REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

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	Chilean InternationalCooperation Agency
DGA	Dirección General de Aguas	General Directorate of Water
CIREN	Centro de Información de Recursos Naturales	Natural Resources Information Center
CNR	Comisión Nacional de Riego	National Commission for Irrigation
CONAF	Corporación Nacional Forestal	National Forestry Corporation
CONAMA	Comisión Nacional del Medio Ambiente	National Commission for Environment
ECLAC	Latin America and the Caribbean Commission	Comisión Económica para América Latina y El Caribe
ENSO	El Niño Southern Oscillation	El Niño Oscilación Sur
FAO	Food and Agriculture Organization	Organización de las Naciones Unidad para la Alimentación y la Agricultura
FIA	Fundación para la Innovación Agraria	Fundation for Agricultural Innovation
INDAP	Instituto de Desarrollo Agropecuario	Institute for Agriculture Development
INIA	Instituto de Investigaciones Agropecuarias	Agriculture Research Institute
INE	Instituto Nacional de Estadísticas	National Institute of Statistics
IPCC	Intergovernmental Panel on Climate Change	Panel Intergubernamental de Cambio Climático
MIDEPLAN	Ministerio de Planificación (Hoy Ministerio de Desarrollo Social)	Ministry of Planning
MINAGRI	Ministerio de Agricultura	Ministry of Agriculture
MMA	Ministerio del Medio Ambiente	Ministry of Environment
ODEPA	Oficina de Estudios y Políticas Agrarias	Agricultural Policies and Studies Office
PNUD	Programa de las Naciones Unidas para el Desarrollo	United Nations Development Program
SAG	Servicio Agrícola y Ganadero	Agriculture and Livestock Service
UNFCCC	United Nations Framework Convention on Climate Change	Convención Marco de las Naciones Unidas sobre Cambio Climático.

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**:** **MINISTRIES OF AGRICULTURE AND ENVIRONMENT**
Amount of Financing Requested: **9,960,000** (in U.S Dollars Equivalent)

Project / Programme Background and Context:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

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 kilometres of coastline.

In general terms, Chile has a temperate climate. Due to some variations caused mainly by differences in latitude and altitude, it give 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 has to be 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 acts 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 seasonality for both the sheep and bovine cattle production is expected to change, depending on the geographical area. On the other hand, forestall plantation production of Pinus radiata, is projected to decrease in the northern and central areas and to improve its potential of production from the Araucanía Region to the southern areas of the country.

