	Indicator	Baseline	End-of-project target	Verification means	Risks and assumptions	Responsible
climate change adaptation		in changing- and extreme environments	risk to extreme weather events. 13 institutions (5 Ministry of Agriculture services and 8 municipalities) with greater capacity to minimise exposure to risks of climate variability 5000 farmers (at least 1500 women) with reduced risk for extreme weather events (SAT 0-> 3)	message logs	government or the institutions do not assign sufficient priority to the programme	
Result 2.1.- Implementation of measures and technologies for increasing water resources availability for rural communities in the coastal and inner dry lands of the O´Higgins region						

F. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Project Objective: to increase the resilience capacity of rural farm communities in the coastal and inner dry lands of the O´Higgins region with respect to actual climate variation and future climate change	Land degradation decreases by applying soil conservation techniques and appropriate soil, water and vegetation cover management practices. 13 institutions (5 Ministry of Agriculture services and 8 municipalities) with greater capacity to minimise exposure to risks of climate variability 558 farmers (direct beneficiaries, at least 170 women) with reduced risk for extreme weather events 5000 farmers (at least 1500 women) with reduced risk for extreme weather events (SAT 0-> 3) 3000 farmers in other regions and municipalities trained	**Result 2.** Increased institutional capacity to reduce risks associated with socioeconomic and environmental losses induced by climate	**Indicator 2.1.** Number and type of institution with greater capacity for minimising exposure to risks of climate variability **Indicator 2.2.** Number of people with reduced risk from extreme weather events	9,960,000

Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Result 1.1.- Implementation of a capacity building and training systems to increment the resilience capacity of farm communities vulnerable to climate variation	45 officials from 13 institutions trained (5 Ministry of Agriculture services and 8 municipalities) to minimise exposure to risks of climate variability. 5000 farmers (at least 1500 women) with reduced risk for extreme	**Product 2.1.** Strengthened capacity of national and regional centres to quickly respond to extreme weather events	**Indicator 2.1.1.** Number of staff trained to respond to and mitigate impacts of climate events **Indicator 2.1.2.** Capacity of staff from selected institutions to respond and mitigate impacts of	

and climate change with respect to cattle, crop, water and soil management	weather events (SAT 0-> 3)		climate events	
Result 1.2.- Improve the decision supporting agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities	558 farmers (direct beneficiaries, at least 170 women) better prepared for drought. 3000 farmers in other regions and municipalities trained	**Product 2.2.** Groups of target population covered by adequate risk reduction systems	**Indicator 2.2.2.** Number of people affected by climate variability	
Result 2.1.- Implementation of measures and technologies for increasing water resources availability for rural communities in the coastal and inner dry lands of the O´Higgins region	Adequate information is generated which is disseminated through appropriate means. Along with training, it improves decision making. 5000 families with reduced risk to extreme weather events. institutions (5 Ministry of Agriculture services and 8 municipalities) with greater capacity to minimise exposure to risks of climate variability 5000 farmers (at least 1500 women) with reduced risk for extreme weather events (SAT 0-> 3)	**Product 2.2.** Groups of target population covered by adequate risk reduction systems	**Indicator 2.2.1.** Percentage of population covered by adequate risk reduction systems	

G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

A summary of the budget, followed by a detailed budget is presented below.

BUDGET SUMMARY (USD)

COMPONENT/RESULT/PRODUCT			INTERNATIONAL CONSULTANTS	NATIONAL CONSULTANTS	TRAVEL	EQUIPMENT	CONTRACTS	GOODS AND MATERIALS	TRAINING	TOTAL		
Component 1.-Capacity building in climate variability and climate change related to appropriate farming practices with respect to soil, livestock, water and crop management.	Result 1.1.- Implementation of a capacity building and training systems to increment the resilience capacity of farm communities vulnerable to climate variation and climate change with respect to cattle, crop, water and soil management.	Output 1.1.1.- Creation of training and advisory teams for agro-technology transfer for each one of the 8 municipalities	-	454.377	24.359	285.912	31.304	1.044	23.503	820.499		
		Output 1.1.2.- Implementation of 9 demonstration fields for agro-technology transfer (1.1.4, 1.1.5, 1.1.6 and 1.2.8)	-	411.857	24.359	-	1.733	182	-	438.131		
		Output 1.1.3.- Acquisition (including maintenance and operating costs) of agricultural machinery for the 9 demonstration fields	-	21.801	7.570	1.891.582	339.970	136.018	-	2.396.940	5.297.781	
		Output 1.1.4: Training in sustainable soil management	-	441.570	24.359	-	14.355	4.480	63.740	548.504		8.603.251
		Output 1.1.5: Training in the use of crops, forage crops, fruit trees and livestock, tolerant to climate variability and climate change	-	441.570	24.359	-	12.622	36.055	47.376	561.982		
		Output 1.1.6: Training in efficient water management	-	446.325	24.359	-	12.622	1.044	47.376	531.725		
	Result 1.2.- Implementation of measures and technologies for increasing water resources availability for rural communities in the coastal and inner dry lands of the O´Higgins region.	Output 1.2.7: Installation of rain water and surface runoff harvesting facilities in 558 farms including training	-	122.328	24.359	1.725.408	395.018	892.854	7.855	3.167.821	3.305.470	
		Output 1.2.8: Capacity building through knowledge sharing and good practice demonstrations	18.182	41.244	72.741	-	-	-	5.482	137.649		
Component 2.- Installation of an information system for agro-climatic risk management and climate change adaptation.	Result 2.1.- Improve the decision supporting agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities.	Output 2.1.1. Strengthening of the existing network of automatic meteorological stations (AMS) in the project area	-	12.087	-	112.000	-	182	-	124.269		
		Output 2.1.2. Capacity building in weather and climate data analysis and its integration in meaningful decision-making for farm management	9.091	38.662	24.359	5.455	193.015	1.044	10.855	282.479		406.748
Execution Cost			30.000	350.502	16.789	33.453	15.940	1.044	2.273			450.000
Project Cost			**57.273**	**2.782.324**	**267.612**	**4.053.808**	**1.016.578**	**1.073.946**	**208.459**			**9.460.000**

RESULTS-BASED BUDGET (USD)

Budget notes	Expected Concrete Outputs											
Concept	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.2.7	1.2.8	2.1.1	2.1.2	EC	TOTAL
INTERNATIONAL CONSULTANTS	-	-	-	-	-	-	-	18.182	-	9.091	30.000	57.273
Final evaluation	-	-	-	-	-	-	-	-	-	-	30.000	30.000
International consultants (soil biology 1 month, holistic management 1 month, flow rate indicators development 1 month)	-	-	-	-	-	-	-	18.182	-	9.091	-	27.273
NATIONAL CONSULTANTS	454.377	411.857	21.801	441.570	441.570	446.325	122.328	41.244	12.087	38.662	350.502	2.782.324
Dr. Agricultural Engineer PTA (INIA)	12.087	12.087	12.087	12.087	12.087	12.087	12.087	12.087	12.087	12.087	-	120.873
PMU coordinator	-	-	-	-	-	-	-	-	-	-	180.480	180.480
Agricultural Engineer (INIA, dry-land crops expert)	9.508	-	-	9.508	9.508	-	-	-	-	-	-	28.525
Agricultural Engineer (INIA irrigation system and water management specialist)	14.263	-	-	-	-	14.263	-	-	-	-	-	28.525
Agricultural Engineer (INIA, sheep management and livestock production specialist)	7.131	-	-	7.131	7.131	7.131	-	-	-	-	-	28.525
Agricultural Engineer (INIA, dryland grasslands specialist)	10.697	-	-	10.697	10.697	10.697	-	-	-	-	-	42.788
Agricultural Engineer (INIA, agricultural machinery specialist)	7.131	-	7.131	-	-	-	-	-	-	-	-	14.263
Agricultural Engineer (INIA, dryland production systems expert)	2.377	-	-	2.377	2.377	2.377	-	-	-	-	-	9.508
Agricultural Technician (INIA)	-	8.587	-	8.587	8.587	8.587	-	-	-	-	-	34.348
Administrative assistant (INIA)	2.090	2.090	2.090	2.090	2.090	2.090	2.090	2.090	-	-	-	16.721
Computer technician (INIA)	492	492	492	492	492	492	492	492	-	-	-	3.938
Interim evaluation	-	-	-	-	-	-	-	-	-	-	20.000	20.000
4 Agricultural Engineers for fieldwork, dissemination and training (2 municipalities per professional)	99.629	99.629	-	99.629	99.629	99.629	99.629	-	-	-	-	597.775
Rural communicator	-	-	-	-	-	-	-	26.575	-	26.575	-	53.149
9 agricultural technicians (1 per demonstration field + lab technician)	177.454	177.454	-	177.454	177.454	177.454	-	-	-	-	-	887.269
8 tractoristas (1 por campo demostrativo exc. Hidango) 8 tractor drivers (1 per demonstration field,except Hidango)	103.488	103.488	-	103.488	103.488	103.488	-	-	-	-	-	517.440
Field operator	8.029	8.029	-	8.029	8.029	8.029	8.029	-	-	-	-	48.175
Secretary (PMU)	-	-	-	-	-	-	-	-	-	-	56.727	56.727
Accounting Assistant (PMU)	-	-	-	-	-	-	-	-	-	-	93.295	93.295
TRAVEL	24.359	24.359	7.570	24.359	24.359	24.359	24.359	72.741	-	24.359	16.789	267.612
Daily allowance (1/2 day)	9.425	9.425	-	9.425	9.425	9.425	9.425	-	-	9.425	9.425	75.404
Full allowance (day with overnight stay)	7.364	7.364	-	7.364	7.364	7.364	7.364	-	-	7.364	7.364	58.909
Daily allowance abroad (Brasil, Argentina, MExico, Australia, Spain)	-	-	-	-	-	-	-	31.270	-	-	-	31.270
Fuel	5.205	5.205	5.205	5.205	5.205	5.205	5.205	5.205	-	5.205	-	46.844
Terminal and other expenses	1.733	1.733	1.733	1.733	1.733	1.733	1.733	1.733	-	1.733	-	15.600
Toll	257	257	257	257	257	257	257	257	-	257	-	2.309
Mainline toll	116	116	116	116	116	116	116	116	-	116	-	1.047
Air tickets (Brasil, Argentina, MExico, Australia, Spain)	-	-	-	-	-	-	-	33.902	-	-	-	33.902
Bus tickets	259	259	259	259	259	259	259	259	-	259	-	2.327
EQUIPMENT	285.912	-	1.891.582	-	-	-	1.725.408	-	112.000	5.455	33.453	4.053.808

Budget notes	Expected Concrete Outputs											
Concept	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.2.7	1.2.8	2.1.1	2.1.2	EC	TOTAL
115 Hp tractor (incl. insurance, registration certificate and license plate)	-	-	371.295	-	-	-	-	-	-	-	-	371.295
Backhoe (incl. insurance, registration certificate and license plate)	-	-	85.720	-	-	-	-	-	-	-	-	85.720
Pickup truck (incl. Insurance, registration certificate and license plate)	-	-	188.841	-	-	-	-	-	-	-	-	188.841
3/4 Lorry (incl. Insurance, registration certificate and license plate)	-	-	42.909	-	-	-	-	-	-	-	-	42.909
Tank and manual pump for fuel	-	-	3.850	-	-	-	-	-	-	-	-	3.850
Five point scarifier plough	-	-	69.265	-	-	-	-	-	-	-	-	69.265
Five-chisel chisel plough	-	-	53.556	-	-	-	-	-	-	-	-	53.556
24 disc harrow	-	-	46.967	-	-	-	-	-	-	-	-	46.967
Vibrocultivator	-	-	32.307	-	-	-	-	-	-	-	-	32.307
Stubble cultivator	-	-	62.822	-	-	-	-	-	-	-	-	62.822
Drill planter zero tillage	-	-	159.229	-	-	-	-	-	-	-	-	159.229
Pasture regenerating machine	-	-	133.425	-	-	-	-	-	-	-	-	133.425
Manure Spreader	-	-	52.698	-	-	-	-	-	-	-	-	52.698
Boom sprayer	-	-	85.236	-	-	-	-	-	-	-	-	85.236
Manual hay baler	-	-	50.385	-	-	-	-	-	-	-	-	50.385
Wheat and quinoa seeder	-	-	7.964	-	-	-	-	-	-	-	-	7.964
Strawberry picking assistant	-	-	12.240	-	-	-	-	-	-	-	-	12.240
Stubble chipper	-	-	6.778	-	-	-	-	-	-	-	-	6.778
Flatbed wagon	-	-	47.709	-	-	-	-	-	-	-	-	47.709
Watering pumps 0.5 HP	-	-	-	-	-	-	66.494	-	-	-	-	66.494
Watering pumps 0.25 HP	-	-	-	-	-	-	6.629	-	-	-	-	6.629
Total station	5.240	-	5.240	-	-	-	-	-	-	-	-	10.480
Laser level	3.966	-	3.966	-	-	-	-	-	-	-	-	7.933
Software license for planimetry, topography and planimeter	6.036	-	6.036	-	-	-	-	-	-	-	-	12.071
Electric fence (including solar panel and batteries)	-	-	40.222	-	-	-	-	-	-	-	-	40.222
Mobile solar panels to generate electricity	-	-	-	-	-	-	1.146.960	-	-	-	-	1.146.960
Farm wind turbine	-	-	159.644	-	-	-	-	-	-	-	-	159.644
Water treatment equipment	-	-	79.756	-	-	-	-	-	-	-	-	79.756
Honey extractor	-	-	56.880	-	-	-	-	-	-	-	-	56.880
5,400 litre tanks	-	-	-	-	-	-	214.927	-	-	-	-	214.927
Portable 10,000 litre tanks	-	-	-	-	-	-	231.298	-	-	-	-	231.298
Water purifier	-	-	20.945	-	-	-	-	-	-	-	-	20.945
Water filter	-	-	-	-	-	-	59.100	-	-	-	-	59.100
Set of tools (spades, drill, hammers, circular saw, saw, ladders, other)	-	-	5.695	-	-	-	-	-	-	-	-	5.695
Automatic weather stations	-	-	-	-	-	-	-	-	112.000	-	-	112.000
Field measurement kit (digital and pocket penetrometer, set of augers, soil moisture meter with data logger, soil temperature meter with data logger, foliar area meter, photosynthesis meter, porometer, double cylinder infiltrometer , GPS, 200 cylinders for soil sampling)	222.846	-	-	-	-	-	-	-	-	-	-	222.846

Budget notes	Expected Concrete Outputs											
Concept	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.2.7	1.2.8	2.1.1	2.1.2	EC	TOTAL
Laboratory instrument kit (porous plates 1, 5 and 15 atm, meters to measure structural stability in the dry and wet, hydrometer, magnetic stirrer, meter for measuring air flow in soil cores, 270 litre oven, scales, universal centrifuge, Casagrande spoon, 30 one litre measuring cylinders)	47.823	-	-	-	-	-	-	-	-	-	-	47.823
Desk and chair	-	-	-	-	-	-	-	-	-	-	4.028	4.028
Filing cabinet	-	-	-	-	-	-	-	-	-	-	3.578	3.578
External hard disc	-	-	-	-	-	-	-	-	-	-	1.324	1.324
Notebook	-	-	-	-	-	-	-	-	-	-	7.942	7.942
PC	-	-	-	-	-	-	-	-	-	-	4.211	4.211
PC with capacity to process images	-	-	-	-	-	-	-	-	-	5.455	-	5.455
Tablet	-	-	-	-	-	-	-	-	-	-	4.745	4.745
Photographic camera	-	-	-	-	-	-	-	-	-	-	3.533	3.533
Video camera with tripod	-	-	-	-	-	-	-	-	-	-	1.501	1.501
Data Show incl. screen	-	-	-	-	-	-	-	-	-	-	1.935	1.935
Pendrive	-	-	-	-	-	-	-	-	-	-	657	657
CONTRACTS	**31.304**	**1.733**	**339.970**	**14.355**	**12.622**	**12.622**	**395.018**	**-**	**-**	**193.015**	**15.940**	**1.016.578**
Installation of electrical junction. Transformer	-	-	57.455	-	-	-	-	-	-	-	-	57.455
Provision of fitted out containers (office and store in demonstration units, project laboratory in Hidango)	-	-	84.878	-	-	-	-	-	-	-	-	84.878
Provision of 8x4 storeroom to store equipment	-	-	149.353	-	-	-	-	-	-	-	-	149.353
Conditioning of offices for INIA Hidango demonstration unit and PMU	-	-	-	10.909	10.909	10.909	-	-	-	10.909	10.909	54.545
Project webpage	-	-	-	-	-	-	-	-	-	-	5.031	5.031
Drone flight service (topographic, soil, water sources and vegetation characterization)	-	-	23.529	-	-	-	-	-	-	23.529	-	47.058
Heavy machinery freight service	-	-	6.109	-	-	-	-	-	-	-	-	6.109
Construction services for rainwater harvesting units and greenhouses (including taxes)	-	-	-	-	-	-	373.911	-	-	-	-	373.911
Soil fertility analysis services	-	1.733	-	1.733	-	-	1.733	-	-	-	-	5.200
Printing service for project folders	1.713	-	-	1.713	1.713	1.713	-	-	-	1.713	-	8.564
Printing services for promotional material. Hats, pens, other	2.364	-	-	-	-	-	-	-	-	2.364	-	4.727
Sign printing service for project demonstration units	-	-	6.545	-	-	-	-	-	-	-	-	6.545
Topography Service (survey of 8 demonstration units and design of soil conservation systems)	-	-	9.828	-	-	-	9.828	-	-	-	-	19.656
Water prospecting service	-	-	2.273	-	-	-	2.273	-	-	-	-	4.545
Consultancy on beekeeping	-	-	-	-	-	-	7.273	-	-	-	-	7.273
Consultancy on determining agroclimatic indicators	-	-	-	-	-	-	-	-	-	63.636	-	63.636
Consultancy on defining appropriate communication strategies, information dissemination and training	-	-	-	-	-	-	-	-	-	63.636	-	63.636
Radio advertising services in the O'Higgins Region	6.545	-	-	-	-	-	-	-	-	6.545	-	13.091
Professional communication services for project activities (production of documentaries, videos, releases, etc.)	20.682	-	-	-	-	-	-	-	-	20.682	-	41.364
GOODS AND MATERIALS	**1.044**	**182**	**136.018**	**4.480**	**36.055**	**1.044**	**892.854**	**-**	**182**	**1.044**	**1.044**	**1.073.946**

Budget notes	Expected Concrete Outputs											
Concept	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.2.7	1.2.8	2.1.1	2.1.2	EC	TOTAL
Various materials (including reams of paper, printer cartridges, note books, pencils, folders, CDs, DVDs, DVD stickers, printer toner and other)	1.044	-	-	1.044	1.044	1.044	-	-	-	1.044	1.044	6.264
Wood for signs for demonstration units, nails, and other	-	-	8.145	-	-	-	-	-	-	-	-	8.145
Native plants (quillay, boldo, etc.)	-	-	-	-	-	-	41.236	-	-	-	-	41.236
Hives	-	-	-	-	-	-	52.190	-	-	-	-	52.190
Set of materials and supplies for beekeeping (spatula, decanter, antibiotics, wax, etc.)	-	-	-	-	-	-	21.288	-	-	-	-	21.288
Individual occupational hazards prevention equipment	-	-	10.545	-	-	-	-	-	-	-	-	10.545
Field supplies (fertilizers, herbicides, seeds, greenhouse plastic)	-	-	-	-	-	-	280.407	-	-	-	-	280.407
Ram and twin-lamb ewes	-	-	-	-	21.993	-	-	-	-	-	-	21.993
Livestock-breeding inputs (dietary supplements, vaccines)	-	-	-	-	13.018	-	-	-	-	-	-	13.018
Impregnated poles, wood, other for greenhouses and hydroponic systems	-	-	-	-	-	-	380.405	-	-	-	-	380.405
Identifiers for inventoried goods	-	182	182	-	-	-	182	-	182	-	-	727
Various materials (reagents and laboratory materials)	-	-	-	3.436	-	-	-	-	-	-	-	3.436
Bird guano for enhancement of physical, chemical and biological soil fertility	-	-	17.219	-	-	-	17.219	-	-	-	-	34.438
Materials for drip irrigation systems (tapes, droppers, etc.)	-	-	99.926	-	-	-	99.926	-	-	-	-	199.852
TRAINING	**23.503**	-	-	**63.740**	**47.376**	**47.376**	**7.855**	**5.482**	-	**10.855**	**2.273**	**208.459**
Service for renting auditorium and training rooms	-	-	-	3.000	3.000	3.000	-	-	-	3.000	-	12.000
Project launch	-	-	-	-	-	-	-	-	-	-	2.273	2.273
Service for designing and making protective awnings for the sun and rain for field days	-	-	-	-	-	-	-	5.482	-	-	-	5.482
Services for layout of publications and informative material	-	-	-	3.309	3.309	3.309	-	-	-	-	-	9.927
Printing services for informative booklet	-	-	-	3.491	3.491	3.491	-	-	-	-	-	10.473
Printing service for manual on soil and water management for dryland, 200 pages	-	-	-	16.364	-	-	-	-	-	-	-	16.364
Publication and dissemination services in regional and national media	-	-	-	2.291	2.291	2.291	-	-	-	-	-	6.873
Outreach activities in rural schools	1.636	-	-	1.636	1.636	1.636	-	-	-	-	-	6.545
Training courses for farmers and technicians	7.855	-	-	7.855	7.855	7.855	7.855	-	-	7.855	-	47.127
Field Days at demonstration units	5.865	-	-	5.865	5.865	5.865	-	-	-	-	-	23.459
Printing and photocopying of training materials	3.545	-	-	3.545	3.545	3.545	-	-	-	-	-	14.182
Printing of field day canvas	675	-	-	675	675	675	-	-	-	-	-	2.700
Materials for project training (pens and other)	3.927	-	-	3.927	3.927	3.927	-	-	-	-	-	15.709
Van rental	-	-	-	11.782	11.782	11.782	-	-	-	-	-	35.345
TOTAL	**20.499**	**438.131**	**2.396.940**	**548.504**	**561.982**	**531.725**	**3.167.821**	**137.649**	**124.269**	**282.479**	**450.000**	**9.460.000**

OPERATIONAL BUDGET (USD)