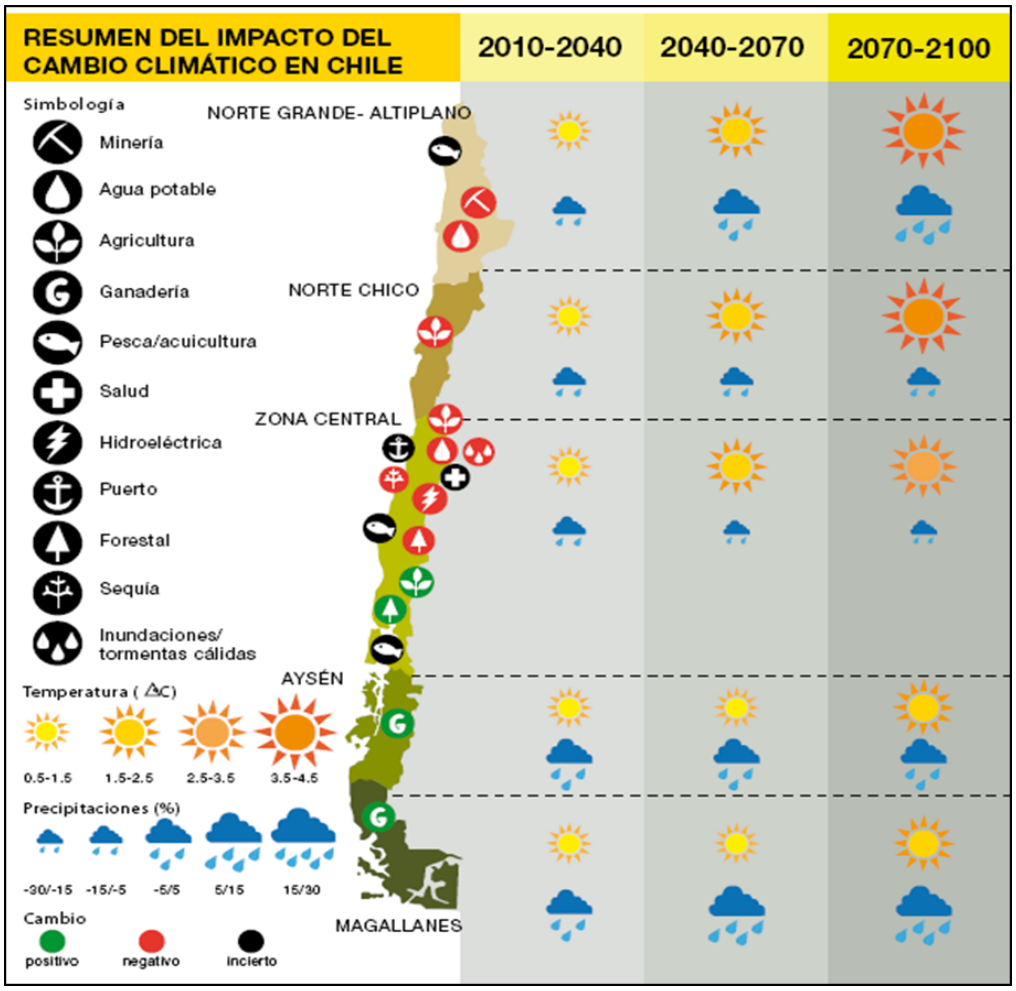

Fig. 1: Summary of climate change impacts on Chile for the period 2010-2100. Second national communication to the United Nations Framework Convention on Climate Change (2011)

Positive Negative Uncertain

Agricultural groups and regions most vulnerable to climate change

It is especially the central part of Chile (29 deg. SL-34 deg.SL) , in which most of the population is living, where adaptation actions are needed to avoid or minimize negative climate impacts which threatens agriculture productivity and livelihood at both ends of the socioeconomic scale.