Concept	Year 1	Year 2	Year 3	Year 4	TOTAL
INTERNATIONAL CONSULTANTS	**-**	**27.273**	**-**	**30.000**	**57.273**
Final evaluation	-	-	-	30.000	30.000
International consultants (soil biology 1 month, holistic management 1 month, flow rate indicators development 1 month)	-	27.273	-	-	27.273
NATIONAL CONSULTANTS	**605.327**	**785.410**	**801.216**	**590.370**	**2.782.324**
Dr. Agricultural Engineer PTA (INIA)	30.218	30.218	30.218	30.218	120.873
PMU coordinator	45.120	45.120	45.120	45.120	180.480
Agricultural Engineer (INIA, dry-land crops expert)	7.131	9.508	9.508	2.377	28.525
Agricultural Engineer (INIA irrigation system and water management specialist)	7.131	9.508	9.508	2.377	28.525
Agricultural Engineer (INIA, sheep management and livestock production specialist)	7.131	9.508	9.508	2.377	28.525
Agricultural Engineer (INIA, dryland grasslands specialist)	10.697	14.263	14.263	3.566	42.788
Agricultural Engineer (INIA, agricultural machinery specialist)	7.131	7.131	-	-	14.263
Agricultural Engineer (INIA, dryland production systems expert)	2.377	4.754	2.377	-	9.508
Agricultural Technician (INIA)	8.587	8.587	8.587	8.587	34.348
Administrative assistant (INIA)	4.180	4.180	4.180	4.180	16.721
Computer technician (INIA)	985	985	985	985	3.938
Interim evaluation	-	-	20.000	-	20.000
4 Agricultural Engineers for fieldwork, dissemination and training (2 municipalities per professional)	128.095	170.793	170.793	128.095	597.775
Rural communicator	-	15.945	21.260	15.945	53.149
9 agricultural technicians (1 per demonstration field + lab technician)	190.129	253.505	253.505	190.129	887.269
8 tractoristas (1 por campo demostrativo exc. Hidango) 8 tractor drivers (1 per demonstration field,except Hidango)	110.880	147.840	147.840	110.880	517.440
Field operator	8.029	16.058	16.058	8.029	48.175
Secretary (PMU)	14.182	14.182	14.182	14.182	56.727
Accounting Assistant (PMU)	23.324	23.324	23.324	23.324	93.295
TRAVEL	**44.602**	**89.204**	**89.204**	**44.602**	**267.612**
Daily allowance (1/2 day)	12.567	25.135	25.135	12.567	75.404
Full allowance (day with overnight stay)	9.818	19.636	19.636	9.818	58.909
Daily allowance abroad (Brasil, Argentina, MŽxico, Australia, Espa–a)	5.212	10.423	10.423	5.212	31.270
Fuel	7.807	15.615	15.615	7.807	46.844
Terminal and other expenses	2.600	5.200	5.200	2.600	15.600
Toll	385	770	770	385	2.309
Mainline toll	175	349	349	175	1.047
Air tickets (Brasil, Argentina, MŽxico, Australia, Espa–a)	5.650	11.301	11.301	5.650	33.902
Bus tickets	388	776	776	388	2.327
EQUIPMENT	**512.602**	**2.337.082**	**859.043**	**345.082**	**4.053.808**
115 Hp tractor (incl. insurance, registration certificate and license plate)	-	371.295	-	-	371.295

Backhoe (incl. insurance, registration certificate and license plate)	-	85.720	-	-	85.720
Pickup truck (incl. Insurance, registration certificate and license plate)	-	188.841	-	-	188.841
3/4 Lorry (incl. Insurance, registration certificate and license plate)	-	42.909	-	-	42.909
Tank and manual pump for fuel	-	3.850	-	-	3.850
Five point scarifier plough	-	69.265	-	-	69.265
Five-chisel chisel plough	-	53.556	-	-	53.556
24 disc harrow	-	46.967	-	-	46.967
Vibrocultivator	-	32.307	-	-	32.307
Stubble cultivator	-	62.822	-	-	62.822
Drill planter zero tillage	-	159.229	-	-	159.229
Pasture regenerating machine	-	133.425	-	-	133.425
Manure Spreader	-	52.698	-	-	52.698
Boom sprayer	-	85.236	-	-	85.236
Manual hay baler	-	50.385	-	-	50.385
Wheat and quinoa seeder	-	7.964	-	-	7.964
Strawberry picking assistant	-	12.240	-	-	12.240
Stubble chipper	-	6.778	-	-	6.778
Flatbed wagon	-	47.709	-	-	47.709
Watering pumps 0.5 HP	6.649	19.948	26.597	13.299	66.494
Watering pumps 0.25 HP	663	1.989	2.652	1.326	6.629
Total station	10.480	-	-	-	10.480
Laser level	7.933	-	-	-	7.933
Software license for planimetry, topography and planimeter	12.071	-	-	-	12.071
Electric fence (including solar panel and batteries)	-	40.222	-	-	40.222
Mobile solar panels to generate electricity	114.696	344.088	458.784	229.392	1.146.960
Farm wind turbine	-	159.644	-	-	159.644
Water treatment equipment	-	79.756	-	-	79.756
Honey extractor	-	-	56.880	-	56.880
5,400 litre tanks	21.493	64.478	85.971	42.985	214.927
Portable 10,000 litre tanks	23.130	69.389	92.519	46.260	231.298
Water purifier	-	20.945	-	-	20.945
Water filter	5.910	17.730	23.640	11.820	59.100
Set of tools (spades, drill, hammers, circular saw, saw, ladders, other)	-	5.695	-	-	5.695
Automatic weather stations	-	-	112.000	-	112.000
Field measurement kit (digital and pocket penetrometer, set of augers, soil moisture meter with data logger, soil temperature meter with data logger, foliar area meter, photosynthesis meter, porometer, double cylinder infiltrometer , GPS, 200 cylinders for soil sampling)	222.846	-	-	-	222.846
Laboratory instrument kit (porous plates 1, 5 and 15 atm, meters to measure structural stability in the dry and wet, hydrometer, magnetic stirrer, meter for measuring air flow in soil cores, 270 litre oven, scales, universal centrifuge, Casagrande spoon, 30 one litre measuring cylinders)	47.823	-	-	-	47.823
Desk and chair	4.028	-	-	-	4.028

Filing cabinet	3.578	-	-	-	3.578
External hard disc	1.324	-	-	-	1.324
Notebook	7.942	-	-	-	7.942
PC	4.211	-	-	-	4.211
PC with capacity to process images	5.455	-	-	-	5.455
Tablet	4.745	-	-	-	4.745
Photographic camera	3.533	-	-	-	3.533
Video camera with tripod	1.501	-	-	-	1.501
Data Show incl. screen	1.935	-	-	-	1.935
Pendrive	657	-	-	-	657
CONTRACTS	**485.609**	**198.692**	**243.249**	**89.029**	**1.016.578**
Installation of electrical junction. Transformer	57.455	-	-	-	57.455
Provision of fitted out containers (office and store in demonstration units, project laboratory in Hidango)	84.878	-	-	-	84.878
Provision of 8x4 storeroom to store equipment	149.353	-	-	-	149.353
Conditioning of offices for INIA Hidango demonstration unit and PMU	54.545	-	-	-	54.545
Project webpage	5.031	-	-	-	5.031
Drone flight service (topographic, soil, water sources and vegetation characterization)	47.058	-	-	-	47.058
Heavy machinery freight service	-	2.444	2.444	1.222	6.109
Construction services for rainwater harvesting units and greenhouses (including taxes)	37.391	112.173	149.564	74.782	373.911
Soil fertility analysis services	520	1.560	2.080	1.040	5.200
Printing service for project folders	4.282	-	4.282	-	8.564
Printing services for promotional material. Hats, pens, other	2.364	-	2.364	-	4.727
Sign printing service for project demonstration units	6.545	-	-	-	6.545
Topography Service (survey of 8 demonstration units and design of soil conservation systems)	19.656	-	-	-	19.656
Water prospecting service	4.545	-	-	-	4.545
Consultancy on beekeeping	1.818	1.818	1.818	1.818	7.273
Consultancy on determining agroclimatic indicators	-	63.636	-	-	63.636
Consultancy on defining appropriate communication strategies, information dissemination and training	-	-	63.636	-	63.636
Radio advertising services in the O'Higgins Region	3.273	3.273	3.273	3.273	13.091
Professional communication services for project activities (production of documentaries, videos, releases, etc.)	6.894	13.788	13.788	6.894	41.364
GOODS AND MATERIALS	**124.228**	**334.247**	**408.490**	**206.981**	**1.073.946**
Various materials (including reams of paper, printer cartridges, note books, pencils, folders, CDs, DVDs, DVD stickers, printer toner and other)	1.566	1.566	1.566	1.566	6.264
Wood for signs for demonstration units, nails, and other	8.145	-	-	-	8.145
Native plants (quillay, boldo, etc.)	4.124	12.371	16.495	8.247	41.236
Hives	5.219	15.657	20.876	10.438	52.190
Set of materials and supplies for beekeeping (spatula, decanter, antibiotics, wax, etc.)	2.129	6.386	8.515	4.258	21.288
Individual occupational hazards prevention equipment	10.545	-	-	-	10.545
Field supplies (fertilizers, herbicides, seeds, greenhouse plastic)	28.041	84.122	112.163	56.081	280.407

Ram and twin-lamb ewes	-	21.993	-	-	21.993
Livestock-breeding inputs (dietary supplements, vaccines)	-	5.207	3.905	3.905	13.018
Impregnated poles, wood, other for greenhouses and hydroponic systems	38.041	114.122	152.162	76.081	380.405
Identifiers for inventoried goods	121	242	242	121	727
Various materials (reagents and laboratory materials)	573	1.145	1.145	573	3.436
Bird guano for enhancement of physical, chemical and biological soil fertility	5.740	11.479	11.479	5.740	34.438
Materials for drip irrigation systems (tapes, droppers, etc.)	19.985	59.956	79.941	39.970	199.852
TRAINING	**37.531**	**61.402**	**63.441**	**46.084**	**208.459**
Service for renting auditorium and training rooms	2.000	4.000	4.000	2.000	12.000
Project launch	2.273	-	-	-	2.273
Service for designing and making protective awnings for the sun and rain for field days	-	-	5.482	-	5.482
Services for layout of publications and informative material	4.964	4.964	-	-	9.927
Printing services for informative booklet	2.095	3.142	4.189	1.047	10.473
Printing service for manual on soil and water management for dryland, 200 pages	-	-	-	16.364	16.364
Publication and dissemination services in regional and national media	3.436	3.436	-	-	6.873
Outreach activities in rural schools	1.091	2.182	2.182	1.091	6.545
Training courses for farmers and technicians	7.855	15.709	15.709	7.855	47.127
Field Days at demonstration units	-	7.820	11.729	3.910	23.459
Printing and photocopying of training materials	2.364	4.727	4.727	2.364	14.182
Printing of field day canvas	-	1.350	1.350	-	2.700
Materials for project training (pens and other)	2.618	5.236	5.236	2.618	15.709
Van rental	8.836	8.836	8.836	8.836	35.345
TOTAL	**1.809.899**	**3.833.310**	**2.464.643**	**1.352.148**	**9.460.000**

INPUT LIST

Budget notes					
Concept	**Measurement Unit**	**Unit Cost (CLP)**	**No. of Units**	**Cost (CLP)**	**COST (USD)**
115 Hp tractor (incl. insurance, registration certificate and license plate)	Unit	25.526.500	8	204.212.000	371.295
24 disc harrow	Unit	6.458.000	4	25.832.000	46.967
3/4 Lorry (incl. Insurance, registration certificate and license plate)	Unit	23.600.000	1	23.600.000	42.909
4 Agricultural Engineers for fieldwork, dissemination and training (2 municipalities per professional)	100%	1.957.000	168	328.776.000	597.775
5,400 litre tanks	Unit	258.100	458	118.209.800	214.927
8 tractoristas (1 por campo demostrativo exc. Hidango) 8 tractor drivers (1 per demonstration field,except Hidango)	100%	847.000	336	284.592.000	517.440
9 agricultural technicians (1 per demonstration field + lab technician)	100%	1.291.000	378	487.998.000	887.269
Accounting Assistant (PMU)	100%	1.069.000	48	51.312.000	93.295
Administrative assistant (INIA)	20%	958.000	48	9.196.800	16.721
Agricultural Engineer (INIA irrigation system and water management specialist)	20%	2.179.000	36	15.688.800	28.525
Agricultural Engineer (INIA, *dryland* grasslands specialist)	30%	2.179.000	36	23.533.200	42.788
Agricultural Engineer (INIA, agricultural machinery specialist)	20%	2.179.000	18	7.844.400	14.263
Agricultural Engineer (INIA, dry-land crops expert)	20%	2.179.000	36	15.688.800	28.525
Agricultural Engineer (INIA, *dryland* production systems expert)	10%	2.179.000	24	5.229.600	9.508
Agricultural Engineer (INIA, sheep management and livestock production specialist)	20%	2.179.000	36	15.688.800	28.525
Agricultural Technician (INIA)	35%	1.124.500	48	18.891.600	34.348
Air tickets (Brasil, Argentina, Mexico, Australia, Spain)	Unit	932.300	20	18.646.000	33.902
Automatic weather stations	Unit	15.400.000	4	61.600.000	112.000
Backhoe (incl. insurance, registration certificate and license plate)	Unit	47.146.000	1	47.146.000	85.720
Bird guano for enhancement of physical, chemical and biological soil fertility	m^3	7.285	2.600	18.941.000	34.438
Boom sprayer	Unit	5.860.000	8	46.880.000	85.236
Bus tickets	Unit	16.000	80	1.280.000	2.327
Computer technician (INIA)	5%	902.500	48	2.166.000	3.938
Conditioning of offices for INIA Hidango demonstration unit and PMU	Lump sum	30.000.000	1	30.000.000	54.545
Construction services for rainwater harvesting units and greenhouses (including taxes)	Unit	362.700	567	205.650.900	373.911
Consultancy on beekeeping	Unit	4.000.000	1	4.000.000	7.273
Consultancy on defining appropriate communication strategies, information dissemination and training	Unit	35.000.000	1	35.000.000	63.636
Consultancy on determining agroclimatic indicators	Unit	35.000.000	1	35.000.000	63.636
Daily allowance (1/2 day)	Unit	18.000	2.304	41.472.000	75.404
Daily allowance abroad (Brasil, Argentina, México, Australia, Spain)	Unit	132.295	130	17.198.409	31.270

Data Show incl. screen	Unit	532.000	2	1.064.000	1.935
Desk and chair	Unit	184.600	12	2.215.200	4.028
Dr. Agricultural Engineer PTA (INIA)	50%	2.770.000	48	66.480.000	120.873
Drill planter zero tillage	Unit	10.947.000	8	87.576.000	159.229
Drone flight service (topographic, soil, water sources and vegetation characterization)	Unit	12.941.000	2	25.882.000	47.058
Electric fence (including solar panel and batteries)	Unit	2.458.000	9	22.122.000	40.222
External hard disc	Unit	72.800	10	728.000	1.324
Farm wind turbine	Unit	9.756.000	9	87.804.000	159.644
Field Days at demonstration units	Unit	358.400	36	12.902.400	23.459
Field measurement kit (digital and pocket penetrometer, set of augers, soil moisture meter with data logger, soil temperature meter with data logger, foliar area meter, photosynthesis meter, porometer, double cylinder infiltrometer , GPS, 200 cylinders for soil sampling)	Unit	15.320.680	8	122.565.440	222.846
Field operator	100%	736.000	36	26.496.000	48.175
Field supplies (fertilizers, herbicides, seeds, greenhouse plastic)	Lump sum	272.000	567	154.224.000	280.407
Filing cabinet	Unit	164.000	12	1.968.000	3.578
Final evaluation	Unit	16.500.000	1	16.500.000	30.000
Five point scarifier plough	Unit	4.762.000	8	38.096.000	69.265
Five-chisel chisel plough	Unit	3.682.000	8	29.456.000	53.556
Flatbed wagon	Unit	3.280.000	8	26.240.000	47.709
Fuel	Liter	950	27.120	25.764.000	46.844
Full allowance (day with overnight stay)	Unit	45.000	720	32.400.000	58.909
Heavy machinery freight service	Unit	280.000	12	3.360.000	6.109
Hives	Unit	101.250	284	28.704.375	52.190
Honey extractor	Unit	3.476.000	9	31.284.000	56.880
Identifiers for inventoried goods	Lump sum	400.000	1	400.000	727
Impregnated poles, wood, other for greenhouses and hydroponic systems	Lump sum	369.000	567	209.223.000	380.405
Individual occupational hazards prevention equipment	Lump sum	290.000	20	5.800.000	10.545
Installation of electrical junction. Transformer	Unit	3.950.000	8	31.600.000	57.455
Interim evaluation	Lump sum	11.000.000	1	11.000.000	20.000
International consultants (soil biology 1 month, holistic management 1 month, flow rate indicators development 1 month)	Month	5.000.000	3	15.000.000	27.273
Laboratory instrument kit (porous plates 1, 5 and 15 atm, meters to measure structural stability in the dry and wet, hydrometer, magnetic stirrer, meter for measuring air flow in soil cores, 270 litre oven, scales, universal centrifuge, Casagrande spoon, 30 one litre measuring cylinders)	Unit	26.302.860	1	26.302.860	47.823
Laser level	Unit	4.363.000	1	4.363.000	7.933
Livestock-breeding inputs (dietary supplements, vaccines)	Lump sum	106.548	67	7.160.000	13.018
Mainline toll	Unit	600	960	576.000	1.047
Manual hay baler	Unit	3.464.000	8	27.712.000	50.385

Manure Spreader	Unit	7.246.000	4	28.984.000	52.698
Materials for drip irrigation systems (tapes, droppers, etc.)	Lump sum	193.860	567	109.918.620	199.852
Materials for project training (pens and other)	Unit	1.600	5.400	8.640.000	15.709
Mobile solar panels to generate electricity	Unit	5.841.000	108	630.828.000	1.146.960
Native plants (quillay, boldo, etc.)	Unit	1.600	14.175	22.680.000	41.236
Notebook	Unit	546.000	8	4.368.000	7.942
Outreach activities in rural schools	Unit	150.000	24	3.600.000	6.545
Pasture regenerating machine	Unit	18.346.000	4	73.384.000	133.425
PC	Unit	386.000	6	2.316.000	4.211
PC with capacity to process images	Unit	1.000.000	3	3.000.000	5.455
Pendrive	Unit	8.600	42	361.200	657
Photographic camera	Unit	388.600	5	1.943.000	3.533
Pickup truck (incl. Insurance, registration certificate and license plate)	Unit	12.982.800	8	103.862.400	188.841
PMU coordinator	100%	2.068.000	48	99.264.000	180.480
Portable 10,000 litre tanks	Unit	1.167.100	109	127.213.900	231.298
Printing and photocopying of training materials	Unit	65	120.000	7.800.000	14.182
Printing of field day canvas	Unit	165.000	9	1.485.000	2.700
Printing service for manual on soil and water management for dryland, 200 pages	Unit	3.000	3.000	9.000.000	16.364
Printing service for project folders	Unit	1.570	3.000	4.710.000	8.564
Printing services for informative booklet	Unit	480.000	12	5.760.000	10.473
Printing services for promotional material. Hats, pens, other	Unit	2.600.000	1	2.600.000	4.727
Professional communication services for project activities (production of documentaries, videos, releases, etc.)	Unit	3.250.000	7	22.750.000	41.364
Project launch	Unit	1.250.000	1	1.250.000	2.273
Project webpage	Lump sum	2.767.000	1	2.767.000	5.031
Provision of 8x4 storeroom to store equipment	Unit	10.268.000	8	82.144.000	149.353
Provision of fitted out containers (office and store in demonstration units, project laboratory in Hidango)	Unit	5.187.000	9	46.683.000	84.878
Publication and dissemination services in regional and national media	Unit	210.000	18	3.780.000	6.873
Radio advertising services in the O'Higgins Region	Unit	180.000	40	7.200.000	13.091
Ram and twin-lamb ewes	Unit	180.000	67	12.096.000	21.993
Rural communicator	100%	1.624.000	18	29.232.000	53.149
Secretary (PMU)	100%	650.000	48	31.200.000	56.727
Service for designing and making protective awnings for the sun and rain for field days	Unit	335.000	9	3.015.000	5.482
Service for renting auditorium and training rooms	Day	220.000	30	6.600.000	12.000
Services for layout of publications and informative material	month	420.000	13	5.460.000	9.927
Set of materials and supplies for beekeeping (spatula, decanter, antibiotics, wax, etc.)	Unit	206.500	57	11.708.550	21.288
Set of tools (spades, drill, hammers, circular saw, saw, ladders, other)	Unit	348.000	9	3.132.000	5.695
Sign printing service for project demonstration units	Unit	225.000	16	3.600.000	6.545
Software license for planimetry, topography and planimeter	Unit	1.106.540	6	6.639.240	12.071

Soil fertility analysis services	Unit	28.600	100	2.860.000	5.200
Strawberry picking assistant	Unit	3.366.000	2	6.732.000	12.240
Stubble chipper	Unit	1.864.000	2	3.728.000	6.778
Stubble cultivator	Unit	8.638.000	4	34.552.000	62.822
Tablet	Unit	290.000	9	2.610.000	4.745
Tank and manual pump for fuel	Unit	264.700	8	2.117.600	3.850
Terminal and other expenses	Unit	66.000	130	8.580.000	15.600
Toll	Unit	2.100	605	1.270.080	2.309
Topography Service (survey of 8 demonstration units and design of soil conservation systems)	Unit	10.811.000	1	10.811.000	19.656
Total station	Unit	5.764.000	1	5.764.000	10.480
Training courses for farmers and technicians	Unit	480.000	54	25.920.000	47.127
Van rental	Day	120.000	162	19.440.000	35.345
Various materials (including reams of paper, printer cartridges, note books, pencils, folders, CDs, DVDs, DVD stickers, printer toner and other)	Lump sum	3.445.000	1	3.445.000	6.264
Various materials (reagents and laboratory materials)	Lump sum	1.890.000	1	1.890.000	3.436
Vibrocultivator	Unit	4.442.200	4	17.768.800	32.307
Video camera with tripod	Unit	412.800	2	825.600	1.501
Water filter	Unit	57.328	567	32.505.000	59.100
Water prospecting service	Unit	2.500.000	1	2.500.000	4.545
Water purifier	Unit	1.280.000	9	11.520.000	20.945
Water treatment equipment	Unit	4.874.000	9	43.866.000	79.756
Watering pumps 0.25 HP	Unit	36.460	100	3.646.000	6.629
Watering pumps 0.5 HP	Unit	64.500	567	36.571.500	66.494
Wheat and quinoa seeder	Unit	4.380.000	1	4.380.000	7.964
Wood for signs for demonstration units, nails, and other	Lump sum	280.000	16	4.480.000	8.145

Budget on the Implementing Entity management fee use

Fee Use	TOTAL	Year 1	Year 2	Year 3	Year 4
Project monitoring and financial management	$ 400.000	$ 83.516	$ 114.286	$ 114.286	$ 87.912
Field visits for the technical monitoring of the project	$ 10.500	$ 2.184	$ 2.940	$ 2.940	$ 2.436
Equipment (PC, tablet, printer)	$ 11.000	$ 11.000			
Running costs (telephone, internet, desk materials, others)	$ 13.500	$ 3.375	$ 3.375	$ 3.375	$ 3.375
Financial Auditing	$ 65.000		$ 15.000	$ 20.000	$ 30.000
Total	**$ 500.000**	**$ 100.075**	**$ 135.601**	**$ 140.601**	**$ 123.723**

H. Include a disbursement schedule with time-bound milestones.

DISBURSEMENT SCHEDULE (USD)

Concept	TOTAL	Year 1	Year 2	Year 3	Year 4
INTERNATIONAL CONSULTANTS	**57.273**	-	27.273	-	30.000
NATIONAL CONSULTANTS	**2.782.324**	605.327	785.410	801.216	590.370
TRAVEL	**267.612**	44.602	89.204	89.204	44.602
EQUIPMENT	**4.053.808**	512.602	2.337.082	859.043	345.082
CONTRACTS	**1.016.578**	485.609	198.692	243.249	89.029
GOODS AND MATERIALS	**1.073.946**	124.228	334.247	408.490	206.981
TRAINING	**208.459**	37.531	61.402	63.441	46.084
TOTAL PROJECT COST	**9.460.000**	**1.809.899**	**3.833.310**	**2.464.643**	**1.352.148**
NIE FEE	**500.000**	**100.075**	**135.601**	**140.601**	**123.723**
TOTAL	**9.960.000**	**1.909.974**	**3.968.911**	**2.605.244**	**1.475.871**
Disbursement Date		**Presentation of AOP Est. January 2016**	**Presentation of AOP Est. January 2017**	**Presentation of AOP Est. January 2018**	**Presentation of AOP Est. January 2019**

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[6] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional projectlprogramme, list the endorsing officials al/ the participating countries. The endorsement letter(s) should be attached as an annex to the projectlprogramme propasal/. Please attach the endorsement letter(s) with this template; add as many participating govemments if a regional projectlprogramme:*

Gladys Santis Adaptation Officer Ministry of Environment	Date: *August 3rd, 2015*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the projectlprogramme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans ("National Action Plan on Climate Change"; "National Adaptation Plan on Climate Change" and "Climate Change Adaptation Plan for Forestry and Agriculture") and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Ricardo Herrera Saldías
Executive Director
AGCI
Implementing Entity Coordinator

Date: August 3rd, 2015
Tel. and email:+56 (2) 28275756 eofarrill@agci.gob.cl

Project Contact Person: Enrique O'Farrill-Julien, Head of the Bilateral and Multilateral Cooperation Department Tel. And Email:
+56 (2) 28275756 eofarrill@agci.gob.cl

e. Each Party shall designate and communicate to the secretarialthe authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

ANNEX

LIST OF FARMERS THAT TOOK PART DURING THE CONSULTATION PROCESS

ID	NAME	IDENTIFICATION	ADDRESS	LOCALIZATION	PHONE
1	JOVINA DEL ROSARIO GUERRA PEÑALOZA	7926492-0		PAREDONES	87994502
2	EDELMIRA ISOLINA DEL CARMEN RAMIREZ MUÑOZ	8176633-9	CABECERAS S/N	PAREDONES	95802133
3	CARLOS PATRICIO DIAZ LOPEZ	8897017-9	EL CARDAL S/N	PAREDONES	94454487
4	MARIA ISABEL CABELLO ORTIZ	7555232-7	PINALNAGO S/N	PAREDONES	94615661
5	ROSARIO YAQUELINA DEL CARMEN MAYOR DUARTE	9502020-8	LA LIGUA S/N	PAREDONES	68079000
6	RICARDO ANTONIO PEREZ PIÑA	7226118-6	EL QUILLAY S/N	PAREDONES	99038961
7	GALINDO MANUEL PARRAGUEZ ESCOBAR	7459705-3	EL QUILLAY S/N	PAREDONES	96336111
8	CRISTINA DEL CARMEN CORNEJO DEL PINO	5372784-0	LAS VIÑAS S/N	PAREDONES	
9	MANUEL BENEDICTO REYES ARAYA	9073971-9	PENILANGO S/N	PAREDONES	74969102
10	FROILAM ENRIQUE GONZALEZ GONZALEZ	6838679-9	EL PERAL S/N	PAREDONES	91471124
11	MANUEL HERNAN VALNZUELA MARIN	10189963-2	PENILANGO S/N	PAREDONES	97517220
12	MANUEL BENITO PONTIGO BUSTOS	4240944-8	PENILANGO S/N	PAREDONES	89890666
13	OSCAR MANUEL CORNEJO CORNEJO	5580311-7	QUERELEMA S/N	PAREDONES	
14	JOSE RAMON CABELLO ORTIZ	7374285-4	PANILONGO S/N	PAREDONES	96467100
15	MANUEL ENRIQUE PEREZ PEREZ	7392902-4	CABECERA S/N	PAREDONES	919922137
16	MANUELA DEL CARMNE ORELLANA	8107146-2	EL QUILLAY S/N	PAREDONES	93255477
17	DOMINGO IGNACIO REYES FREDES	7455969-7	EL QUILLAY S/N	PAREDONES	93255477
18	MAURICIA DEL CARMEN POZO	4880496-9	EL QUILLAY S/N	PAREDONES	93255477
19	OSCAR ARMANDO SOLIS DIAZ	4494925-3	QUERETEMA S/N	PAREDONES	91669327
20	FLAVIO ANTONIO CORNEJO CORNEJO	5426285-0	LA LIGUA S/N	PAREDONES	92641282
21	ANDRES RODRIGO CISTERNA AHUMADA	10434027-0	EL CORDAL S/N	PAREDONES	81687183
22	CAYETANO DEL CARMEN GOICOCHEA VALENZUELA	6305345-7	EL CORDAL S/N	PAREDONES	85228116
23	HECTOR SANTIAGO CASTRO GUERRA	10128959-1	LA QUESERIA S/N	PAREDONES	97275758
24	ROBERTO ANIBAL JIMENEZ PULGAR	5230795-3	EL CORDAL S/N	PAREDONES	97245897
25	BERNARDINO MODESTO PASTENE PASTENE	3719104-3	LO VALDIVIA S/N	PAREDONES	91947727

26	LUIS GILBERTO ORDENES PASTENE	3396767-5	LA POBLACION S/N	PAREDONES	85719173
27	MARIA GLORIA CACERES LEON	10544994-1	LA POBLACION S/N	PAREDONES	76251905
28	ORLANDO ANTONIO VALENZUELA PEREZ	5491158-0	LO VALDIVIA S/N	PAREDONES	94014130
29	GUILLERMO DEL CARMEN CORNEJO POZO	4146963-3	EL CARDAL S/N	PAREDONES	97253616
30	GUILLERMINA DEL CARMEN PEREZ AHUMADA	8649760-3	EL CARNAL S/N	PAREDONES	94685969
31	BERNARDO ANTONIO VENEGAS GONZALEZ	6846122-7	EL PERAL S/N	PAREDONES	90237331
32	JULIA ROSA PONTIGO BUSTOS	6395686-4	PENILANGO S/N	PAREDONES	68147939
33	ANTUCA DEL CARMEN RIVERA SANTELICES	7095560-1	LO VALDIVIA S/N	PAREDONES	77362957
34	MARIO IGNACIO GUTIERREZ MACHUCA	6571002-1	LA QUESERIA S/N	PAREDONES	92680948
35	MANUEL ANTONIO ROJAS ARAYA	6183445-1	EL CARDAL S/N	PAREDONES	99021639
36	ISAIAS HERNAN VALENZUELA ALVAREZ	5556265-5	LO VALDIVIA S/N	PAREDONES	96441330
37	GABRIEL GUSTAVO TORO CABELLO	6183927-5	CABECEROS S/N	PAREDONES	
38	MARIA ELISA CASTRO GUERRA	11995720-6	LA QUESERIA S/N	PAREDONES	95447612
39	PEDRO ANTONIO MARIN	4074832-6	PENTILANGO S/N	PAREDONES	99626932
40	RAQUEL DEL CARMEN GONZALEZ ROSSEL	7376777-6	EL QUILLAY S/N	PAREDONES	77274665
41	JAIME ORLANDO CORNEJO	3941912-2	LA LIGUA S/N	PAREDONES	68079000
42	MARIA RAQUEL CORNEJO MAYOR	13209885-9	EL CARDAL S/N	PAREDONES	53216044
43	MARIA LILA GALARCE MARAMBIO	3701677-2	QUERELEMA S/N	PAREDONES	
44	OSVALDO ANTONIO BARROS CACERES	7249069-0	cutemu s/n	PAREDONES	97200244
45	OSVALDO FELIPE GONZLEZ LABARCA	9061605-6	LA QUESERIA S/N	PAREDONES	
46	JAIME ORLANDO VALENZUELA VALENZUELA	10271082-7	LO VALDIVIA S/N	PAREDONES	
47	VICTOR OSVALDO CAÑETE MUÑOZ	8845513-4	CUTEMU S/N	PAREDONES	
48	JOSE TORIBIO FUENZALIDA CASTRO	4218371-7	EL PERAL S/N	PAREDONES	
49	MANUEL JARA MARTINEZ CACERES	7354943-4	CUTEMU S/N	PAREDONES	
50	NORFA MILENA LOPEZ VALENZUELA	13370443-4	EL PERAL S/N	PAREDONES	
51	GUILLERMO ANDRES CORNEJO CORNEJO	13571005-9	EL CALVARIO S/N	PAREDONES	
52	GLADYS MYRIAM CACERES DIAZ	11556834-5	CARRIZALILLO S/N	PAREDONES	

53	WILSON JESUS VALENZUELA TOLEDO	7990174-1	CARRIZALILLO S/N	PAREDONES	
54	DOMINGO IGNACIO GUERRA BRIONES	6100740-7	QDA LOS BRIONES S/N	PAREDONES	
55	MARIA DEL CARMEN REYES VENEGAS	5100660-7	CUTEMU S/N	PAREDONES	
56	CECILIA GUZMAN ACEVEDO	9388526-0	QDA LOS BRIONES	PAREDONES	
57	EDUARDO RAFAEL CANALES MALENDEZ	10586069-2	CARRIZALILLO S/N	PAREDONES	
58	ANGEL ALEJO AHUMADA PASTENE	11760971-5	LO VALDIVIA S/N	PAREDONES	
59	GALVARINO JESUS CACERES CANALES	9758729-9	LAS PAPAS S/N	PAREDONES	85333100
60	RAUL SGUNDO BARROS CACERES	7249069-0	CUTEMU S/N	PAREDONES	
61	OLGA DE LAS MERCEDES MUÑOZZ CANALES	10930863-3	CARRIZALILLO	PAREDONES	
62	OSCAR JESUS CACERES LOPEZ	8554344-0	CARRIZARILLO	PAREDONES	
63	PEDRO TITO POBLETE POBLETE	6136638-6	CUTEMU S/N	PAREDONES	
64	OSCAR RAMON POBLETE POBLETE	7238989-1	CUTEMU S/N	PAREDONES	
65	MARIA BERNARDITA MUÑOZ REYES	10307811-3	CUTEMU	PAREDONES	
66	ZENAIDA ROSA CHAVEZ NAVARRO	9683258-3	CARRIZALILLO	PAREDONES	
67	JAIME RENE PEÑALOZA ORDENES	4914655-8	CARIZALILLO	PAREDONES	
68	JOSE ISAIAS URZUA CAVIERES	4510972-0	CARRIZALILLO	PAREDONES	
69	AGUSTO ELIAS ACEVEDO	4506765-3	CARRIZALILLO	PAREDONES	
70	ADELINA DE LAS MERCEDES CACERES LOPEZ	7063339-9	CARRIZALILLO	PAREDONES	
71	MANUEL BENITO CACERES TOLEDO	3129827-0	CARRIZALILLO S/N	PAREDONES	
72	MARIA ALICIA LOPEZ REYES	5688656-7	CARRIZALILLO	PAREDONES	
73	JORGE RAUL UÑOZ DIAZ	6019962-0	EL PERAL S/N	PAREDONES	83436404
74	PEDRO RENE CATOLAN MAYOR	4479094-7	CABECEROS S/N	PAREDONES	91698710
75	ERCIO ADRIAN PASTENE LOPEZ	4826271-2	LA CAPILLA S/N	PAREDONES	
76	OSCAR ANIBAL VALENZUELA TOLEDO	6355241-0	CARRIZALILLO	PAREDONES	
77	ALEJANDRO CORREA PEREZ	11143884-6	PUMANQUE S/N	PUMANQUE	83639992
78	ANA SOTO MUÑOZ	11678869-5	NILAHUE CORNEJO S/N	PUMANQUE	76106580
79	ADELINA PARRAGUEZ PARRAGUEZ	14499260-1	HACIENDA PUMANQUE S/N	PUMANQUE	89832929
80	ANASTACIO OYARZUN PEREZ	8728990-7	PEÑABLANCA S/N	PUMANQUE	61821506
81	AUDOMO TOBAR QUINTEROS	7975222-3	COLHUE S/N	PUMANQUE	81746337
82	CAROLINA GALAZ JIMENEZ	8998077-1	AV ROSAIO S/N	PUMANQUE	93402427

83	CRSTIAN RICARDO ROJAS GARRIDO	12781258-6	RICON LAS HIGUERAS	PUMANQUE	83597969
84	EDUARDO CASTRO MORAGA	7877436-3	RINCON EL SAUCE S/N	PUMANQUE	88608971
85	ELSA ROJAS SILVA	6669854-8	PUMANQUE S/N	PUMANQUE	92628875
86	EMILIANA VALENZUELA PEÑALOZA	7991869-5	RICON LA MINA S/N	PUMANQUE	86459155
87	ENEDINA EDL CARMEN BARAHONA DIAZ	9633443-5	COLHUE	PUMANQUE	722824773
88	ESTER GALVEZ MUÑOZ	7821197-0	HACIENDA MANUEL RODRIGUEZ	PUMANQUE	95602969
89	FRANCISCA GONZALEZ UBILLA	14050457-2	HACIENDA PUMANQUE S/N	PUMANQUE	83730769
90	GLORIA CORNEJO GONZALEZ	11278639-2	HACIENDA MANUEL RODRIGUEZ S/N	PUMANQUE	97216035
91	HAYDEE DE LA MERCEDES DONOSO ORTIZ	4030631-5	COLHUE	PUMANQUE	94804399
92	JOSE RAMIRO FARIAS MALDONADO	5965910-3	RANQUIHUE	PUMANQUE	87743449
93	JUAN MOYA MORALES	8755554-2	HACIENDA PUMANQUE S/N	PUMANQUE	
94	JUANJOSE ORELLANA GALVEZ	12414481-7	HACIENDA PUMANQUE	PUMANQUE	77347382
95	JULIO DEL CARMEN GONZALEZ FARIAS	9311935-5	HACIENDA PUMANQUE	PUMANQUE	53084277
96	MANUEL JESUS MIRANDA CORNEJO	8699096-2	,OLINEROS	PUMANQUE	
97	MANUEL JESUS SOTO CORNEJO	9059328-5	RINCON LOS PERALES	PUMANQUE	88661951
98	MARGARITA LUZ MARTINEZ VILLAGUA	9730395-9	RANQUIHUE	PUMANQUE	99044599
99	MARINA EUGENIA GUZMAN ARANEDA	12254990-9	MATA REDONDA	PUMANQUE	74964737
100	MARIO ANTONIO GALVEZ DONOSO	12368200-9	RANQUILHUE	PUMANQUE	82183213
101	OLIVIA ESTRADA DIAZ	10002618-1	RICON LOS PERALES S/N	PUMANQUE	68390685
101	ZENADA ORELLANA DONOSO	8119897-7	RANQUILHUE S/N	PUMANQUE	93707877
102	PATRICIA LIZANA BARRAZA	11368400-3	HACIENDA PUMANQUE	PUMANQUE	83884585
103	PATRICIO LEONARDO VILLAGUA DONOSO	12368200-9	RANQUILHUE	PUMANQUE	
104	PEDRO ALCANTARA SILVA SILVA	5101105-8	PEÑABLANCA S/N	PUMANQUE	68020724
105	RENE ACEVEDO FARIAS	11834755-2	HACIENDA PUMANQUE S/N	PUMANQUE	74570185
106	ROSA BARRAZA FARIAS	9924564-6	HACIENDA PUMANQUE S/N	PUMANQUE	99610169
107	ROSA RAMIREZ PARRAGUEZ	12781237-3	SANTA CLOTILDE S/N	PUMANQUE	61740653

108	TERGIA DEL CARMEN ARGOMEDO CORNEJO	5880962-9	COLHUE	PUMANQUE	87887881
109	VIVIANA DE LAS MERCEDES CACERES ROJAS	14301078-3	HACIENDA PUMANQUE	PUMANQUE	96818317
110	XIMENA DE LAS MERCEDES ESTRADA LEON	10828075-1	COLHUE	PUMANQUE	94300795
112	SOFIA AURELIA DEL CARMEN ACEVEDO DIAZ	10117746-7	RINCON DE LA MINA	PUMANQUE	77178381
113	JAIME OSVALDO ACEVEDO SOTO	4380707-2	EL LLOPE S/N	PUMANQUE	
114	JULIO ENRIQUE BAÑADOS GALARCE	6785433-0	RINCON DE LOS PERALES	PUMANQUE	83851956
115	ROSA ELENA BRITO GONZALEZ	4636254-3	EL LLOPE S/N	PUMANQUE	94073075
116	ELIZONDA BROWN GONZALEZ	5796052-3	EL LLOPE S/N	PUMANQUE	97827621
117	HECTOR CABRERA PARDO	9631009-9	LA QUESERA S/N	PUMANQUE	95618753
118	TERESA CASTILLO BAEZ	5288297-4	LA GLORIA S/N	PUMANQUE	95489543
119	ELVA DEL CARMEN CORNEJO GONZALEZ	6424860-1	LA GLORIA S/N	PUMANQUE	722824783
120	PASCUAL CORNEJO GONZALEZ	7992311-7	R LA HIGUERA S/N	PUMANQUE	57450331
121	SONIA DEL CARMEN DIAZ DIAZ	5257021-2	LA GLORIA S/N	PUMANQUE	99558478
122	PEDRO DIAZ SILVA	8801287-9	CAMERICO S/N	PUMANQUE	99582577
123	CELIA MARGARITA DUQUE CONTRERAS	7497354-1	CAMARICO S/N	PUMANQUE	98277713
124	JUAN HUMBERTO ESPINOZA	9191520-0	R LA HIGUERA S/N	PUMANQUE	52055291
125	AUGUSTO GAETE NAVARRO	5946142-7	NILAHUE CORNEJO	PUMANQUE	88786990
126	GABRIEL GALAZ GONZALEZ	4721319-3	AV ESTADIO S/N	PUMANQUE	74214628
127	JUAN ROSENDO GALAZ LEITON	6808066-5	RINCON LA HIGUERA S/N	PUMANQUE	
128	MANUEL FRANCISCO GALVEZ DONOSO	4170491-8	MATAREDONDA S/N	PUMANQUE	85473573
129	BERTA DEL CARMEN GONZALEZ ESPINOZA	7833588-0	PEÑABLANCA S/N	PUMANQUE	
130	MARA ISABEL GONZALEZ GALAZ	10008479-1	RINCON LA HIGUERA S/N	PUMANQUE	85432013
131	RODRIGO ORLANDO GONZALEZ GALAZ	12316255-2	CAMARICO S/N	PUMANQUE	81630407
132	JOSE DANIEL GONZALEZ PERE<	11698201-3	R EL SAUCE S/N	PUMANQUE	62825539
133	JOSE BLUTERIO HERRERA LEON	4293145-4	PEÑABLANCA S/N	PUMANQUE	
134	JUAN HELSON LARENAS RAZ	8656487-4	COLHIE S/N	PUMANQUE	
135	OLGA DEL CARMEN LEON PEREZ	7450634-8	CAMARICO S/N	PUMANQUE	93776918
136	EMA DE LAS MERCEDES LEON PEREZ	9712581-3	CAMARICO S/N	PUMANQUE	89573331
137	CLEMENCIA DE LAS MERCEDES OYARZUN PEREZ	7502387-1	PEÑABLANCA	PUMANQUE	77164938
138	MARIA FILOMENA PARDO PIÑA	5307841-9	NILAHUE CORNEJO S/N	PUMANQUE	96418142

139	GEMA PEREZ CACERES	11278787-9	COLHUE S/N	PUMANQUE	90346993
140	RAUL PEREZ RAMIREZ	5844190-2	RINCON LOS PERALES	PUMANQUE	99527862
141	FERNANDO HERNON PIÑA CARO	9496345-1	R. LOS PERALES S/N	PUMANQUE	88777385
142	MAGHA QUINTEROS OYARZUN	13561497-1	PEÑABLANCA	PUMANQUE	99547885
143	HECTOR ROJAS DIAZ	7276231-2	LA PALMILLA S/N	PUMANQUE	81760303
144	AMALIA DEL CARMEN SANCHEZ SALINAS	9973679-8	RINCON DE LA MINA S/N	PUMANQUE	99838072
145	MARIA SONIA VLADIVIA CORREA	11057652-8	RONCON EL SAUCE S/N	PUMANQUE	94809314
146	BRISTELA GONZALEZ VILLABLANCA	8343989-0	LOS PASILLOS S/N	LA ESTRELLA	85131706
147	ANTONIA ACEVEDO VARGAS	5936334-4	EL CAJON S/N	LA ESTRELLA	82777316
148	ROBERTINA ESCOBAR GONZALEZ	5735966-8	EL CAJON S/N	LA ESTRELLA	78019744
149	LAVARO PINO CACERES	8645263-4	ESTERO SECO S/N	LA ESTRELLA	68316830
150	PABLO MORENO VILLABLANCA	10936801-6	AV CARDENAL CARO S/N	LA ESTRELLA	93274261
151	MARGARITA CACERES	7941372-0	LA AGUADA S/N	LA ESTRELLA	82577970
152	HERNAN CAMPOS LAGOS	6651280-0	RAMON IBARRA S/N	LA ESTRELLA	95671663
153	HECTOR CAMPOS RODRIGUEZ	4630158-7	LA PATAGUILLA S/N	LA ESTRELLA	77340267
154	ROSA OLGUIN GONZALEZ	9339998-6	LAS DAMAS S/N	LA ESTRELLA	68306571
155	CECILIA RODRIGUEZ DONOSO	11554076-9	LOS CARDILLOS S/N	LA ESTRELLA	53476615
156	DANILO MENARES VARGAS	10245516-9	LA AGUADA S/N	LA ESTRELLA	67698779
157	MONICA HERRERA TOBAR	9700693-8	LA AGUADA S/N	LA ESTRELLA	74916762
158	CLEMENTE ULLOA CABEZAS	7322500-0	GUADALAO S/N	LA ESTRELLA	99547871
159	ROBERTO OSORIO CORNEJO	4075131-9	EL CAJON S/N	LA ESTRELLA	81346220
160	LUIS HERRERA HUERTA	5681318-7	LA AGUADA S/N	LA ESTRELLA	64725186
161	EDUARDO MONJE ESCOBAR	7510820-6	EL PIHUELO S/N	LA ESTRELLA	94636636
162	SILVIA PASTRIAN CACERES	6428115-1	SAN GABRIEL S/N	LA ESTRELLA	96556592
163	DANILO BECERRA GONZALEZ	14545227-9	GUADALAO S/N	LA ESTRELLA	83583307
164	FELIX GONZALEZ VILLABLANCA	7804135-8	LOS PASILLOS S/N	LA ESTRELLA	81791419
165	MARIO BAEZA MOYA	4693451-2	EL PIHUELO S/N	LA ESTRELLA	87800593
166	MARCIAL RIVERA HERRERA	8610576-4	GUADALAO S/N	LA ESTRELLA	88622093
167	CARLOS CORNEJO HIDALGO	9045346-7	GUADALAO S/N	LA ESTRELLA	58857581
168	IRMA ULLOA LARA	10617523-3	GUADALAO S/N	LA ESTRELLA	94459635
169	JORGE ORELLANA CACERES	9943313-2	LA ESTRELLA S/N	LA ESTRELLA	
170	KUIS SILVA VASQUEZ	3420835-2	QUEBRADA DE LA VIRGEN S/N	LA ESTRELLA	77304224
171	MANUEL GONZALEZ VIDAL	6458806-0	EL CAJON S/N	LA ESTRELLA	76025757
172	SUSANA PARRA FERNANDEZ	10566851-1	LA AGUADA S/N	LA ESTRELLA	95595719
173	MARIANO HUERTA CORNEJO	3546784-1	LA AGUADA S/N	LA ESTRELLA	88425434
174	NOLDO LEON YAÑEZ	7266328-4	LA AGUADA S/N	LA ESTRELLA	
175	SERAFIN PEREZ CABEZAS	11786605-1	GUADALAO S/N	LA ESTRELLA	91690393