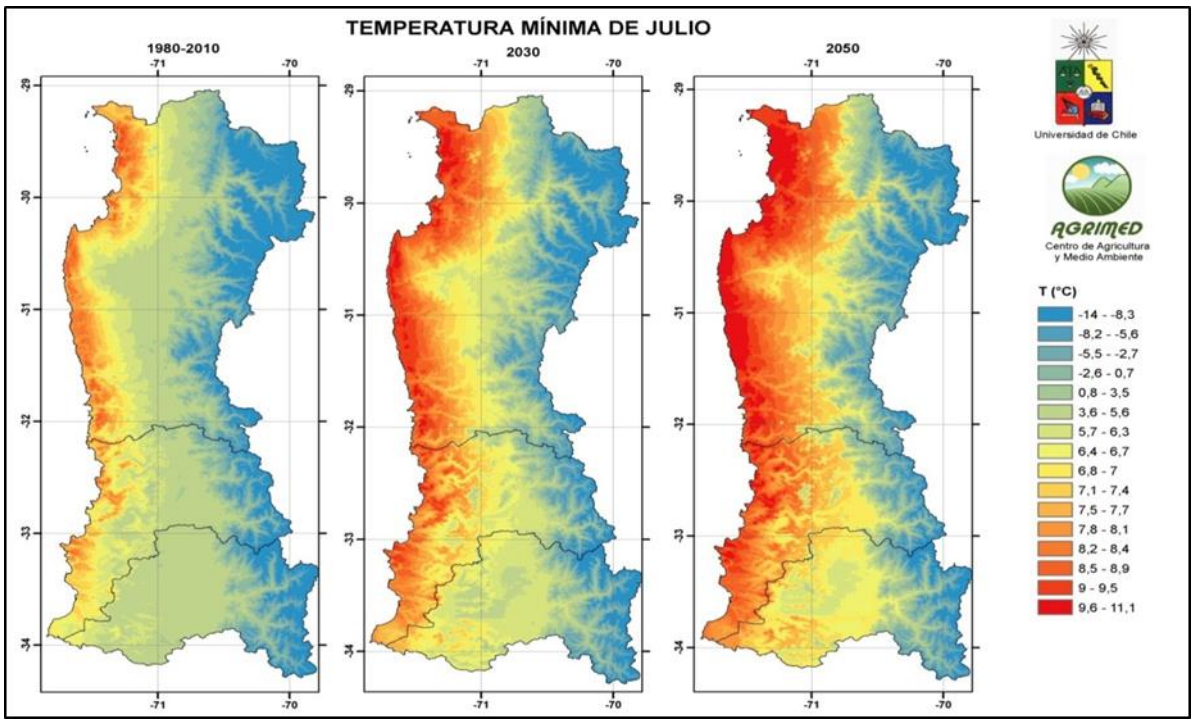

Fig 2: Projections of changes in minimum temperature (during July) and annual precipitation for central Chile; AGRIMED (2013)

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.

[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), 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 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 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,VIII **	5	5	0	4	4	2	**20**
8	Drylands; regions V,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,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 Fireland	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 findings before mentioned 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 centre of Chile has been chosen for the implementation of the adaptations 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 to export oriented ones. The Ministry of Agriculture counts in this region with a network of services and already established activities related to capacity building, agro- technology transfer and to 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 to a management, evaluation and monitoring appropriate environment.

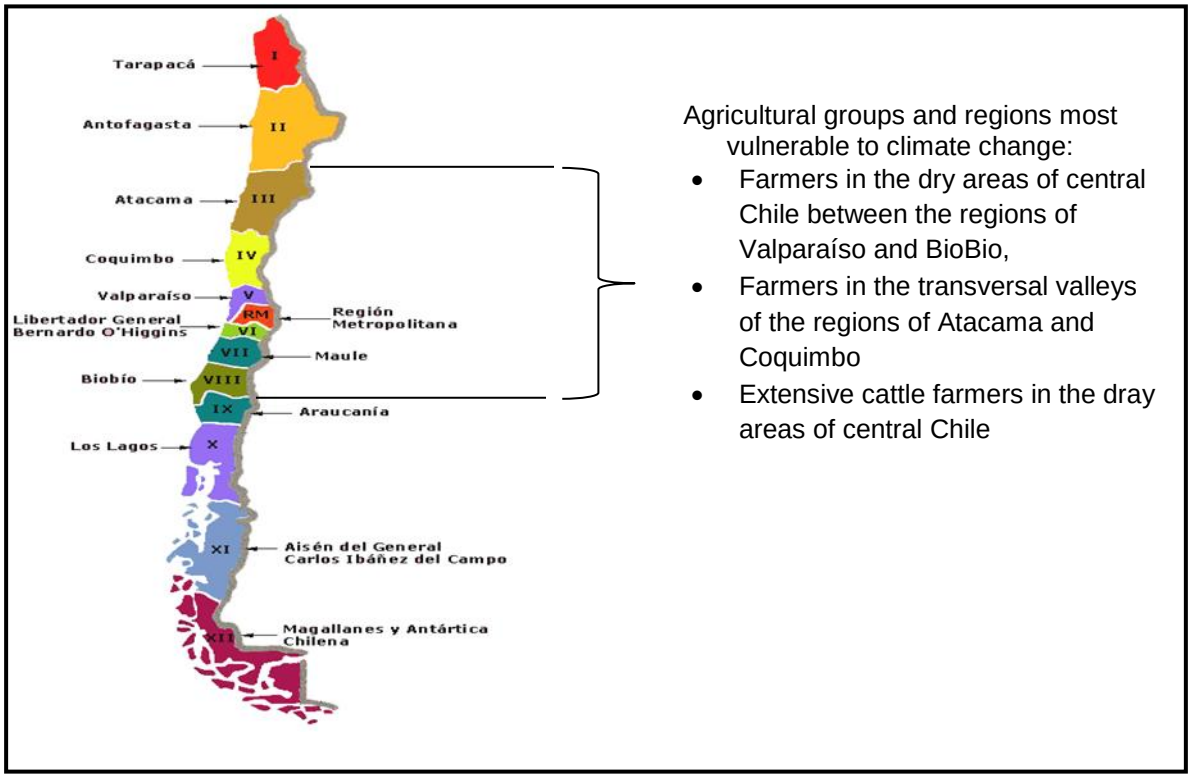

Fig 3: Regions and agricultural groups most vulnerable to climate change

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 y Pumanque (figure 4).

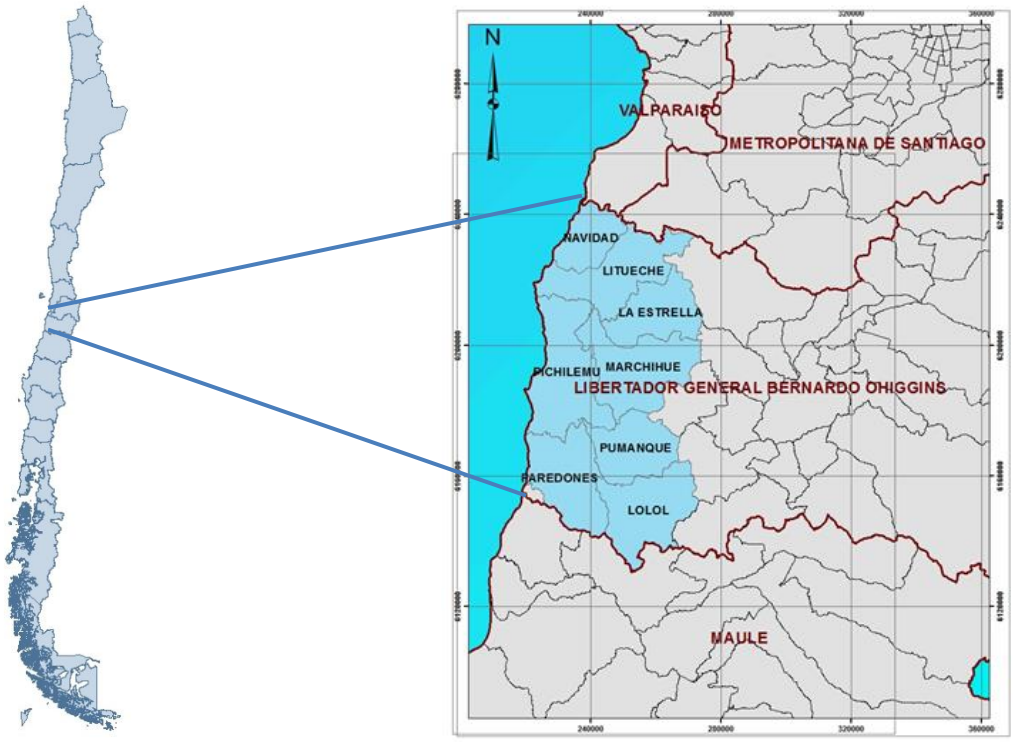

Figure 4: Communes in the project area in the O'Higgins the region

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 1100ml/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.