176	LEONARDO HERRERA HUERTA	11397828-7	LA AGUADA S/N	LA ESTRELLA	91846521
177	HECTOR HERRERA ULLOA	5882493-3	GUADALAO S/N	LA ESTRELLA	95848651
178	HERNAN PALOMINOS CABELLO	6896569-1	LOS PASILLOS S/N	LA ESTRELLA	
179	NORMA HERRERA HUERTA	12314835-5	LA AGUADA S/N	LA ESTRELLA	85064307
180	LORETO CAMPOS MATTA	14327840-9	GABRIELA MISTRAL S/N	LA ESTRELLA	89637512
181	NORA OSORIO OSORIO	5460762-8	EL CAJON S/N	LA ESTRELLA	98313516
182	CARLOS NARCISO OSORIO CORNEJO	9951760-3	SAN RAFAEL	LA ESTRELLA	96270248
183	VICTORIA DE LOURDES PINO CERON	11759955-8	LA ESTRELLA	LA ESTRELLA	93765775
184	MARIA EUGENIA ABARCA HERNANDEZ	11981700-5	LA AGUADA S/N	LA ESTRELLA	78013000
185	FLORA ROSA TOBAR CACERES	4031271-4	EL VALLE S/N	LA ESTRELLA	95233877
186	MARIA PILAR VIDAL OSORIO	11786568-1	LA AGUADA S/N	LA ESTRELLA	89839991
187	GERMAN ENRIQUE SOTO DEL PINO	13777093-8	Q DE LA VIRGEN S/N	LA ESTRELLA	63286211
188	LUIS ADILIO CARO ESCOBAR	5384382-4	LA AGUADA S/N	LA ESTRELLA	88651839
189	DORIS CECILIA REIS OLIVARES	7038495-7	LA ESTRELLA	LA ESTRELLA	76300423
190	MARCELA DEL CARMEN RUBIO BEAS	13033527-6	LOS PASILLOS S/N	LA ESTRELLA	93317531
191	VENTURA ROSA ORELLANA MENARES	10000907-2	EL CAJON S/N	LA ESTRELLA	93668077
192	JOSE MANUEL HERRERA HUERTA	4075522-5	LA AGUADA S/N	LA ESTRELLA	88553201
193	JUAN LUIS CACERES DONOSO	7347304-7	ESTERP SECO S/N	LA ESTRELLA	96247176
194	IRMA DEL CARMEN PASTRIAN PINO	6172921-6	LA ESTRELLA	LA ESTRELLA	97408457
195	URZULA MARIA TAPIA RIVERA	9567047-4	LA ESTRELLA	LA ESTRELLA	95663860
196	IGNACIO ANDRES PINO OSORIO	17620621-7	ESTERO SECO S/N	LA ESTRELLA	77178200
197	MARIO BENEDICTO DONOSO	10470915-1	SAN RAFAEL S/N	LA ESTRELLA	83154188
198	LUZMENIA DEL CARMEN CERON GONZALEZ	5961150-1	LA ESTRELLA	LA ESTRELLA	68602414
199	LUIS RAUL DONOSO CACERES	9044371-2	SAN RAFAEL S/N	LA ESTRELLA	97473274
200	MERCEDES ISABEL NAVEA PINO	6871786-8	LA AGUADA S/N	LA ESTRELLA	81310493
201	DILIA PINO DIAZ	6777778-6	ESTERO SECO S/N	LA ESTRELLA	85444626
202	LORENZO JIMENEZ FAUNDEZ	6392580-2	LA ESTRELLA	LA ESTRELLA	83425583
203	JAIME ENRIQUE PADILLA FERNANDEZ	6516291-1	COIPUE S/N	LA ESTRELLA	93715752
204	ELADIO MENARES MENARES	5777254-9	LA ESTRELLA	LA ESTRELLA	89880300
205	VERONICA HIDALGO LAGOS	11760073-4	LAS CHACRAS S/N	LA ESTRELLA	83913688
206	MARJORE MORENO TOBAR	13498961-0	SAN MIGUEL S/N	LA ESTRELLA	94553275
207	LUIS ERADIO HIDALGO CORNEJO	6961579-1	LAS CHACRAS S/N	LA ESTRELLA	62933962
208	JUAN JIMENEZ FAUNDEZ	6449317-5	LA ESTRELLA	LA ESTRELLA	74559595
209	JUAN ANTONIO VIDAL PINO	4004777-8	SAN MIGUEL S/N	LA ESTRELLA	91958145

210	VICTOR EDUARDO PINO ARRUE	6632267-1	SAN MIGUEL S/N	LA ESTRELLA	77321126
211	MARIA ARELLANO TOBAR	4645676-9	LOS CARDILLOS S/N	LA ESTRELLA	92737682
212	NERINDA DEL CARMEN CACERES GALVEZ	6751229-4	LOS CARDILLOS S/N	LA ESTRELLA	92845047
213	JUAN CAMPOS CANALES	5616331-1	LOS CARDILLOS S/N	LA ESTRELLA	81737720
214	FLORENTINO DEL CARMEN RIVERA TAPIA	3803920-2	COIPUE S/N	LA ESTRELLA	83806105
215	ANA ARELLANO TOBAR	7086898-9	LOS CARDILLOS S/N	LA ESTRELLA	97789388
216	ZOILA ROSA ROJAS ORELLANA	6432599-1	LA AGUADA	PICHILEMU	85935015
217	JOSE PARREGUEZ PIÑA	5841754-1	EL MAQUI	PICHILEMU	77172253
218	GUIDO CORNEJO VARGAS	12315877-6	CARDONAL DE PANILONCO	PICHILEMU	
219	FERNANDO CAVIERES CAVIERES	12179496-9	CARDONAL DE PANILONCO	PICHILEMU	65315921
220	SERGIO MARTINEZ ORELLANA	6032862-5	CAHUIL	PICHILEMU	90537288
221	JULIO ABARCA DEL PINO	10026908-2	ALTO RAMIREZ	PICHILEMU	
222	LIDIA LIZONA CORNEJO	5381614-2	ESPINILLO	PICHILEMU	
223	JOSE AGUSTIN VARGAS CARREÑO	4169424-6	ESPINILLO	PICHILEMU	
224	JOSE DANIEL PAVEZ DEL PINO	10355365-2	ESPINILLO	PICHILEMU	
225	LIDIA DEL CARMEN LOPEZ CAROCA	12315937-3	CARDONAL DE PANILONCO	PICHILEMU	94220375
226	LUIS GONZALEZ JORQUERA	3180839-1	QUEBRADA NUEVO REINO	PICHILEMU	71560690
227	CLAUDIA ROSA CATALAN MARTINEZ	11311767-2	CAHUIL	PICHILEMU	62419160
228	MANUEL LIZANA ARRAÑO	7797888-7	QUEBRADA NUEVO REINO	PICHILEMU	97651369
229	MARIA MIRELLA CABRERA TOBAR	7960143-1	LAS CANILLAS	PICHILEMU	
230	FRANCISCO NUÑEZ PAVEZ	8069432-6	EL MAQUI	PICHILEMU	
231	MARIA EMILIDA DONOSO LIZANA	6526563-1	ESPINILLO S/N	PICHILEMU	95224620
232	MIRIAM TERESA CATALAN RIVEROS	12515845-5	LAS COMILLAS S/N	PICHILEMU	61992173
233	RAFAEL HERNAN VARGAS URZUA	8198627-4	LA PALMILLA S/N	PICHILEMU	
234	JUAN MUÑOZ MARAMBIO	9511451-2	LA VILLA	PICHILEMU	
235	CECILIA ARROÑO	11555130-2	LA VILLA	PICHILEMU	
236	RAUL DEL PINO PINO	6175236-6	ESPINILLO	PICHILEMU	
237	CLAUDIA VARGAS LIZANA	3543421-8	ALTO RAMIREZ	PICHILEMU	
238	JOSE SIMON LIZANA VARGAS	6502584-1	ALTO RAMIREZ	PICHILEMU	
239	RAQUEL GAETE CORNEJO	7966380-8	ESPINILLO	PICHILEMU	
240	JOSE LUIS URZUA LIZANA	8625819-8	ALTO RAMIREZ S/N	PICHILEMU	
241	DANIEL DEL PINO DEL PINO	9634809-6	RODEILLO S/N	PICHILEMU	74816927
242	JAIME RICARDO CAROCA GONZALEZ	11131670-6	QUEBRADA NUEVO REINO S/N	PICHILEMU	99587768

243	MARIA CLOTILDE VARGAS QUINTERO	4161942-2	COGUIL S/N	PICHILEMU	
244	ALBERTO ANTONIO CORNEJO CORNEJO	7429394-8	RODEILLO S/N	PICHILEMU	94607785
245	ABRAHAM CLEMENTE URZUA CORNEJO	5213302-5	PAÑUL S/N	PICHILEMU	
246	LUYIS HERNAN PIÑA PEREZ	11555615-0	EL MAQUI S/N	PICHILEMU	
247	MANUEL DE LA CRUZ VARGAS VARGAS	5339916-9	CARDONAL DE PANILONCO S/N	PICHILEMU	
248	ANA MARIA CATALAN PINO	7283146-2	LA PLAZA S/N	PICHILEMU	
249	ELVA ROSA RODRIGUEZ BECERRA	7725175-8	QUEBRADA NUEVO REINO S/N	PICHILEMU	61752767
250	OFELIA DE LAS MERCEDES ESCOBAR PINO	5666706-7	EL MAQUI S/N	PICHILEMU	
251	RODRIGO ANDRES LABRACA PIÑA	12368596-2	EL MAQUI S/N	PICHILEMU	92623525
252	MARIO SOTO LIZANA	8638845-6	PAÑUL S/N	PICHILEMU	
253	LUIS ALFONSO GONZALEZ URZUA	4613308-0	PAÑUL S/N	PICHILEMU	83845570
254	PURISINA DE JESUS PAVEZ LIZANA	11760229-1	PAÑUL S/N	PICHILEMU	97308079
255	IVAN MIGUEL PINO PIÑA	12779215-1	RODEILLO S/N	PICHILEMU	89871505
256	EUGENIA LABARCA DEL PINO	8275209-9	RODEILLO S/N	PICHILEMU	68155506
257	JOSE LUIS URZUA LIZANA	8695819-8	ALTO RAMIREZ S/N	PICHILEMU	93212603
258	EUGENIA DEL CARMEN PAVEZ GONZALEZ	4775438-0	ALTO RAMIREZ S/N	PICHILEMU	68155506
259	CAROLINA ANGELICA CORNEJO JORQUERA	14013710-3	PAÑUL S/N	PICHILEMU	89945447
260	HECTOR MANUEL ORTEGA RETAMAL	11769370-8	CAHUIL S/N	PICHILEMU	85388424
261	ROJAS LIZANA ELBA ROSA	5400607-1	QUEBRADA	PICHILEMU	
262	CARREÑO JORUQERA GERARDINA DEL ROSARIO	11760175-7	CIRUELOS	PICHILEMU	89862976
263	GALAZ CORNEJO ELSA MARGARITA	9229354-8	QUEBRADA	PICHILEMU	
264	LIZANA PAVEZ PATRICIA ANGELICA	14352180-1	PAÑUL	PICHILEMU	99544495
265	LIZANA CARREÑO CARLOS JAVIER	7660960-8	QUEBRADA	PICHILEMU	
266	ROSSEL POZO PAULINA DEL CARMEN	9326360-1	LA VILLA	PICHILEMU	
267	ARANEDA ROJAS JIMEA ALICIA	8020695-1	CAHUIL	PICHILEMU	
268	LIZA GAGUELLILLOS JOVINO ANDRES	11760206-0	PAÑUL	PICHILEMU	
269	MUÑOZ LABARCA TERESA DE JESUS	9019355-4	RODEILLO	PICHILEMU	
270	LABARCA DEL PINO FLOR MARIA	6826052-3	RODEILLO	PICHILEMU	

271	PARRAGUEZ GALARCE ELENA PERPETUA	5798031-1	RODEILLO	PICHILEMU	
272	LIZANA CORNEJO CECILIA DE LAS MERCEDES	5774585-1	PAÑUL	PICHILEMU	
273	JIMENEZ CAROCA GUIDO HERNAN	7889984-0	CARDONAL	PICHILEMU	
274	CALDERON GONZALEZ JOSE ADAN	4781009-4	CADONAL	PICHILEMU	
275	CORNEJO VARGAS SOFIA DEL CARMEN	14535522-2	COGUIL	PICHILEMU	
276	CORNEJO CORNEJO PEDRO ANTONIO	8469494-0	RODEILLO	PICHILEMU	
277	LIZANA BECERRA EUGENIO RAFAEL	11398907-6	QUEBRADA	PICHILEMU	
278	ACEVEDO CORNEJO MARIA ISABEL	6446027-7	BARRANCAS	PICHILEMU	
279	ABARCA PIÑA JUAN CARLOS	11995167-4	RODEILLO	PICHILEMU	
280	ENRIQUE PINO PIÑA	7160436-5	ESPINILLO S/N	PICHILEMU	85990108
281	LUIS GONZALEZ DIAZ	10458082-3	BARRANCAS	PICHILEMU	92658566
282	LUIS ROSSEL GONZALEZ	4722087-4	PAÑUL	PICHILEMU	
283	MANUEL PEREZ ROMERO	6301299-8	LA VILLA	PICHILEMU	
284	ELEODORO LIZANA PAVEZ	4721671-0	PAÑUL	PICHILEMU	61831439
285	BERNARDITA MUÑOZ GONZALEZ	8067015-1	LA VILLA	PICHILEMU	74434899
286	PROBELIA ABARCA LABARCA	7211555-4	EL MAQUI	PICHILEMU	
287	JULIA PAVEZ LIZANA	5025963-3	PLAYA HERMOSA	PICHILEMU	90964261
288	PEDRO MUÑOZ PAVEZ	10335213-4	RODELILLO	PICHILEMU	
289	GLORIA MUÑOZ PIÑA	14616069-7	PAÑUL	PICHILEMU	76196577
290	GRACIELA DEL PINO GALAZ	5382262-2	RODELILLO SECTOR EL BOLDO	PICHILEMU	94221310
291	ROSA GALLEGUILLOS GONZALEZ	6218696-8	BARRANCAS	PICHILEMU	
292	MARIA LIZANA GALAZ	14531292-2	ALTO RAMIREZ	PICHILEMU	87862121
293	OSCAR TORRES MUÑOZ	7920711-1	BARRANCAS	PICHILEMU	96696382
294	JEANETTE PAVEZ VARGAS	12779160-0	PAÑUL	PICHILEMU	93795961
295	JOSE MUÑOZ LOPEZ	6421446-2	RODEILLO	PICHILEMU	96680670
296	ALVARITA BECERRA DONOSO	14352273-3	ESPINILLO	PICHILEMU	95224620
297	JORGE PAVEZ PULGAR	6076825-0	PAÑUL	PICHILEMU	89150579
298	MARIA ROSSEL JORQUERA	10076935-2	LA VILLA	PICHILEMU	
299	MARGARITA LIZANA VARGAS	66741188-4	ALTO RAMIREZ	PICHILEMU	96273660
300	MARIA VARGAS ABARCA	12161780-3	RODEILLO EL BOLDO	PICHILEMU	68148734
301	SAUL ANTONIO GALAZ VARGAS	11760206-0	ALTO RAMIREZ	PICHILEMU	
302	LUISA LEONOR GAETE ORTIZ	6530253-5	LA VILLA	PICHILEMU	
303	TORRES VARGAS MANUEL ALEJANDRO	15502113-6	BARRANCAS	PICHILEMU	71564232
304	SILVA VARGAS TEMISTOCLES	4724619-9	LA AGUADA	PICHILEMU	

	FERNANDO				
305	SOTO RETAMALES NELLY AMELIA	7659367-1	BARRANCAS	PICHILEMU	
306	PROBLELIA MARGARITA CORNEJO MUÑOZ	12779173-2	LA VILLA	PICHILEMU	89305103
307	PARRAGUEZ PIÑA DANILO ANTONIO	6988861-5	EL MAQUI	PICHILEMU	
308	MORAGA RODRIGUEZ MANUEL	9239138-8	CAHUIL	PICHILEMU	58515627
309	LIZANA CORNEJO EDUARDO DE JESUS	11311666-8	ALTO RAMIREZ	PICHILEMU	77353219
310	LABARCA LABARACA HECTOR OMAR	3521683-9	EL MAQUI	PICHILEMU	
311	GONZALEZ MUÑOZ FRANCISCO ARMANDO	6710143-1	LA VILLA	PICHILEMU	
312	GONZALEZ CORNEJO ROSA DEL CARMEN	12165212-9	ALTO RAMIREZ	PICHILEMU	963011548
313	GALLEGUILLOS LIZANA ESTEBAN CELESTINO	9270667-2	BARRANCAS	PICHILEMU	
314	GAETE ORTIZ HUGO OCTAVIO	7991777-1	CAHUIL	PICHILEMU	
315	BECERRA LIZANA TERESA DE LOS DOLORES	11311688-9	ESPINILLO	PICHILEMU	99524118
316	CARO BUSTAMANTE DIONISIO JESUS	11760091-2	CARDONAL	PICHILEMU	81707422
317	ABARCA DEL PINO MARIA MARISOL	11760171-4	CAHUIL	PICHILEMU	
318	MARIA LIZANA ABARCA	11555106-1	PUEBLO DE VIUDAS S/N	PICHILEMU	97262565
319	ROSA GONZALEZ GAJARDO	11999721-7	CAHUIL S/N	PICHILEMU	93464361
320	ELIZABETH GONZALEZ VIDAL	15497562-4	LA AGUADA S/N	PICHILEMU	92366737
321	MARIA CALDERON VARGAS	11760104-8	CARDDONAL DE PANILONCO S/N	PICHILEMU	74626549
322	ROSA MARGARITA LIZANA LIZANA	8143096-9	QUEBRADA NUEVO REINO S/N	PICHILEMU	88529943
323	JUAN CORNEJO TOBAR	6433196-5	LAS COMILLAS S/N	PICHILEMU	71664898
324	ROBERTO GONZALEZ GONZALEZ	8745077-5	CIRUELOS S/N	PICHILEMU	83587446
325	MARIA LIZANA CARREÑO	12012214-2	QUEBRADA DE NUEVO REINO S/N	PICHILEMU	83909234
326	ROSA GONZALEZ POLANCO	12315975-6	CAHUIL S/N	PICHILEMU	773821117
327	MARIA RODRIGUEZ BECERRA	13209721-6	QUEBRADA DE REINO NUEVO S/N	PICHILEMU	89926262
328	ELISA MORALES PAVEZ	11760176-5	QUEBRADA DE NUEVO REINO S/N	PICHILEMU	99634242
329	ELIANA LIZANA ROJAS	12315942-1	QUEBRADA DE NUEVO REINO S/N	PICHILEMU	94305870
330	FLAVIO CACERES CARREÑO	9066769-6	CARDONAL DE PANILONCO S/N	PICHILEMU	83563057
331	CATALAN MARTINEZ	10847769-5	CAHUIL S/N	PICHILEMU	62800354

	JAQUELINE DE LAS MERCEDES				
332	MARIA CALDERON GOMEZ	9673488-3	CARDONAL DE PANILONCO S/N	PICHILEMU	81742005
333	HUGO POLANCO DIAZ	9937170-6	CARDONAL DE PANILONCO S/N	PICHILEMU	
334	LEONEL FERNANDO VIDAL VASQUEZ	10444943-3	CAMINO A LOS MOTORES	NAVIDAD	89668946
335	MARIA ALICIA OJEDA REYES	5313550-1	CAMINO PUBLICO	NAVIDAD	92S23657
336	MOISES ANTONIO REYES SOTO	5251391-1	SAN RAFAEL	NAVIDAD	96880333
337	LULY DE LAS MERCEDES JIMENEZ SILVA	7280645-1	LICHANCHEN BAJO	NAVIDAD	71529608
338	CARMEN GLORIA ROMANM OLGUIN	8903091-9	EL CULENAR	NAVIDAD	94800234
339	LUISNAVIA ROMERO	5060730-5	TUMAN	NAVIDAD	
340	CARLOS CEPEDA CEPEDA	7477295-1	NAVIDAD	NAVIDAD	
341	CARLOS RAMIREZ RUBIO	9656423-6	RISCO COLORADO	NAVIDAD	
342	URBANO SOTO FLORES	9453808-4	LA PALMILLA	NAVIDAD	
343	JUAN SILVA TOLOZA	9509717-0	EL MANZANO	NAVIDAD	
344	FLORINDO MUÑOZ FLORES	2781209-	EL MANZANO	NAVIDAD	
345	FRANCISCO DONISO VILCHES	3828391-1	CENTINELA	NAVIDAD	
346	EDUARDO FLORES SILVA	4256144-4	EL CHORRILLO	NAVIDAD	
347	SALVADOR CABELLO CARREÑO	5991295-1	LA POLCURA	NAVIDAD	
348	NAVOR HERNANDEZ CESPEDES	7291640-9	EL PERAL	NAVIDAD	
349	MIGUEL PEREZ CABELLO	6961920-7	LA PALMILLA	NAVIDAD	
350	LUIS PINO ARRIAZA	5374292-0	LOS MAYOS	NAVIDAD	
351	LUIS MUÑOZ ZUÑIGA	8838212-9	TUMAN	NAVIDAD	
352	JUVENAL DONOSO GOMEZ	11434823-2	CENTINELA	NAVIDAD	
353	HECTOR ARAYA RAMIREZ	6457821-9	LINCANCHEU	NAVIDAD	
354	JUAN CASTRO FLORES	4268372-8	EL CHORRILLO	NAVIDAD	
355	JUSN JIMENEZ UGARTE	10151430-7	LA PLAMILLA	NAVIDAD	
356	JOSE CARREÑO CASTRO	3710377-2	EL MANZANO	NAVIDAD	
357	EMA DONOS GOMEZ	9793679-9	LA VEGA DE PUPUYA	NAVIDAD	
358	SERGIO UGARTE FARIAS	10455893-3	PUPUYA SUR	NAVIDAD	
359	FIDEL ORELLANA MALDONADO	5693760-9	PUPUYA SUR	NAVIDAD	
360	OLGA HUERA ORELLANA	78720700-	VALLE HIDANGO	NAVIDAD	
361	FIDEL FLORS FLORES	4493299-7	EL MAITEN	NAVIDAD	
362	JOSE RAMOS NUÑEZ	7976486-8	PAULUN	NAVIDAD	
363	JOSE FARIAS CAROCA	5453301-2	EL MAITE	NAVIDAD	
364	GUILLERMO CORNEJO SOTO	5312884-1	EL MAITEN	NAVIDAD	
365	FLORINDO FLORES FLORES	3999317-1	EL MAITEN	NAVIDAD	
366	REINALDO MOYA GONZALEZ	4378895-7	EL MANZANO	NAVIDAD	
367	FROILAN FLORES SOTO	7594698-8	EL MAITEN	NAVIDAD	
368	LUIS ENRIQUE CABELLO AMESTICA	8060039-9	NAVIDAD PONIENTE S/N	NAVIDAD	
369	ROSENDO ORELLANA	7248624-2	VALLE HIDANGO	NAVIDAD	

	ORELLANA				
370	ZULEMA FLORES FLORES	3717824-1	EL MAITEN	NAVIDAD	
371	ALMIRO ORELLANA FLORES	6657065-7	AL AGUADA	NAVIDAD	
372	LUIS ACEVEDO IBARRA	5725390-8	CENTINELA	NAVIDAD	
373	JOSE ORELLANA GONZALEZ	8610650-7	LA GUADA	NAVIDAD	
374	ROSALINDA DEL CARMEN CABRERA CARVACHO	2867426-0	RINCONADA DE HALCONES	MARCHIGÜE	92868894
375	JUANA MARIA CANALES POZO	4610599-0	LAS GARZAS	MARCHIGÜE	81945425
376	LEONIDAS GONZALO ROJAS VIDAL	10880369-1	MALLERMO	MARCHIGÜE	
377	JUAN DE LA CRUZ PINO OSORIO	2334343-6	RINCONADA DE HALCONES	MARCHIGÜE	99506150
378	JOSE ENRIQUE ORELLANA ROJAS	14301098-8	MELLERMO	MARCHIGÜE	94807572
379	LUIS ENRIQUE CLAVIJO CLAVIJO	5297041-5	PAILIMO	MARCHIGÜE	
380	GUSTAVO ALBERTO GAETE ERAZO	10552382-3	PAILIMO	MARCHIGÜE	68304550
381	GABRIELA ISABEL LISBOA MELENDEZ	14573355-3	RINCONADA DE HALCONES	MARCHIGÜE	81703703
382	CRISTOBALINA ANGELICA LAGOS MORENO	8936625-9	PAILIMO	MARCHIGÜE	57094552
383	SAMUEL DE JESUS DIAZ GONZALEZ	7125715-0	LAS GARZAS	MARCHIGÜE	76514686
384	PEDRO ABLL DIAZ GONZALEZ	8272490-7	LAS GARZAS	MARCHIGÜE	78028258
385	EMA DE LAS MERCEDES ROJAS MORALES	11398903-3	MALLERMO	MARCHIGÜE	88784615
386	KARIN ALENJADRA MELENDES MELENDES	13097013-3	RINCONADA DE LOS HALCONES	MARCHIGÜE	85524859
387	ALBERTO LUIS DEL CARMEN CONTRERAS MAULEN	4896800-1	MALLERMO	MARCHIGÜE	
388	BENEDICTA DE JESUS GALVEZ ESPINOZA	6335099-0	LA PITNA	MARCHIGÜE	
389	DEIDAMIA DE LAS M. CARVAJAL MORENO	11278020-3	TRINIDAD S/N	MARCHIGÜE	92629758
390	MARIA ISABEL CARVAJAL MORENO	10100057-5	TRINIDAD S/N	MARCHIGÜE	94241287
391	JULIA ALEJANDRA QUYINTEROS OYARZUN	12139447-2	LA QUEBRADA S/N	MARCHIGÜE	
392	RAQUEL MARIA PEÑA SILVA	8649904-5	LA QUEBRADA S/N	MARCHIGÜE	89153767
393	IRIS NORMANDIA VARGAS DIAZ	5069636-7	LA QUEBRADA S/N	MARCHIGÜE	94445735
394	OSCAR SEGUNDO YAÑEZ HERRERA	3822340-2	LA QUEBRADA 5/N	MARCHIGÜE	97627132
395	ISAIAS ELISEO DEL C. PEREZ CORNEJO	6522275-2	LA QUEBRADA S/N	MARCHIGÜE	
396	JUAN LUIS SILVA QUINTEROS	6403599-1	TRINIDAD S/N	MARCHIGÜE	
397	NELIS DE LOS ANGELES RIVERA SILVA	8562245-5	SAN MIGUEL DE VILUCO	MARCHIGÜE	93437488

398	FERNANO JOSE CARREÑO MOYA	5490313-8	TRINIDAD S/N	MARCHIGÜE	97261853
399	DORIS MARIA CORNEJO PALOMINO	10752503-3	LA QUEBRADA S/N	MARCHIGÜE	93814811
400	MARCO ALEJANDRO CATALAN LACANOS	8444626-2	LA QUEBRADA S/N	MARCHIGÜE	92441173
401	ISABEL CASTRO ALLENDE	14247107-8	RULO 90	MARCHIGÜE	88588850
402	JUAN ANTONIO LEIVA ARRUE	5013425-1	RINCONADA DE HALCONES	MARCHIGÜE	
403	JOEL DE LA CRUZ GUTIERREZ PEREZ	4995868-4	RUTA 90	MARCHIGÜE	92812062
404	JULIA ROSA LEIVA FUENTES	8167483-3	TRINIDAD	MARCHIGÜE	61867707
405	MARIA DEL CARMEN LEIVA FUENTES	11068584-1	TRINIDAD	MARCHIGÜE	85377445
406	MARIA ANGELICA BECERRA FUENZALIDA	7724588-1	RUTA 90	MARCHIGÜE	92867951
407	MARIA GEMITA YAÑEZ SILVA	10036292-9	LA QUEBRADA	MARCHIGÜE	94829141
408	DANIEL DEL CARMEN MORENO LOPEZ	11995540-8	POBLACION	PERALILLO	62117699
409	SERGIO HERNAN SILVA DURAN	9188720-7	LAS GARZAS	MARCHIGÜE	
410	GEORGINA ROSA GUAJARDO CONTRERAS	5680319-1	MARLLERMO	MARCHIGÜE	
411	ZOILA ROSA MOROS LEIVA	7512573-9	CALLEJON LAS ROSAS	MARCHIGÜE	76349112
412	JAVIER ROJAS ORELLANA	8812854-0	MALLERMO	MARCHIGÜE	
413	ALEJANDRO IVAN ROJAS ORELLANA	11277988-4	MALLERMO	MARCHIGÜE	
414	RAMON LUIS GONZALEZ GALVEZ	14521403-3	PAILIMO	MARCHIGÜE	
415	MARIA TERESA HUERTA VIDAL	8206717-5	PAILIMO	MARCHIGÜE	
416	LUIS EFRAIN CACERES MALDONADO	5219505-5	POBLACION	PERALILLO	94209819
417	JUAN DE LA CRUZ HUERTA VIDAL	7085736-7	PAILIMO	MARCHIGÜE	
418	GERARDO DE JESUS ROJAS ORELLANA	9939181-2	MALLERMO	MARCHIGÜE	
419	GERMAN ENRIQUE CARVAJAL MORENO	14332495-8	MARCHIQUE	MARCHIGÜE	88615185
420	GABRIELA HUERTA VIDAL	4584730-6	PAILIMO	MARCHIGÜE	
421	ROSA INES LEIVA FUENTES	9594544-9	TRINIDAD	MARCHIGÜE	97691434
422	JOSE LEON CAMPOS LIZANA	6881164-3	RUTA 90	MARCHIGÜE	68750006
423	EUSEBIO ERNESTO ROJAS VIDAL	3970420-1	S M VILUCO	MARCHIGÜE	91930233
424	RUBEN SILVA PINO	4003676-8	YERBAS BUENAS S/N	MARCHIGÜE	85218775
425	MARY LUZ DEL CARMEN CASTILLO ROJAS	6497010-0	S M VILUCO S/N	MARCHIGÜE	92574170
426	JUAN LUCIA DEL CARMEN LEIVA FUENTES	3933601-4	TRINIDAD S/N	MARCHIGÜE	85373787
427	MERCEDES ROSA PEREZ PEÑA	7233867-8	LA QUEBRADA S/N	MARCHIGÜE	88772316

428	DARWIN RENE ROJAS PINO	14013550-1	MALLERMO	MARCHIGÜE	
429	ROSA DEL CARMEN ARAYA ARAYA	6254314-0	LAS GARZAS	MARCHIGÜE	90661734
430	JORGE ALEJADRO GARRIDO FUENTES	5849635-9	TRINIDAD S/N	MARCHIGÜE	
431	AMON ANTONIO GUTIERREZ CATALAN	5841811-0	LA QUEBRADA S/N	MARCHIGÜE	58323473
432	LAURA ROSA VIDAL ARRUE	7180182-9	SAN MIGUEL DE VILUCO S/N	MARCHIGÜE	85134159
433	GRACIELA DEL CARMEN HIDALGO JIMENEZ	10636942-9	TRINIDAD S/N	MARCHIGÜE	92635058
434	ISOLINA XIMENA CAMPOS CAMPOS	9347123-7	LA QUEBRADA S/N	MARCHIGÜE	93800933
435	DANIELA ISABEL SARMIENTO RIVERA	15559369-5	CHEQUEN S/N	MARCHIGÜE	61654815
436	MANUEL GUAJARDO LEIVA	5972234-4	R. DE HALCONES	MARCHIGÜE	
437	PAULINA RUZ GONZALEZ	10349787-6	RINCONADA DE HALCONES	MARCHIGÜE	
438	JUAN TOBAR MAULEN	9324040-5	MALLERMO	MARCHIGÜE	
439	GASTON NICADENO PEREZ YAÑEZ	6016514-9	CARTAGENA S/N	LITUECHE	85615368
440	CLAUDIO PATRICIO YAÑEZ YAÑEZ	15497764-3	LA VILLA S/N	LITUECHE	91505018
441	ANA MARIA ARMIJO CARRASCO	9276148-6	OBISPO LARRAIN 1833	LITUECHE	96257912
442	XIMENA DEL CARMEN CORNEJO DONOSO	9924263-9	PULIN S/N	LITUECHE	92313134
443	MARIA ANGELICA JOVINA MORALES MORALES	12778883-9	MATANCILLA	LITUECHE	94466453
444	ORLANDO ALEJANDRO YAÑEZ ORELLANA	11757565-9	LA VILLA	LITUECHE	93385826
445	LUIS GUILLERMO ORELLANA SOLIS	8177361-0	MANQUEHUA	LITUECHE	94605378
446	ROSA ERMINIA SERRANO UGALDE	7602688-2	MATANCILLA	LITUECHE	72974964
447	ERMELINDA DEL CARMEN MILLARES SILVA	10511195-9	QUELENTARO	LITUECHE	98556855
448	GABRIEL LEIGHTON CASTRO	4418081-2	VALLE HIDANGO	LITUECHE	85153126
449	MARCELINO REYES PALACIO	5681469-8	SAN VICENTE DE CUCALAN	LITUECHE	62818278
450	LUIS OMAR SOTO GUERRERO	7907247-8	PULIN	LITUECHE	82271996
451	AUGUSTO ANTONIO YAÑEZ	4319121-7	CAMINO HALCONES	LITUECHE	
452	MARIA ROSENDA PALMA DONOSO	5443031-0	CARDENAL CARO 834	LITUECHE	851038
453	HECTR ENRIQUE FARIAS CABEROS	6940838-9	EL ROSAL 324	LITUECHE	74420302
454	ADRIANO SOTO GUERRERO	6708688-0		LITUECHE	93419562
455	LUIS MARIANO GUERRERO	5060997-9		LITUECHE	

	CARREÑO				
456	ALFONSO MARIA LIBORIO CONTRERAS CARREÑO	2806212-5	CARTAGENA	LITUECHE	93799837
457	FERNANDO CASTRO CASTRO	5180775-8	PARCELA EL GUINDO	LITUECHE	666313538
458	JULIA JARA ORELLANA	5844068-1	PASAJE JOHN KENNEDY 871	LITUECHE	74725087
459	JOSE HUMBERTO HERNANDEZ FLORES	5690374-7	SAB VICENTE PUCALAN UCUQUEN	LITUECHE	89344000
460	CARLOS ENRIQUE GUERRERO CARREÑO	5657316-1	PULIN	LITUECHE	85319187
461	JOSE GERMAN PALMA OSORIO	6963775-2	LAS ACACIAS	LITUECHE	53727461
462	MARIO DELFIN NAVARRO CANALES	4586775-7	RANQUILCO	LITUECHE	99073030
463	PEDRO HERNAN CACERES ATENAS	9018144-0	VILLA MANANTIALES	LITUECHE	95223452
464	PEDRO JOSE ACEITUNO FARIAS	5453303-9	LA PALMILLA	NAVIDAD	68775272
465	NELSON ARELLANO ATENAS	6760376-1	LA VILLA	LITUECHE	97284916
466	HERNAN ORELLANA FLORES	5551472-0	PASCUALA PESQUEN 391	LITUECHE	
467	PEDRO OLGUIN GONZALEZ	10219884-0	AV OBISPO LARRAIN 842	LITUECHE	62851447
468	CLAUDIO REYES NAVIA	9732885-4	RUCATALCA	NAVIDAD	83679991
469	NADIA DEL CARMEN ARELLANO ARELLANO	15457411-5	LA VILLA	LITUECHE	74331712
470	TOMAS ESAUD OSORIO ACUÑA	8570717-5	MATANCILLA	LITUECHE	64902551
471	HERALDO HERNAN DONOSO ORELLANA	7449675-1	PASAJE SAN FERNANDO 576	LITUECHE	88425458
472	ROSALINDO MENARES REYES	4146663-4	HIJUELAS SANTA JULIA N°5	LITUECHE	89677250
473	ENRIQUE LEON ACUÑA	9775145-5	MATANCILLA	LITUECHE	97815380
474	LIBERTO SEGUNDO POLANCO NUÑEZ	4820012-5	COGUIL	PICHILEMU	
475	ZOILA ELENA MUÑOZ MARTINEZ	10013195-1	RINCON LAS OVEJAS	LOLOL	89557867
476	NARCISO DEL CARMEN BRAVO CORNEJO	5615636-4	LOS TRICAHUES	LOLOL	75272277
477	AMADOR DEL CARMEN VELIZ VELIZ	8253349-4	LOS CHACAYES	LOLOL	
478	MALVINA INES GALDAMES	11556622-9	LOS TRICAHUES	LOLOL	97357931
479	YENNY LEANDRA ZAVALLA LIZANA	13571248-5	ALTO NERQUIHUE	LOLOL	95586128
480	FRANCISCA JAVIERA UBILLA FREDES	8587216-8	ALTO NERQUIHUE	LOLOL	63262663
481	MARIO HERNAN LARENAS RODRIGUEZ	4665403-1	RINCON EL SAUCE	LOLOL	
482	ZULEMA ELSA CUBILLOS CUBILLOS	15497590-1	LOS CHACAYES	LOLOL	64648720
483	ANA MARIA PALMA BRAVO	8887787-1	LOS HORNOS	LOLOL	

484	MARIA ELENA JIMENEZ ORTIZ	8371458-1	ALTO NERQUIHUE	LOLOL	
485	SANDRA DIAZ VALENZUELA	13348305-5	LOS CHACAYES	LOLOL	
486	MIREYA VALENZUELA OLMEDO	8447932-2	LOS CHACAYES	LOLOL	
487	PURISIMA OLMEDO OLMEDO	12368843-0	LOS CHACAYES	LOLOL	92424272
488	ANA MARIA GONZALEZ CACERES	8134519-8	ALTO NERQUIHUE	LOLOL	68526175
489	RAUL URZUA URZUA	4840500-2	R DE QUIAHUE	LOLOL	
490	PEDRO MIGUEL GONZALEZ CAVIERES	4582061-0	EL MEMBRILLO	LOLOL	78726382
491	LUIS ALAMIRO JIMENEZ DONOSO	7158239-6	ALTO NERQUIHUE	LOLOL	
492	MARIA DE LAS MERCEDES DIAZ CORNEJO	4898185-2	ALTO NERQUIHUE	LOLOL	
493	ALFONSO BECERRA BRAVO	7598500-2	LOS ROBLES	LOLOL	
494	DANIEL DEL CARMEN URZUA	4691767-7	RINCONADA DE QUIAHUE	LOLOL	
495	MARGARITA SUSANA BECERRA BRAVO	10375367-8	LOS ROBLES	LOLOL	85514653
496	JUAN BERNARDO ROJAS URZUA	6588829-7	RINCONADA DE QUIAHUE	LOLOL	74930088
497	JUAN DE DIOS IGNACIO CUBILLOS ZUÑIGA	11280584-2	LA VEGA	LOLOL	
498	DORILA DEL TRANSITO CONTRERAS GONZALEZ	13781575-3	NILAHUE ALTO	LOLOL	
499	GLADYS DEL CARMEN BECERRA MARIN	14421075-1	NERQUIHUE	LOLOL	
500	CARLOS IGNACIO GALAZ CACERES	2991613-6	LA VEGA	LOLOL	
501	ELIANA LORCA VALDEZ	5403237-4	NERQUIHUE	LOLOL	
502	JOSE RODRIGUEZ MALDONADO	5979142-7	R DE QUIAHUE	LOLOL	
503	FANNY VALDERRAMA ITURRIAGA	7413211-1	NERQUIHUE	LOLOL	
504	SONIA DEL CARMEN ZUÑIGA MUÑOZ	10774680-3	LA VEGA	LOLOL	93812345
505	LUCINDA VALENZUELA GALAZ	9654452-9	VILLA MANUEL LARRAIN	LOLOL	97254853
506	LUCIA VILLEGAS RODRIGUEZ	11015723-1	LA CABAÑA	LOLOL	
507	MANUEL BELISARIO CARTAGENA ITURRIAGA	7209230-9	NERQUIHUE	LOLOL	66184531
508	PETRONILA DEL CARMEN VILENEZ ZUÑIGA	8685853-1	LOS HORNOS VIEJOS	LOLOL	89940866
509	OSVALDO REYES MORALES	9016526-7	EL MEMBRILLO	LOLOL	
510	HUGO DEL CARMEN ZUÑIGA PAREDES	6033598-2	LA CABAÑA	LOLOL	88225853
511	NANCY GALAZ BUSTAMANTE	11555763-7	LA CABAÑA	LOLOL	67163920
512	JOSE DIONISIO VALENZUELA R.	12781574-7	LOS CHACAYES	LOLOL	74262263
513	ZULINDA VELIZ VELIZ	7874803-6	LOS CHACAYES	LOLOL	89869510

514	PATRICIO RAUL MEDINA BRAVO	11761074-8	LOS ROBLES	LOLOL	95696558
515	RAFAEL DEL CARMEN ALIAGA VELIZ	9469444-2	LOS CHACAYES	LOLOL	62980164
516	LIBORIO ORTIZ FREDES	12039215-8	RANGUILI	LOLOL	
517	HECTOR E. RODRIGUEZ MALDONADO	10917374-6	RINCONADA DE QUIAHUE	LOLOL	
518	LETICIA CECILIA RODRIGUEZ MALDONADO	12155676-6	RINCONADA DE QUIAHUE	LOLOL	91208171
519	MARIA A. DUQUE GONZALEZ	6457847-2	PUNTA DE LA PIEDRA	LOLOL	89163372
520	JUAN DIAZ GONZALEZ	8062333-1	ALTO NERQUIHUE	LOLOL	
521	NELSON HERNAN ALLENDE BARRERA	8072590-3	LA CABAÑA	LOLOL	93771617
522	ANTONIO DEL CARMEN GONZALEZ DUQUE	7353554-9	RINCON DE LOS UBILLAS	LOLOL	92876200
523	JO5E ANTONIO GONZALEZ GAETE	14331061-2	RINCON DE LAS UBILLAS	LOLOL	50336757
524	JIMENA RAMIREZ VILCHEZ	13202858-3	LA CABAÑA	LOLOL	
525	JAIME ALFONSO BERRIOS CACERES	5645222-2	LA CABAÑA	LOLOL	
526	URIEL DEL CARMEN GALAZ COFRE	13004804-8	LA CABAÑA	LOLOL	
527	ALTAMIRO DEL CARMEN BECERRA CERECEDA	4313796-4	LA CABAÑA	LOLOL	
528	LUIS OSVALDO BRAVO RAMIREZ	9544742-2	LA CABAÑA	LOLOL	
529	ROSA ELENA DUARTE PALOMINOS	10774411-8	LA CABAÑA	LOLOL	
530	MARIA ANGELICA DUQUE VENEGAS	6210983-1	LA VEGA	LOLOL	
531	JUAN ENRIQUE GAETE ARGOMEDO	10231489-1	RINCON LAS OVEJAS	LOLOL	
532	BRIGIDA IDILIA DE LA5 MERCEDES DUQUE ZUÑIGA	5608051-1	LA VEGA	LOLOL	
533	GEMA ORELLANA OROZCO	15532332-9	RANGUILI	LOLOL	56369652
534	LUIS JAVIER ORELLANA FARIA5	4862315-8	RANGUILI	LOLOL	73626739
535	CRISTIAN A. GUAJARDO PIÑEDA	13791763-2	LA PRADERA	LOLOL	97222422
536	NICOLAS A. ALLENDE DIAZ	5246055-7	RINCON DE LAS OVEJAS	LOLOL	61688871
537	NANCY DEL CARMEN ZUÑIGA SILVA	9015452-4	NILAHUE BAJO	LOLOL	92616877
538	JOSE MANUEL BARROS CORNEJO	15948249-9	RANGUILI	LOLOL	74973753
539	LUIS E. ZUÑIGA ZUÑIGA	9822639-7	LA VEGA	LOLOL	
540	MIGUEL ALEJANDRO PARRAGUEZ ZUÑIGA	13571076-8	LA VEGA	LOLOL	97290927
541	ESTEBAN O. ZUÑIGA GONZALEZ	4789560-1	LA PALMA	LOLOL	95242494
542	DAGOBERTO PEÑALOZA GALAZ	5729250-4	NILAHUE	LOLOL	94609934
543	ALEJANDRO MUÑOZ MARTINEZ	7975454-4	NILAHUE ALTO	LOLOL	99521501

544	FLOR ACEITUNO GONZALEZ	8067749-9	LA CABAÑA	LOLOL	
545	JUAN FRANCISCO ORELLANA PICHUANTE	4511287-1	NILAHUE BAJO	LOLOL	73626739
546	MARIA LUISA GONZALEZ MUÑOZ	6755589-9	RINCON DE LAS UBILLAS	LOLOL	72667117
547	JUAN DE DIOS ZUÑIGA CUBILLOS	5806259-1	PUNTA DE LA PIEDRA	LOLOL	
548	MARIA INES GONZALEZ GUERRA	11555642-8	RANGUILI	LOLOL	94602655
549	GLORIA ORELLANA FARIAS	7091785-8	RANGUILI	LOLOL	99603097
550	REINALDO CASTRO LEIVA	6907855-9	LA HACIENDA	LOLOL	76229878
551	CRISTIAN RODRIGO PIÑEDA HERRERA	11199831-0	LA PRADERA	LOLOL	
552	VICTOR JOSE ORELLANA FARIAS	7964718-7	RANGUILI	LOLOL	95213704
553	NANCY V. BARROS NUÑEZ	7449016-6	RANGUILIL	LOLOL	91476099
554	VICTOR A. CUBILLOS ALLENDE	13004688-6	RINCON DE LAS OVEJAS	LOLOL	89167870
55S	ENDINA ROSA GAETE ORTIZ	4935596-3	CAHUILS/N	PICHILEMU	52752001
556	LUPERTINA JIMENEZ CARO	10909323-8	COGUIL	PICHILEMU	
557	MARIA ARRAÑO VARGAS	11555211-2	QUEBRADA NUEVO REINO	PICHILEMU	
558	JOSE EDUARDO PIZARRO PEREZ	5739044-1	LAS CAMILLAS	PICHILEMU	53550167

CAPACITY BUILDING PLAN

Plan de demostración, habilitación, capacitación y difusión (Capacity Building Plan)

Establecimiento de la línea de base

Como primera actuación del proyecto se realiza la caracterización del área de secano de la Región de O'Higgins que incluirá suelos, vegetación y disponibilidad de agua. Para ello se contrata servicio de fotografía UAV, que obtiene fotografías RGB, multiespectral, hiperespectral, y térmica. Estas fotografías mas la información de terreno son la base de un SIG que permite generar:

- un diagnóstico inicial del área de desarrollo del proyecto, incluyendo las unidades demostrativas;
- parámetros de validación cuantificada mediante comprobaciones en terreno; y
- modelos de elevación, perfiles de escurrimiento y modelos electromagnéticos de humedad del perfil del suelo del área de desarrollo del proyecto, apoyados con trabajo en terreno con GPS incluyendo evaluación de suelos a través de calicatas.

Se realizará al menos otra toma de fotografía UAV previa a la finalización del proyecto, que permitirá la evaluación cuantitativa del impacto agronómico de las actuaciones.

La explotación de este sistema de información permite la adecuada implementación de unidades demostrativas, evaluar la cobertura de vegetación natural presente y de las praderas y cultivos intervenidos, así como zonificar el área de proyecto en función del potencial de producción agrícola; y la evaluación de impacto de las técnicas y sistemas entregados a los beneficiarios (cultivos, rotaciones, invernaderos, sistemas de manejo del ganado y sistemas de captación y acumulación de aguas lluvias) y, por tanto, del proyecto.

Establecimiento de unidades demostrativas

Se establecerán 9 unidades demostrativas, de las cuales 8 se ubicarán en predios de agricultores de las comunas de secano (Navidad, Litueche, La Estrella, Marchigue, Pumanque, Pichilemu, Paredones, Lolol). La novena unidad se ubicará en el campo experimental de INIA-Hidango (secano), donde se harán evaluaciones más detalladas de comportamiento de los cultivos, frente a distintos sistemas de manejo de suelos y aguas.

Se incorporarán y evaluarán cultivos adaptados para las condiciones de escasez de agua de las áreas de secano:

- trigo,
- chícharo,
- quínoa,
- alforfón y
- leguminosas y gramíneas forrajeras

Cada uno de estos cultivos se asociará a tratamientos de manejo de suelos óptimos para la morfología y condiciones de cada unidad demostrativa. Se incorporarán prácticas de manejo conservacionista de suelos y agua como:

- cero labranza en cereal,
- subsolado de suelos,
- regeneración de praderas,
- manejo de rastrojos,
- aplicación de enmiendas de suelo (orgánicas, fosfatadas, calcáreas),
- fertilización orgánica e inorgánica y
- establecimiento de cultivos alomados.

Se incorpora, como alternativa de riego bajo condiciones de escasez de recursos hídricos, riego por goteo, que permite mayor control de la humedad del suelo y favorece el control de malezas en el cultivo de hortalizas.

Además de lo anterior, en cada una de las 9 unidades demostrativas se establecerán sistemas de captación, acumulación y aprovechamiento de aguas lluvias, a ser utilizadas para consumo animal y para la producción de hortalizas bajo invernadero, y un invernadero donde se realizarán demostraciones de producción de hortalizas y forraje verde hidropónico con recirculación de aguas lluvias.

Finalmente, cada unidad demostrativa contará con un pequeño rebaño (carnero y 5 ovejas) y 5 colmenas.

El seguimiento y monitoreo de cada unidad demostrativa informará el programa de capacitación dirigido a productores y técnicos del secano a nivel local, produciéndose la gestión adaptativa de ambos: unidad demostrativa y programa de capacitación.

Sistemas de monitoreo

En las unidades demostrativas se establecerán sistemas de monitoreo demostrativos de nutrición en cultivos, que demuestren la respuesta a los principales fertilizantes sólidos y líquidos aportados (nitrógeno, fosforo, calcio y potasio) tanto en forma inorgánica como orgánica, accesibles para el beneficiario y elegibles en el programa de recuperación de suelos degradados (SIRSD) del Ministerio de Agricultura. Además, se monitoreará:

- evolución de las propiedades físicas, químicas y biológicas de los suelos;
- resultados de cada técnica de manejo de suelos, agua y cultivos;
- comportamiento frente a plagas y enfermedades;
- estrés hídrico y necesidad de riego, incluyendo eventual de praderas permanentes.

Para ello, después de cada temporada de proyecto se tomarán muestras suelo de cada una de las unidades demostrativas establecidas, las cuales se llevarán a laboratorio para los análisis correspondientes que se incorporan al SIG del proyecto. Este procedimiento arroja un flujo constante de datos e información que se va incorporando en las recomendaciones a los productores del secano. Las recomendaciones considerarán su elegibilidad para el Programa de Recuperación de suelos degradados (SIRSD) del Ministerio de Agricultura.

Maquinaria

Los equipos y maquinaria agrícola a ser adquiridos por el proyecto se utilizarán para la realización de las distintas técnicas de manejo conservacionista de suelos en las 9 unidades demostrativas, así como para prestar

servicios de manejo de suelos en predios de beneficiarios. Los beneficiarios de sistemas de captación, acumulación, y aprovechamiento de aguas lluvias tendrán prioridad para recibir apoyo de dicha maquinaria y equipos en labores de escarificado de suelos, aplicación de enmiendas (orgánica, fosfatada, y calcáreas) y otras labores. Se utilizarán de la siguiente forma:

- (Subsoiler) Arado subsolador escarificador: uso para la rotura de suelos, con laboreo vertical, en cada una de las unidades demostrativas. Facilitará el control de la compactación de suelos, provocada por el uso de arados de vertedera y discos, además del pisoteo animal en el pastoreo.
- (Chisel plough) Arado cincel: a ser utilizado para labores de preparación de suelo verticales, sin inversión de perfil.
- (Vibrocultivator) Vibrocultivador: equipo utilizado para el afinado de la cama de siembra, y para el control de malezas de reproducción vegetativa.
- (Zero tillage seed machine) Sembradora cero labranza: máquina de siembra directa de cultivos, sin remoción de suelos, lo que favorece un control de la erosión en un 90%.
- (Pasture regenerating machine) Regeneradora de praderas: máquina que permite el establecimiento directo, sin aradura de suelos, de semillas de especies forrajeras, como de fertilizantes, en suelos con praderas degradadas.
- (Manure spreader) Máquina aplicadora de guanos: utilizada para la aplicación de enmiendas orgánicas, como guano de ave, en suelos degradados o en praderas degradadas.
- (Tractor) Tractor de 115 Hp. Elemento motriz, para el movimiento y accionamiento de equipos y maquinaria agrícola.
- (Backhoe) Máquina retroexcavadora. Equipo necesario para el pequeño movimiento de tierras, en el acondicionamiento de unidades demostrativas del proyecto y en predios de beneficiarios.
- (Sprayer) Pulverizadora de barra: equipo a ser utilizado para la aplicación de herbicidas, en el control de malezas, previo a la siembra de cero labranza.
- (Strawberry picking assistant) Cosechadora de frutilla
- (Stubble chipper) Chipeadora de rastrojo
- (Wheat/Quinoa seeder) Máquina sembradora de Quínoa y Trigo: específica, para el establecimiento de unidades demostrativas con estos cultivos.
- (Stubble cultivator) Rastra incorporadora de rastrojos: utilizada para la incorporación de rastrojos de cultivos como trigo, en la labor de preparación de suelos para la siembra. Favorece una incorporación uniforme en profundidad de los rastrojos, lo que favorece su descomposición.
- (Offset disc harrow) Rastra de discos offset: equipo para labores secundarias de preparación de suelos, picado, e incorporación de rastrojos de cultivos. Favorable para la incorporación de enmiendas orgánicas, calcáreas, y fosfatadas.
- (Manual hay baler) Enfardadora manual: equipo a utilizar para la producción de fardos de rastrojos de cultivos o de especies forrajeras, en un sistema de pequeña agricultura de los predios del proyecto.
- (Honey extractor) Centrifugadora: utilizada para la extracción de miel de los panales.
- (Oil tank and manual fuel pump) Estanque y bomba manual para combustible
- (Flatbed wagon) Coloso: carro de transporte de insumos en las unidades demostrativas.

Trabajos en predio de beneficiario

Además del trabajo a desarrollar en las 9 unidades demostrativas, en 558 predios de pequeños agricultores se establecerán sistemas de colecta, acumulación, y aprovechamiento de aguas lluvias, a partir de la captación en techos de construcciones del predio, así como sistemas de riego.

Se acumulará agua en cisternas móviles de 10.000 litros (100 predios) y en estanques de 5400 litros (los restantes predios) y se construirán 558 invernaderos de 40 metros cuadrados de superficie, los cuales permitirán la producción de hortalizas. Estas últimas se instalarán en predios de agricultores de nivel más avanzado entre los beneficiarios, para la producción mejorada de hortalizas bajo plástico, y serán compartidas con beneficiarios vecinos. El agua acumulada en estos sistemas se utilizará para la producción de hortalizas y forraje verde hidropónico bajo invernadero, con recirculación.

Finalmente, se instalarán 277 colmenas productoras de miel en predios de beneficiarios interesados en esta producción. La principal maquinaria necesaria para la explotación del producto (centrifugadora) estará disponible para estos beneficiarios en el predio demostrativo mas cercano.

Actividades de capacitación

Las actividades de capacitación tienen como público objetivo a beneficiarios del proyecto y técnicos y profesionales directamente vinculados al proyecto en su área de actuación. El proceso de formación y sus resultados debe considerar a beneficiarios y técnicos, entendidos estos últimos como los profesionales en contacto directo con beneficiarios. Si estos públicos objetivo son adecuadamente incorporados por la institucionalidad que sustenta el proyecto, se obtendrán los resultados esperados e incluso otros no visualizados en el proceso.

El proyecto establece un sistema de comunicación sistemático, ordenado, y dinámico adaptado a las necesidades y requerimientos de sus distintos actores y públicos objetivo. Para ello se estudia y adopta una estrategia comunicacional integral (nivel nacional, regional, local y microlocal) que considere y respete el perfil de los beneficiarios. Sus objetivos son:

- permitir y asegurar la comunicación eficaz y eficiente, interinstitucional y entre actores diversos;
- dotar a las comunicaciones de flexibilidad sin pérdida de formalidad de forma que permita su monitoreo, y
- establecer y utilizar canales que permitan tanto la entrega de nuevas técnicas e información aplicable como la retroalimentación del proyecto con información y percepciones de los usuarios.

Para obtener un funcionamiento óptimo se protocoliza el tipo de información que se entrega y el canal existente para ello, contando con recursos humanos y materiales asignados al monitoreo de estos canales de comunicación y de su operación expedita. El principal desafío en el canal de comunicación se encuentra en los niveles regional y local, debido a las estructuras institucionales y sus especificaciones funcionales. Para ello, se establecen los Comités Ejecutivo y Locales, que se responsabilizan de facilitar el impacto del proyecto en el quehacer cotidiano de técnicos y beneficiarios por medio del aprendizaje.

Capacitación directa a beneficiarios:

- Técnicas de conservación de suelos y aguas
- Visita técnica: manejo de suelos y aguas bajo condiciones semiáridas en el nordeste brasileño
- Técnicas de captación, acumulación, y aprovechamiento de aguas lluvias
- Producción adaptada de cultivos de secano
- Sistemas adaptados de riego tecnificado
- Visita técnica: sistemas de producción de hortalizas con recirculación de agua bajo condiciones semiáridas
- Sistemas adaptados de producción ovina
- Manejo adaptado de praderas

Capacitación de capacitadores

- Caracterización y clasificación de fuentes de agua y vegetación, según interpretación de vuelos de drones
- Clasificación de suelos del área de secano. Estudios Agrológicos y de Clasificación Edafológica
- Estudios de micromorfología y perfil cultural de suelos
- Diseminación y replicación de técnicas de conservación de suelos y aguas
- Diplomado en diseño de sistemas de captación y acumulación de aguas lluvias
- Regulación y mantención de maquinaria agrícola
- Manejo y mantención de tractores agrícolas
- Topografía
- Visita técnica: manejo de suelos y aguas y gestión de riesgos agroclimáticos bajo condiciones semiáridas en el norte de Argentina
- Técnicas de manejo conservacionista de suelos y aguas dirigidos a operadores del programa SIRSD
- Visita técnica: manejo tecnificado de suelos y aguas y gestión de riesgos agroclimáticos en condiciones mediterráneas

Actividades de difusión

Como una forma de dar inicio a las actividades de difusión del proyecto, se realizará un seminario de lanzamiento del proyecto, exponiendo los objetivos y alcances del mismo, donde se invitará a productores, técnicos, y autoridades de la Región de O´Higgins. Se incluirá además a todos los actores gubernamentales de la Región, que incluye GORE, CORE, y Servicios del Agro.

Las unidades demostrativas del proyecto se utilizarán para realizar días de campo, donde se entregarán resultados relevantes de las evaluaciones hechas en cada una de ellas a los productores y técnicos de cada comuna incorporada en el proyecto. En estas actividades de difusión se incorporará a estudiantes y profesores de escuelas y liceos agrícolas de la Región, así como a productores de regiones vecinas en la segunda mitad del proyecto.

Para la difusión masiva se realizarán programas radiales donde se entregarán los avances y resultados del proyecto, a través de las principales radios del secano de la Región de O´Higgins.

Durante el desarrollo del proyecto, se generará material divulgativo de las distintas técnicas de manejo de agua y suelos, como de cultivos, que se evaluarán en las distintas unidades demostrativas. Esto incluye 12 cartillas divulgativas que se entregarán en los días de campo, a partir de la segunda temporada del proyecto, como en los distintos cursos de capacitación dirigidos a medianos y pequeños agricultores.

Se editarán 6 videos de las técnicas de manejo de cultivos, y de las distintas técnicas de manejo de suelos y agua. Estos se distribuirán a los productores y técnicos PRODESAL e INDAP de la Región. Estos videos estarán disponibles como material de apoyo para las actividades de capacitación, diseminación y replicación del proyecto.

Durante el año 3 de proyecto se editará un manual (3.000 ejemplares) recogiendo las mejores prácticas y lecciones aprendidas del proyecto en al menos los siguientes campos:

- técnicas de captación, acumulación, y aprovechamiento de aguas lluvias
- técnicas de manejo conservacionista de suelos y agua
- producción adaptada de cultivos de secano
- sistemas adaptados de riego
- producción ovina adaptada

Este manual incluirá elementos técnicos adaptados de manejo de suelos y agua, nutrición y fertilidad de cultivos de secano, control de enfermedades y un análisis económico de las tecnologías propuestas.

En cuanto al sistema de información agroclimática, se ha considerado la adquisición de equipos y consultorías para su definición técnica y comunicacional. Ello permitirá la selección de la información útil que es posible obtener con la adecuada periodicidad y de los canales de comunicación óptimos (radio, SMS u otros).

DEMONSTRATION FIELDS DETAILS

UNIDADES DEMOSTRATIVAS DEL PROYECTO "MEJORA DE LA CAPACIDAD DE ADAPTACIÓN AL CAMBIO CLIMÁTICO DE LA PEQUEÑA AGRICULTURA EN LA REGIÓN DE CHILE DE O'HIGGINS". RUBROS, CULTIVOS, Y MANEJO

							Técnicas de manejo de suelos y aguas		
Unidades demostrativas proyecto	Comuna	Provincia	Cultivos	Producción animal y avícola	Técnicas de manejo de aguas	Tipo de riego	Asociadas a cultivos	Asociada al suelo	Asociada a praderas
Predio agricultor 1 a seleccionar	Navidad	Cardenal Caro	1. Trigo 2. Quínoa 3. Chicharo 4. Praderas anuales y permanentes (mezclas de tréboles y alfalfas de secano). Incorporación de forraje suplementario de invierno y verano 5. Hortalizas de hoja y de fruto. Se incorporará el concepto de rotación de cultivos. 6. Frutillas	1. Ovina 2. Gallinas de postura 3. Apicultura	1. Sistemas de captación, acumulación, y aprovechamiento de aguas lluvias 2. Uso de paneles fotovoltaicos 3. Subsolado para favorecer la infiltración de agua en el suelo	1. Riego por goteo en hortalizas bajo invernadero. 2. Riego eventual en praderas con mini aspersión 3. Microaspersión en la producción de forraje verde hidropónico	1. Siembras de cultivos alomados 2. Cero labranza 3. Incorporación y manejo de rastrojos de cereales 4. Uso de enmiendas orgánicas-fosfatadas y calcáreas 5. Uso de arado cincel y subsolador escarificador para preparación de suelos en cultivos. 6. Plantación de especies nativas como Quillay y otras, manejados bajo un sistema silvo pastoral	1. Surcos de infitración de aguas lluvias 2. Control de cárcavas 3. Incorporación de conceptos de la técnica australiana del "Keyline"	1. Praderas sembradas con guano 2.Regeneración de praderas degradadas 3. Uso de subsolador escarificador en praderas establecidas 4. Uso de cercos eléctricos para pastoreo diferido 5. Plantación de arbustos forrajeros 6. Abono verde 7. Incorporación de concepto de manejo holístico
Predio agricultor 2 a seleccionar	Litueche	Cardenal Caro							
Predio agricultor 3 a seleccionar	La Estrella	Cardenal Caro							
Predio agricultor 4 a seleccionar	Marchigue	Cardenal Caro							
Predio agricultor 5 a seleccionar	Pichilemu	Cardenal Caro							
Predio agricultor 6 a seleccionar	Paredones	Cardenal Caro							
Predio agricultor 7 a seleccionar	Lolol	Colchagua							
Predio agricultor 8 a seleccionar	Pumanque	Colchagua							
Centro experimental Hidango de INIA	Litueche	Cardenal Caro		1. Ovina					

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[6] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional projectlprogramme, list the endorsing officials al/ the participating countries. The endorsement letter(s) should be attached as an annex to the projectlprogramme propasal/. Please attach the endorsement letter(s) with this template; add as many participating govemments if a regional projectlprogramme:*

Gladys Santis Adaptation Officer Ministry of Environment	Date: *August 3rd, 2015*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the projectlprogramme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans ("National Action Plan on Climate Change"; "National Adaptation Plan on Climate Change" and "Climate Change Adaptation Plan for Forestry and Agriculture") and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

AGENCIA DE COOPERACIÓN INTERNACIONAL
DIRECTOR EJECUTIVO

Ricardo Herrera Saldías
Executive Director
AGCI
Implementing Entity Coordinator

Date: August 3rd, 2015
Tel. and email:+56 (2) 28275756 eofarrill@agci.gob.cl

Project Contact Person: Enrique O'Farrill-Julien, Head of the Bilateral and Multilateral Cooperation Department Tel. And Email:
+56 (2) 28275756 eofarrill@agci.gob.cl

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e. Each Party shall designate and communicate to the secretarialthe authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

ADAPTATION FUND

Letter of Endorsement by Government

Ministerio del Medio Ambiente
Gobierno de Chile

August 3rd, 2015

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for "ENHANCING RESILIENCE TO CLIMATE CHANGE OF THE SMALL AGRICULTURE IN THE CHILEAN REGION OF O'HIGGINS"

In my capacity as designated authority for the Adaptation Fund in CHILE, I confirm that the above national project/programme proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Chilean Region of O'Higgins.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by the Ministries of Agriculture and Environment and executed by national executing entity.

Sincerely,

MINISTERIO DEL MEDIO AMBIENTE * OFICINA DE CAMBIO CLIMATICO *

Gladys Santis
Adaptation Officer

Ministry of Environment

ADAPTATION FUND

PROCESO PARTICIPATIVO

Proyecto “Aumentar la Resiliencia Frente al Cambio Climático de la Pequeña Agricultura en la Región de O’Higgins (Chile)”

Agencia implementadora: AGENCIA DE COOPERACIÓN INTERNACIONAL (AGCI)
Agencias ejecutoras: MINISTERIOS DE AGRICULTURA Y AMBIENTE

AÑO 2015

ÍNDICE DE CONTENIDOS

1. PRESENTACIÓN

El presente informe da cuenta del Proceso Participativo que se desarrolló en el marco del proyecto **"Aumentar la resiliencia frente al cambio climático de la pequeña agricultura en la Región de O'Higgins (Chile)"**, en las comunas de Litueche, Lolol, Paredones, Pumanque, Marchigue, La Estrella, Navidad y Pichilemu. La mano ejecutora de este proyecto es el Ministerio de Agricultura y medioambiente quienes desde un Comité ejecutivo han incorporado a representantes de INIA, UNEA, e INDAP dándole sustentabilidad política y técnica a la implementación del proyecto.

El objetivo de este proyecto es: Aumentar la resiliencia de las comunidades rurales agrícolas en el secano costero de la región de O´Higgins ante la variabilidad climática actual y los cambios futuros en el clima. Este Objetivo se operacionaliza a partir de dos componentes los cuales tienen asociados sus resultados esperados. Los componentes mencionados son:

Componente 1: Creación de capacidades en prácticas agrarias apropiadas ante el cambio climático (gestión de suelos, agua, ganado y cultivos).
Los resultados esperados son: 1. Capacidades para el manejo de suelo, ganado, agua y cultivos aumentados, 2. Acceso a maquinaria para el manejo de suelos, 3. Disponibilidad de agua y productividad aumentada en 500 predios.

Componente 2: Instalación de un sistema de información para la gestión de riesgo agroclimático y la adaptación al cambio climático.
Los resultados esperados son: 1. Capacidad del personal de MINAGRI para la gestión de riesgo agroclimático aumentada, 2. Capacidad adaptativa de las comunidades rurales del área aumentada mediante el uso de información agroclimática, 3. Producción agrícola aumentada mediante la toma de decisiones adaptativa, 4. Este componente servirá de modelo para otras regiones.

Este proceso participativo quiere incorporar a los actores claves y pequeños agricultores beneficiarios del proyecto permitiendo de esta forma darle sustentabilidad a los resultados esperados.

2. OBJETIVOS

2.1. Objetivo General

El objetivo general es generar un Proceso Participativo incorporando a los actores claves del tema agricultura de secano, y los pequeños agricultores sujetos a ser beneficiarios del proyecto de las comunas de Lolol, Paredones, Pumanque, Litueche, Marchigue, Pichilemu, La Estrella y Navidad, de la Región de O'Higgins.

2.2. Objetivos Específicos

1. Conocer la disposición hacia el proyecto y las soluciones propuestas, de los agricultores quienes serán beneficiarios directos del proyecto.
2. Indagar con actores relevantes a nivel comunal sobre las problemáticas de los pequeños agricultores del Secano

3. Incorporar las visiones o planteamientos de los pequeños agricultores, respecto a las soluciones planteadas en el proyecto del Fondo de Adaptación Climática, cuando sea técnica y económicamente factible.

3. METODOLOGÍA

En el marco del Proyecto "Aumentar la Resiliencia Frente al Cambio Climático de la Pequeña Agricultura en la Región de O'Higgins (Chile)" y con el propósito de identificar y priorizar un conjunto de actores sociales relevantes o stakeholders de dicha región, y específicamente de las comunas participantes, se implementó una metodología general de tipo participativa basada en recopilación y análisis de información de tipo cualitativa y cuantitativa.

3.1. Entrevistas Actores Relevantes

En primer término, se levantó información de primeras fuentes, realizándose un total de 6 entrevistas a informantes claves, los cuales fueron seleccionados por considerar que los funcionarios de los equipos PRODESAL (Programa de Desarrollo Local de INDAP), son quienes tienen mayor relación con los pequeños agricultores.

Las áreas de actuación de los informantes claves, es decir, el alcance territorial del trabajo realizado por la institución a la cual representan, corresponden principalmente al nivel comunal y en un caso al área, es decir, tres comunas.

Tabla 1: Lista de Informantes Clave Entrevistados

Comuna	Nombre	Cargo
Litueche	Sr. Daniel Bascuñán	Jefe de área
Marchigue	Sr. Gustavo Jorquera	Profesional
Pichilemu	Sr. Rodrigo Clavijo	Profesional
Paredones	Sr. Sebastián González	Profesional
Pumanque	Sr. Rodrigo Valenzuela	Profesional
Navidad	Sr. Juan Francisco Rubio	Profesional

3.2. Talleres

Para dar respuesta a los objetivos 1 y 3, realizamos un acercamiento a los principales beneficiarios del proyecto, es decir, a los pequeños agricultores, a través de tres talleres realizados en las comunas de Litueche, Marchigûe y Pichilemu con aproximadamente 170 personas asistentes.

Tabla 2: Talleres Participativos

Comuna	Fecha	Horario	Lugar	Participantes
Litueche	28 de mayo 2015	10:00 a 12:00 horas	Salón Iglesia de Litueche	50 personas
Marchigue	27 de mayo 2015	15:00 a 17:00 horas	Centro Comunitario Rafael Casanova	50 personas

Comuna	Fecha	Horario	Lugar	Participantes
Pichilemu	27 de mayo 2015	10:00 a 11.30 horas	Centro de Prodesal	70 personas

Los talleres tuvieron tres módulos; el primero fue presentar a través de una presentación en power point los antecedentes generales del proyecto; segunda parte acoger los comentarios, consultas o aportes respecto a lo presentado; y por ultimo contestar una encuesta a los y las pequeñas agriculturas que desean ser beneficiarios del proyecto. Estos tres talleres tuvieron un carácter informativo y consultivo con los posibles beneficiarios de las comunas antes señaladas

3.3. Cuestionario

En términos metodológicos, se diseñó y aplicó un cuestionario a la población objeto de estudio, que nos permitirá tener un perfil acotado de estos, lo que permitirá poder tener elementos para la implementación del proyecto de manera más adecuada.

Para recolectar información que nos permita conocer, describir y evaluar la situación actual de los agricultores se contempló la aplicación de entrevistas personales a través de un cuestionario semi-estructurado en las zonas donde está contemplado desarrollar los canales de regadío
En términos metodológicos, se diseñó y aplico una encuesta de caracterización a la población objeto de estudio.

Instrumento de Evaluación: El instrumento de medición fue un cuestionario semi -estructurado con preguntas abiertas y cerradas que permiten explorar, identificar y caracterizar temas de interés para el agricultor.

Grupo Objetivo: Población de hombres y mujeres mayores de edad que desarrollan labores de agricultura en las provincias de Cardenal Caro y Colchagua.

Codigitación, Validación de los Datos y Construcción de Base de Datos: Una vez revisadas las encuestas se procedió a codificar las preguntas abiertas del instrumento y posteriormente fueron digitadas en programas de ingresos de datos alfanumérico (Epidata) especialmente diseñados para digitar la información contenida en las encuestas.
En la validación de los casos ingresados se utilizaron dos mecanismos de validación de la información; el primero asociado al correcto diseño de los programas de ingreso de datos en donde se estableció a priori mecanismos de control de salto de preguntas, y el segundo desarrollado en la etapa de procesamiento de datos, para lo cual se utilizó el Software de Procesamiento Estadístico SPSS 18.0, con el cual se llevó a cabo un proceso de control de error y validación de la base de datos a través de cruces de variables. En esa instancia se detectaron algunas inconsistencias (presencia de casos “outlayer”, incumplimiento de saltos, etc.), las cuáles fueron contrastadas con su fuente original (las encuestas) y corregida previo al procesamiento final de la información.
Algunos de los aspectos considerados en la validación de los datos ingresados en la data final son los siguientes:

- Correcta aplicación de saltos de aplicación de preguntas
- Rangos de respuesta permitidos por pregunta
- Correcta asignación de códigos

- Verificación de ingreso de datos según tipo de preguntas (respuesta múltiple, respuesta única, categorías de respuestas)
- Creación de nuevas variables de información producto de recodificaciones de respuesta o construcción de indicadores
- Una vez que se validó la base de datos se realizaron los procesamientos estadísticos con resultados que contiene el presente informe.

Todas estas instancias fueron coordinadas a través de:

- Mesa de Coordinación Técnica el 9 de abril del presente año, en dependencias del INIA Rancagua, estando presente representantes de SEREMI agricultura VI región, ODEPA, Ministerio de medioambiente, INDAP, UNEA e INIA, donde se desarrollaron las primeras aproximaciones de cómo se desarrollaría este proceso participativo. Esta instancia tiene representación nacional y regional, por lo que se consideró necesario generar una instancia, donde pudieran intervenir los actores del ámbito local.
- Reunión a nivel local se realizó el 20 de abril de 2015 en el Centro Comunitario de la Comuna de Marchigue, donde participaron los equipos de los PRODESAL de las 8 comunas involucradas en el proyecto. Un representante del Ministerio de Agricultura de la VI Región, con un representante de INDAP Regional presentaron el proyecto, poniendo énfasis en cómo se llevaría a cabo el proceso participativo. Esta reunión inicial fue fundamental para el involucramiento de los equipos PRODESAL en todo este proceso, ya que ellos evaluando positivamente los beneficios de la implementación de este proyecto fueron quienes convocaron para los talleres realizados y aplicaron cuestionarios a los pequeños agricultores susceptibles de ser beneficiarios.

4. HALLAZGOS Y RESULTADOS DEL PROCESO PARTICIPATIVO

4.1. Entrevistas a Encargados PRODESAL

Los Funcionarios del Programa de Desarrollo Local de INDAP de las comunas involucradas en el proyecto, han sido actores claves en este proceso. Son ellos quienes tienen un vínculo directo a través de su trabajo cotidiano, apoyando, capacitando, fortaleciendo el trabajo de los pequeños agricultores, convirtiéndose en un agente significativo y validado a nivel comunal.

A ellos nos acercamos con 5 preguntas, que nos permitieran tener información general sobre su percepción de los beneficiarios Directos de este proyecto y su realidad socioeconómica y cultural, permitiendo validar que los contenidos del proyecto son los adecuados para la problemática existente, a continuación presentamos los principales elementos planteados:

1.- ¿Cuáles son las principales características socioeconómicas y culturales de los agricultores de su comuna?

1	Los usuarios son principalmente agricultores para autoconsumo que venden pocos excedentes.
2	En su sistema productivo y social son muy conservadores, ven de sus actividades económicas como un método de vida.
3	Todas las actividades agropecuarias están condicionadas a las lluvias.
4	Producen chacras como porotos, papas, quínoa, hortalizas como lechugas, tomates, frutillas.

5	Usuarios de edad avanzada, es decir mayores de 45 años
6	Prima la baja escolaridad e incluso analfabetismo sobre todo en las personas mayores.
7	Tenencia de animales ovinos, apicultura y pequeñas caballerizas.

2.- ¿Cuáles serían las principales problemáticas en la agricultura en la zona del secano costero?

1	El riego y los suelos degradados. Limitada fertilidad de los suelos**.**
2	Relieve que está compuesto cerros y quebradas, dejando poco espacio para agricultura con convencional o tecnificada.
3	En las explotaciones de ganado no se sustentan en los "pilares" de producción animal (genética, sanidad, nutrición, reproducción y manejos) dejando esta actividad condicionada "años bueno y malos".
4	Escases de agua, asociado a la sequía que se arrastra ya por 4 años seguidos, donde no ha llovido ni el 50% de lo normal.
5	Condiciones de jurisdicción del agua. Existen fuentes de aguas que se acrecientan posterior a las lluvias y son causes denominados brazos alimentadores de esteros, en este caso brazos alimentadores del <estero Nilahue, y Esteros de la Quebrada Nuevo Reino. Como son brazos no tienen autorización a ser inscritos por DGA, lo cual es una gran limitante pues estos brazos pasan por terrenos de particulares de los cuales muchos son pequeños agricultores que sin contar con derechos de uso de agua no pueden optar a proyectos para facilitar la incorporación de tecnología sus campos.

3.- ¿Cómo han enfrentado los agricultores estas problemáticas?

1	Son pocos los agricultores que enfrentan efectivamente estas condiciones de secano, pero hacen una suerte de rotación de cultivo y fertilizan tierras principalmente con urea, además buscan acumular agua.
2	Para resolver el tema de incorporar tecnología o adquirir maquinaria de riego, muchas veces deben incurrir en un gasto propio que significa una disminución de ingresos que en ocasiones puede ser utilizada en inversión de infraestructura o simplemente en uso propio de la familia.
3	Frente al tema de la baja fertilidad de los suelos existen fondos estatales que ayudan a resolver esta problemática a través de concursos o incentivos que aporten programas del estado, al cual se le da una denominación donde se reconoce que todo es siempre poco.
4	Frente a la problemática de riego, se acude al Art. 56 de la Ley de Riego que faculta el uso de agua como un derecho propio cuando es en condiciones de autoconsumo, lo cual limita el nivel de capital al cual ellos pudieran optar.
5	Con cultivos de bajo consumo de agua como lo son los porotos, arveja, habas, garbanzo y mayoritariamente por la ganadería Ovina.
6	Con el apoyo principal de INDAP y las fuertes medidas de fomento y subvención del estado, para por ejemplo: siembra de praderas suplementarias, de forrajeras de secano, para inversiones en infraestructura, corrales, bodegas, genética animal (vientres, reproductores), apoyo para la conservación y la búsqueda de agua (perforación de pozos), estanques, aguadas, y algunos minitranques.

4.- ¿Cómo cree usted que sería la mejor manera de enfrentar esta problemática?

1	Tecnificándose en sistemas que se adapten a la falta de agua e invertir en recursos para recuperar suelos degradados**.**
2	Apoyo del Estado en Obras en pos de favorecer todo lo concerniente al recurso hídrico, que se considera a nivel presupuestario como inversión de uso público y no como se ha dado que es a través de fondos concursables.
3	Herramientas o proyectos para subsanar temas de agua, aunque sea en pequeñas dimensiones o cantidad (cosechadores, minitranques, perforacion punteras o pozos (30 a 40 mt de profundidad), a fin de poder disponer de agua, que sirva para hacer un poco más de hortalizas, de alargar un poco la estación de cultivo, o de dar agua a animales.

5.- A partir de los antecedentes que usted tiene: ¿Cree que el proyecto del Fondo de adaptación climática puede ser un aporte a las problemáticas existentes en la zona del secano costero?

1	Contempla acciones que dejaran a los campesinos informados y con implementos que les darán las directrices para enfrentar la escases de agua y recuperar suelos degradados.
2	Altamente positivo introducir esta temática en lo que concierne a medioambiente, déficit hídrico, con el fin de crear conciencia en los usuarios del programa.
3	Es un aporte ya que está enmarcado dentro de las medidas de apoyo que actualmente aportan las instituciones de INDAP, INIA y otras.

4.2. Talleres

Se realizaron 3 talleres participativos en las comunas de Litueche, Marchigue y Pichilemu. La realización de estos talleres se coordinó a nivel comunal, siendo los encargados de la convocatoria los equipos PRODESAL. En primera instancia se dio a conocer el proyecto a los asistentes, a través de una Presentación en Power Point, para terminar invitándolos a ser beneficiarios de este proyecto y procediendo a en conjunto llenar el cuestionario, y firmar aceptación de condiciones disposición para ser beneficiario del proyecto.

1. Litueche:

Principales Planteamientos:

- Desde PRODESAL han trabajado durante varios años coordinados con el INIA, los que han instalado una importante cantidad de Sistemas de Captación de Aguas Lluvias con invernadero en la comuna, por lo que este proyecto ayudaría a cubrir la población faltante.
- Fueron convocados beneficiarios del SAG a nivel comunal, quienes están interesados en ser beneficiados con un sistema de captación de aguas lluvias e

invernadero, para poder cultivar forraje para sus animales.

2. Marchigue:

Principales Planteamientos:

- Posibilidad de implementar dentro del proyecto Pequeños Tranques dependientes de las necesidades y los terrenos.
- El sistema de Captación de aguas lluvias y el invernaderos serán para el cultivo de autoconsumo mayoritariamente.
- Presentan buena disposición hacia el Proyecto.

3. Pichilemu:

Principales Planteamientos:

- Existe gran interés por parte de los agricultores en ser beneficiarios del proyecto, ya que en la comuna aún no ha existido una inversión en sistema de captación de aguas lluvia y lo visualizan como un aporte a los problemas asociados al riego.

4.3. Cuestionario Beneficiarios

1. Participantes

Contamos con 553 fichas de personas interesadas y susceptibles de ser beneficiarias del proyecto.

Tabla 3: Beneficiarios por comuna

Comuna	N
Pichilemu	120
Lolol	79
Paredones	72
La estrella	70
Pumanque	70
Marchigüe	64
Navidad	42
Litueche	34
Peralillo	2
Total	553

Tabla 4: Cantidad de beneficiarios por Provincia

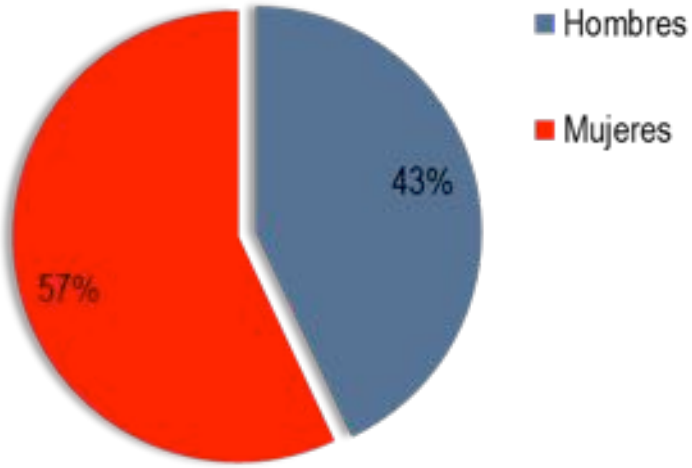
Provincia	N
Cardenal Caro	405
Colchagua	148
Total	553

Fuente: Elaboración Propia en base a Cuestionario

2. Perfil de los/las beneficiarios

De acuerdo al Sexo de los beneficiarios, según como se estipulaba en el diseño de perfil, se intentaría que existiera discriminación positiva hacia las mujeres, es así como contamos con 57% de mujeres y 43% de hombres.

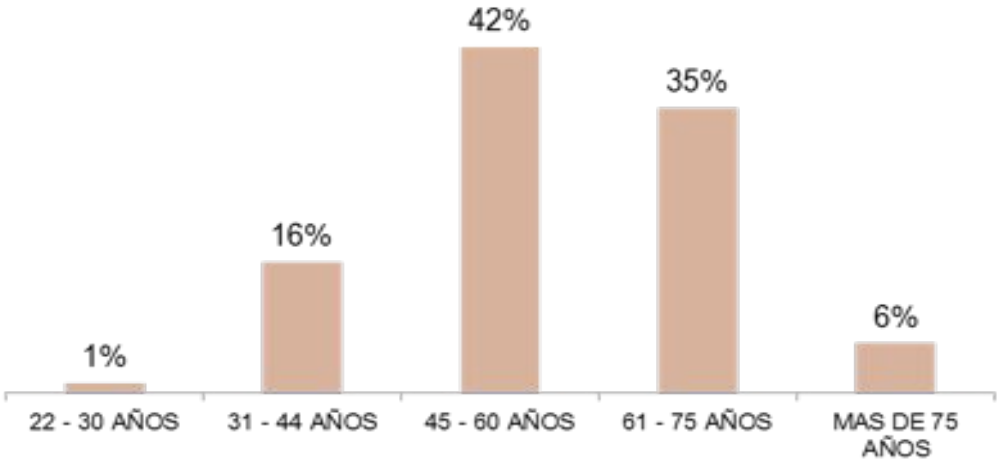
Grafico 1: Sexo de beneficiarios



Fuente: Elaboración Propia en base a Cuestionario

Si bien se propendería a que fueran personas jóvenes, la realidad de los pequeños agricultores es que son mayoritariamente personas mayores, siendo en un 83% personas mayores de 45 años.

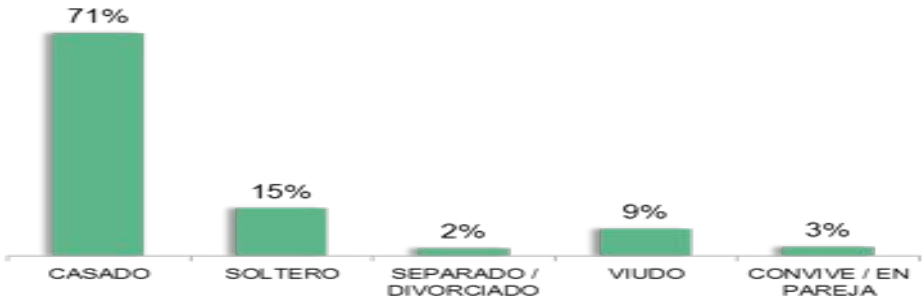
Grafico 2: Grupos etarios



Fuente: Elaboración Propia en base a Cuestionario

El Estado civil responde a las características tradicionales de la población que conforma este proyecto. Son personas mayoritariamente casadas (71%).

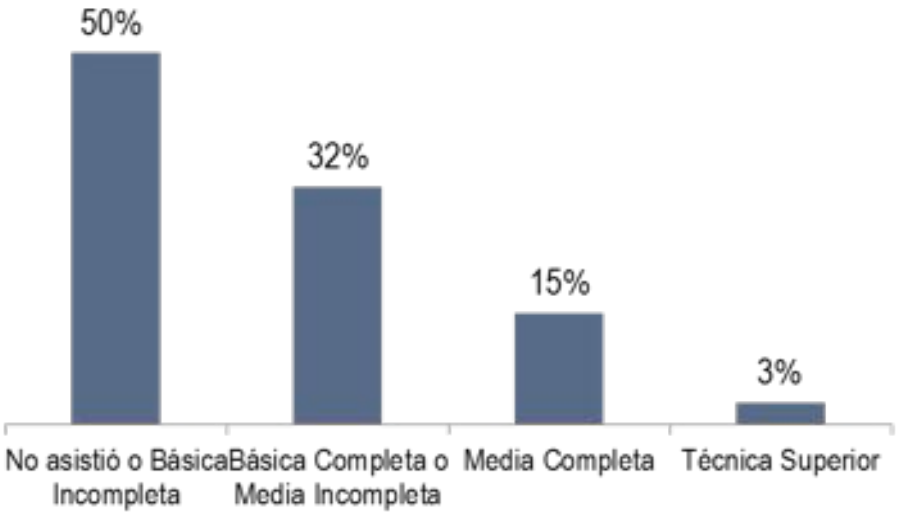
Grafico 3: Estado civil de beneficiarios



Fuente: Elaboración Propia en base a Cuestionario

Es primordial la variable educacional para el desarrollo del proyecto, ya que nos encontramos con una población donde la mayoría de los/las beneficiarias no cuentan con condiciones mínimas de lecto- escritura.

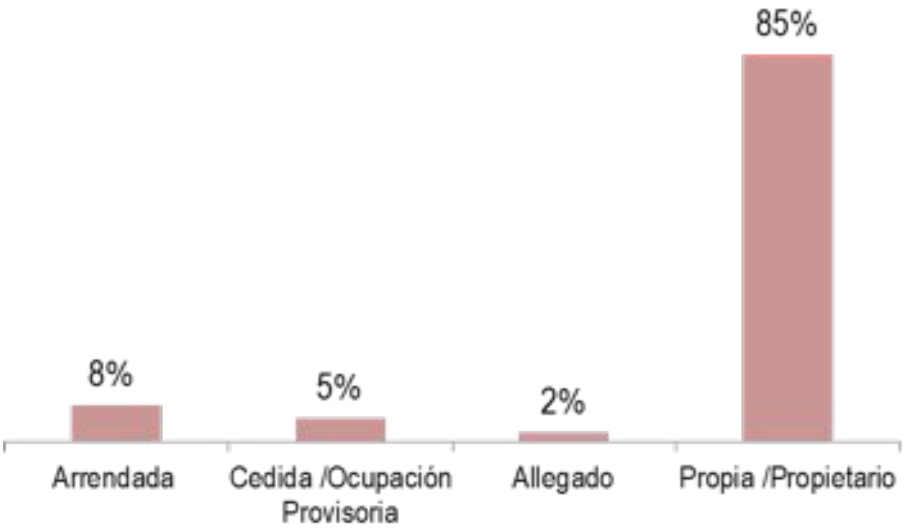
Grafico 4: Nivel Educacional de Beneficiarios



Fuente: Elaboración Propia en base a Cuestionario

Uno de los temas abordados en las mesas técnicas, fue el de privilegiar a beneficiarios/as que fueran propietarios para darle más sustentabilidad a la inversión tanto de este proyecto, como al trabajo que se pueda ir realizando en torno al tema de adaptación al Fondo climático.

Grafico 5: Tenencia de Vivienda de los/las Beneficiarias

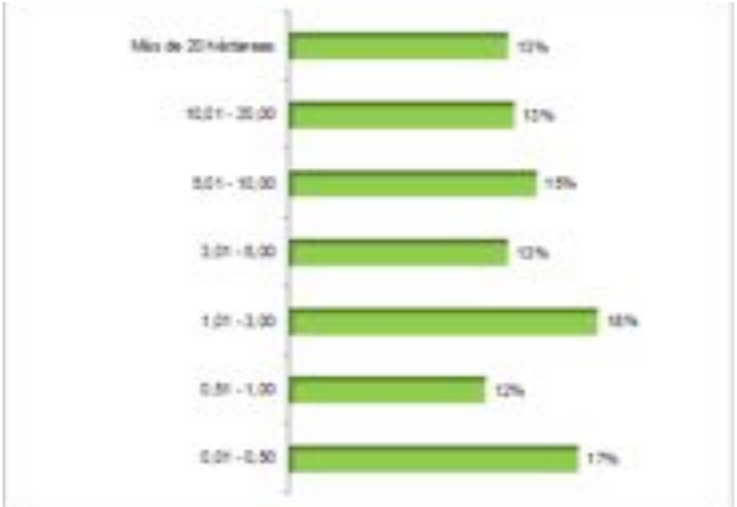


Fuente: Elaboración Propia en base a Cuestionario

3. Tenencia y Uso de la Tierra

Un 60% de los beneficiarios tienen menos de 5 hectáreas, mientras tenemos un importante 29% que tiene menos de 1 hectárea.

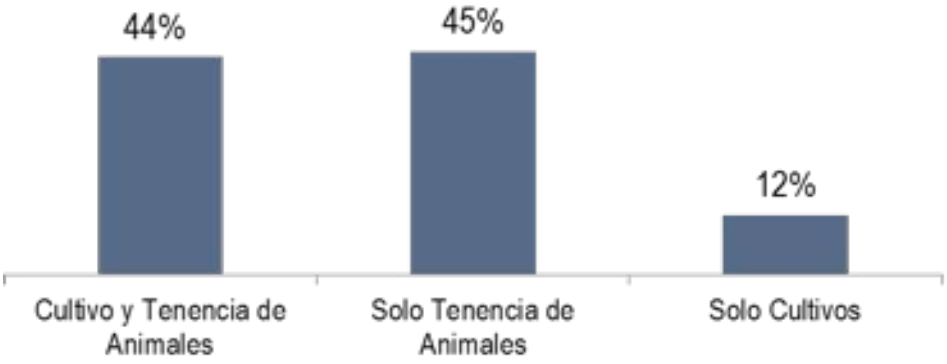
Grafico 6: % de tenencia de hectáreas (rangos)



Fuente: Elaboración Propia en base a Cuestionario

De las hectáreas que tienen consultamos en qué las utiliza, contestando 515 personas.

Grafico 7: Ocupación de la Tierra



Fuente: Elaboración Propia en base a Cuestionario

Respecto a cuantas hectáreas se utilizan para cultivo tenemos un promedio de 1 hectárea, siendo la comuna que presenta mayor cantidad de hectáreas cultivables Litueche.

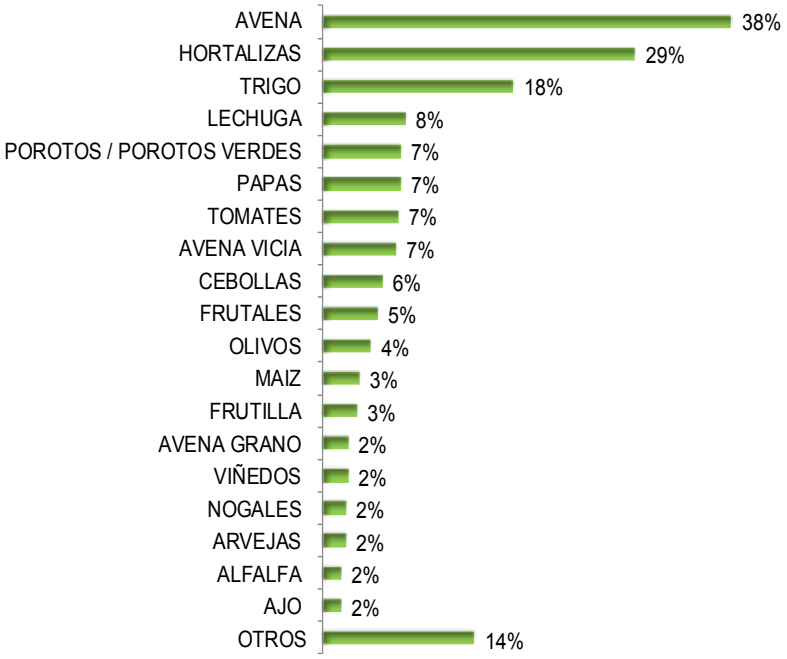
Tabla 5: Promedio de hectáreas utilizadas para cultivo según comuna.

	Promedio
TOTAL	1,06
PAREDONES	1,06
PUMANQUE	0,62
LA ESTRELLA	1,33
PICHILEMU	0,64
NAVIDAD	0,94
MARCHIGÜE	1,31
LITUECHE	2,44
LOLOL	1,42
PERALILLO	1,35

Fuente: Elaboración Propia en base a Cuestionario

Respecto a qué se cultiva, de un total de 417 personas que contestaron, un 38% cultiva avena:

Grafico 8: Porcentaje según cultivo



Fuente: Elaboración Propia en base a Cuestionario

Sobre la tenencia de animales la mayoría declara tener ovejas (71,4%), las cantidades de cabezas de animales son bajas con los promedios que se observan en la siguiente tabla:

Tabla 6: Tasa y promedio de tenencia de animales

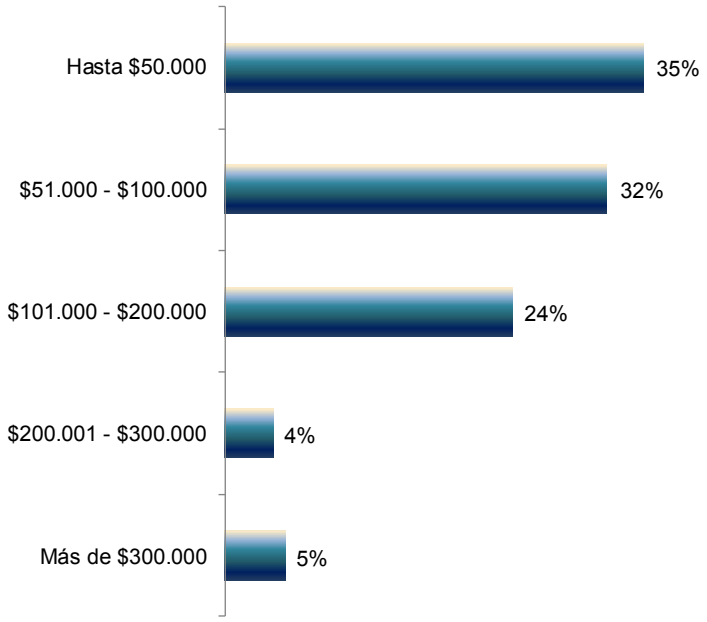
	Tasa Tenencia Casos con Animales	Promedio
OVEJAS	71,4%	24,4
VACAS	28,2%	5,3
CABALLOS	42,1%	2,5
AVES DE CORRAL	43,6%	30,4
ALPACA	0,9%	3,2
CABRAS	11,1%	31,4
ABEJAS	5,6%	35,6

Fuente: Elaboración Propia en base a Cuestionario

Respecto a: ¿Cuál es el ingreso mensual que tiene por la actividad laboral que desarrolla asociada al uso de la tierra?, un 67% recibe hasta $100 mil pesos mensuales. Cabe señalar que en los casos de más de $300.000 mil

pesos, correspondientes a un 5%, existen personas que declararon obtener esos ingresos o más pero sólo una vez al año, correspondiendo principalmente a la venta de animales en los meses de verano.

Grafico 9: Porcentaje de ingreso según rango



Fuente: Elaboración Propia en base a Cuestionario

4. Riego y Trabajo Agrícola

Respecto a los **Derechos de Agua**, solo un 26% declara tener derechos y de ellos un 63% tiene solo un derecho de agua.

Grafico 10: Derechos de Agua Acreditada

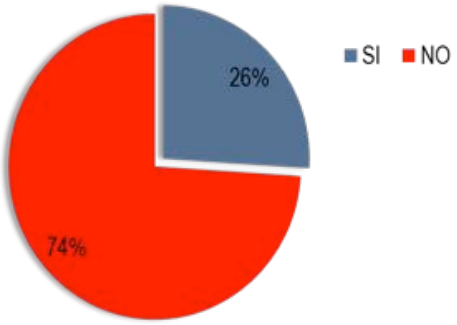
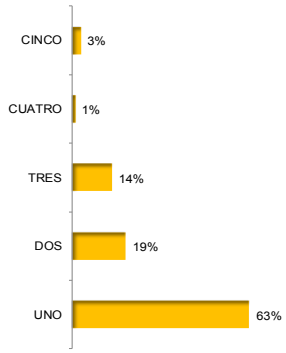


Grafico 11: Derechos de Agua Asignados



Fuente: Elaboración Propia en base a Cuestionario

Extracción de Agua: La situación respecto al uso de agua es muy precaria, lo que se traduce en que pocas personas pueden responder las preguntas asociadas a este elemento. Respecto a las fuentes utilizadas y su caudal contestan solo 194 personas:

Grafico 11: Fuentes que se utilizan

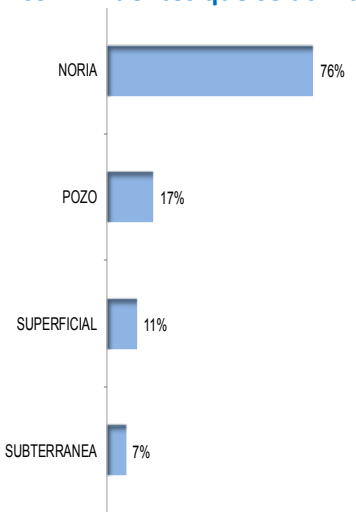
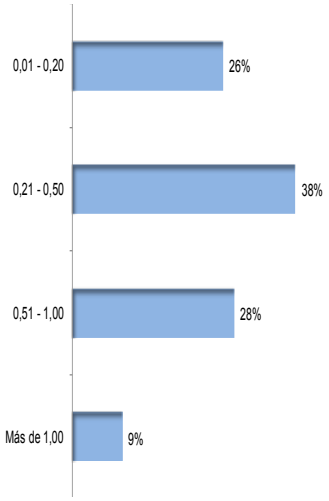


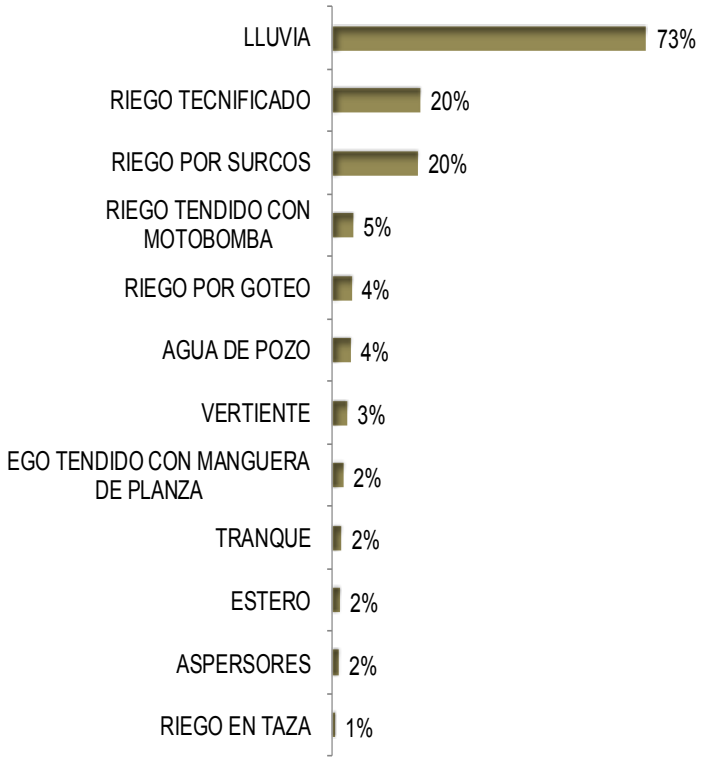
Grafico 12: Caudal capaz de extraer



Fuente: Elaboración Propia en base a Cuestionario

Respecto a las formas de riego que se utilizan, como ha de suponerse en una zona de secano es ninguna (lluvia, 73%); como las respuestas son múltiples después de la lluvia aparece el riego tecnificado y riego por surcos.

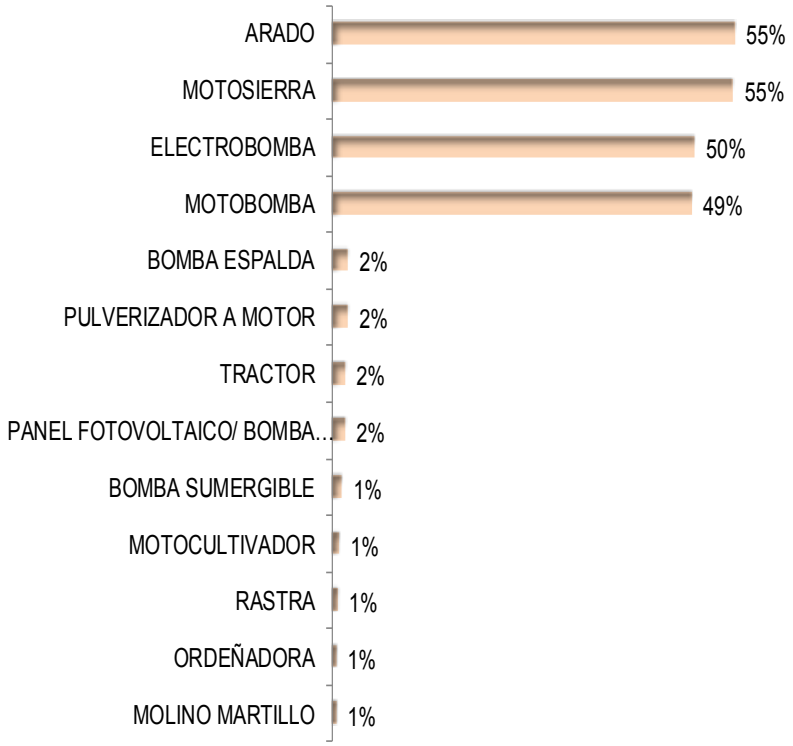
Grafico 13: Formas de riego utilizadas (N 524)



Fuente: Elaboración Propia en base a Cuestionario

Respecto a las maquinarias que se utilizan para trabajo agrícola, nos encontramos con maquinaria de baja tecnología, siendo elementos básicos para el trabajo agrícola.

Grafico 14: Maquinaria Utilizada para el Trabajo Agrícola (N 492)

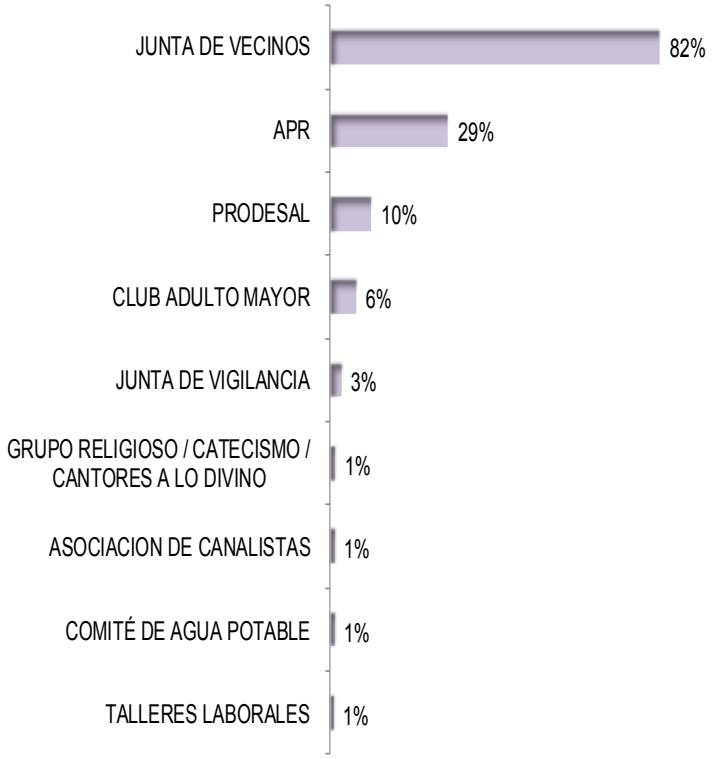


Fuente: Elaboración Propia en base a Cuestionario

5. Participación y Medios de Comunicación

Una de las principales características de la ruralidad son los problemas de conectividad y comunicación, por ello para el desarrollo del proyecto necesitamos conocer cuál es una fuente de participación social donde se encuentren referentes y pueda además ser un canal de comunicación. Un total de 401 personas responden a que organización se vinculan.

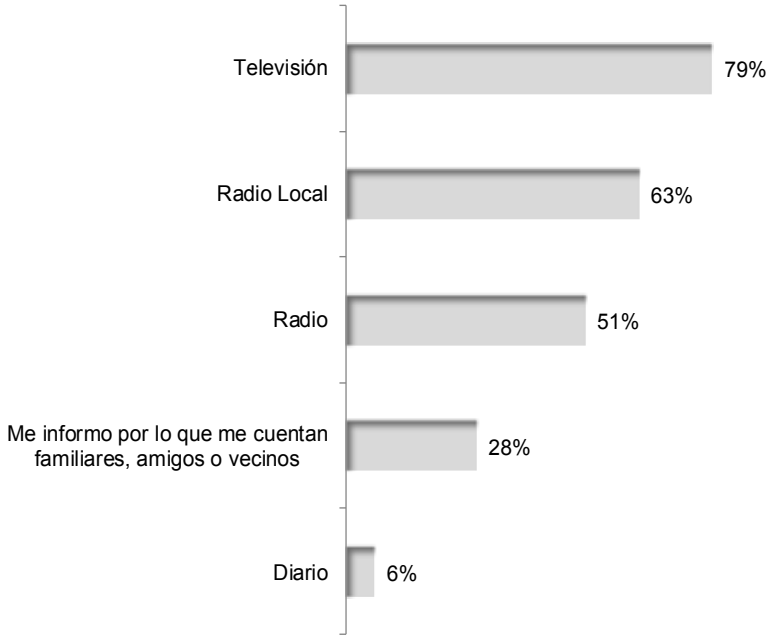
Grafico 15: Participación Comunitaria



Fuente: Elaboración Propia en base a Cuestionario

Respecto a los medios de comunicación, responden 522 personas, que se informan por medio de radio y televisión.

Grafico 16: Medios de Comunicación

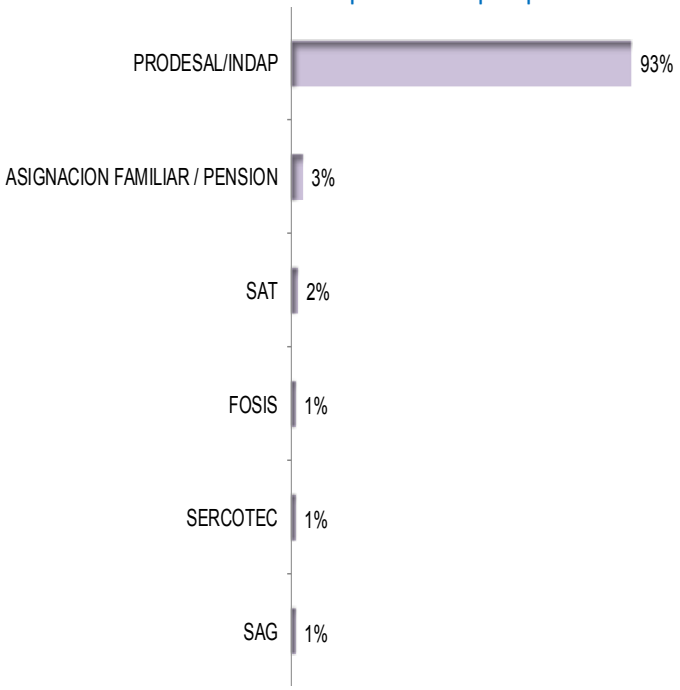


Fuente: Elaboración Propia en base a Cuestionario

6. Beneficios del Estado

Respecto a recepción de beneficios del Estado contestan 483 personas.

Grafico 17: Beneficios recepcionados por parte del Estado



Fuente: Elaboración Propia en base a Cuestionario

4.4. Conclusiones

Teniendo presente los antecedentes recopilados en los cuestionarios y la información entregada por los equipos PRODESAL, tenemos antecedentes que nos permiten ir generando un perfil de los beneficiarios, específicamente las variables edad, educación, ingreso, y ruralidad, podemos señalar que los beneficiarios son personas de alta vulnerabilidad social, viéndose esta condición incrementada, por la escasa conectividad con zonas urbanas y accesos a servicios.

Una variable decidora es el nivel de escolaridad. Los bajos niveles de escolaridad de los beneficiarios representan una desventaja al momento de relacionarse con las entidades e instituciones afectando principalmente las condiciones comunicacionales, de comprensión y de análisis; debido a que, no se encuentran desarrolladas plenamente las tareas cognitivas que implica la enseñanza básica, como es el proceso efectivo de lectoescritura; manejo de operaciones matemáticas que conllevan aplicación de pautas de memoria, concentración y lógica.

Se suma a ello, la precarización de las fuentes laborales que en términos efectivos se reducen a tareas agrícolas y que generan bajos ingresos que no se constituyen en fuentes de superación de la pobreza.

Por lo cual, las problemáticas asociadas al agua, solo vienen a acrecentar las ya existentes. Si observamos los datos entregados sobre el uso de tierra y agua, podemos dilucidar un manejo precario y deficiente.

Esta observación es corroborada por los PRODESAL quienes visualizan que los problemas no sólo dicen relación con la escases de agua, por falta de lluvias, sino también por mal manejo de agua y tierras, la poca tecnificación existente y una pequeña agricultura empobrecida, de subsistencia en donde son personas mayores las que intentan mantener sus tierras, ya que la población joven a emigrado a las ciudades.

4.5. Recomendaciones

1. Debido a lo anterior se vuelve prioritario considerar un alto nivel de acompañamiento ya que no se trata tan solo de entregar un beneficio, sino de generar condiciones para la sustentabilidad de la inversión que se está realizando, para ello hay que trabajar en condiciones de carácter subjetivas, y emocionales. De acuerdo a lo observado en terreno son los equipos PRODESAL, los actores sociales claves para promover e instalar capacidades en los beneficiarios, por lo que debieran ser ellos en quienes se inyecte una batería programática transmisible.
2. Con el proceso de entrega de un beneficio, y lo que puedan llegar a promover en términos de expectativas los predios demostrativos, debe haber una red institucional regional y local coordinada y preparada para recibir las nuevas demandas que estos procesos pueden generar, así no tan sólo se mitigan temas relacionados con la falta de agua, sino que además se promueve el buen uso de esta y de la tierra.
3. Debido a todo el análisis anterior es importante tener presente que debido a las características socioeconómicas precarias de los beneficiarios, puede ser que tras la entrega del beneficio sea insuficiente para abordar la problemática.
4. Por último se considera valorar la experiencia de las personas, las cuales pueden aportar con sus formas tradicionales de hacer las cosas, pudiendo haber un rescate cultural de la pequeña agricultura en la zona de secano, escribir y contar su historia antes de los cambios para que quede registro de la memoria, de esta forma al estar significada su historia se permite una proyección respetuosa de cómo poder hacer en distinta forma las cosas.