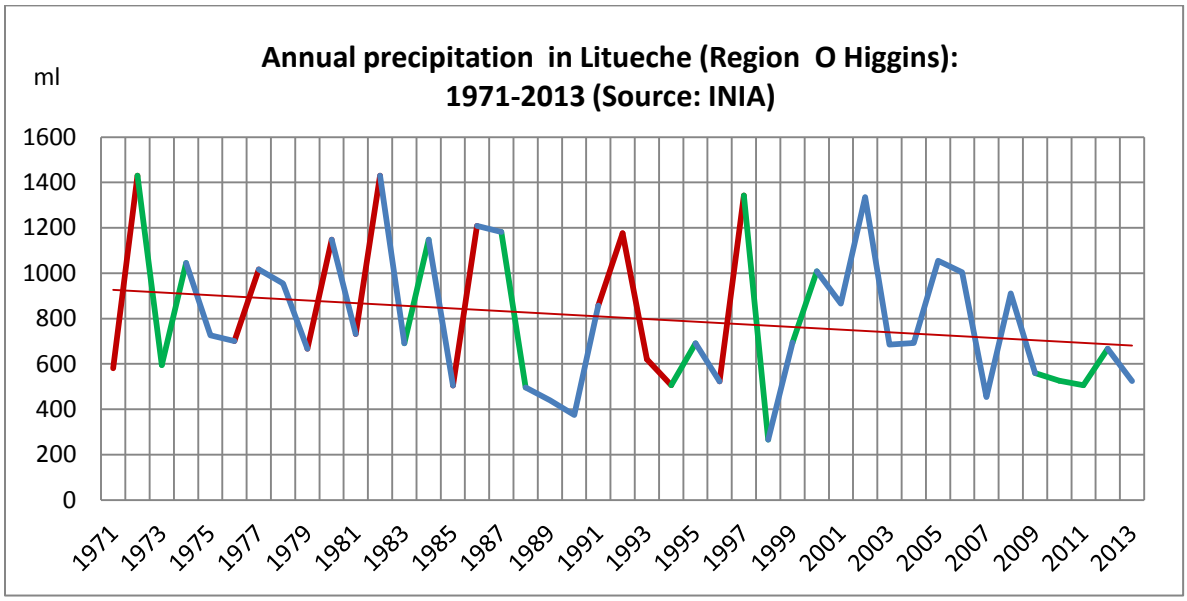

Figure 5: annual precipitation in one of the communes of the project area in the region of O'Higgins

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 communes 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.

Commune	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	Positivo
Lolol	Negative, high	Negative, high
Pumanque	Negativo bajo	Negativo bajo

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

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

Commune	FT	IDH	IRU	R/S	UCT	Vme	VSP	VSS	VSE	Cultivated surface (ha)
Pichilemu	0,15	0,68	0,20	0,93	0,07	0,25	0,67	0,26	0,16	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	0,36	0,60	0,38	0,28	2.760
Marchigue	0,16	0,67	0,60	0,43	0,63	0,75	0,32	0,47	0,69	6.111
Navidad	0,50	0,65	0,70	0,85	0,46	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	0,68	0,76	0,36	0,44	0,72	4.937
Pumanque	0,18	0,64	0,70	0,87	0,40	0,47	0,55	0,53	0,44	1.810

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

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

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 communes, 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 communes 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 A&F&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**

*A&F&L: agriculture, forestry and livestock

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

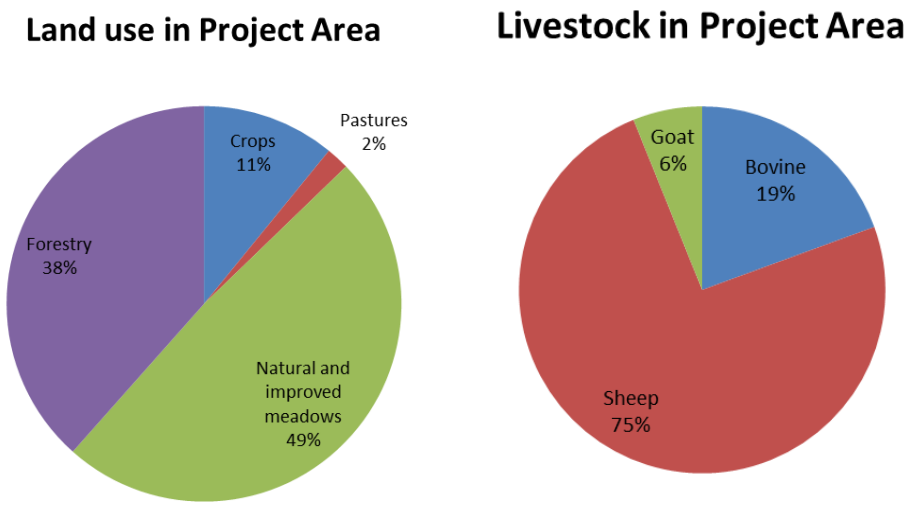

Figure 6: Land use and livestock composition in the project area

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. 49% of the area contains both, natural and improved meadows (table 5).

[2] Available on: http://www.odepa.gob.cl/articulos/MostrarDetalle.action;jsessionid=E9CBBA51B56CEDE828FC92E882863BD0?idn=4534&idcla=12

Production	Hectares	Percentage
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: cereals, fruits, grapes, vineyards and flowers (table 6)

Production	Hectares	Percentage
Cereals	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 Agropecuario 2007 INE

The overwhelming part of land used for cereal production is in non-irrigated land (=92%). The varieties of cereal crops cultivated are shown in table 7.The most important cereal 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
Sum	419,2	4.387,5		1.290

Table 7: Cereal 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 communes.

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

Table 8: Mean annual precipitation for 6 communes 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]).

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

[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.

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

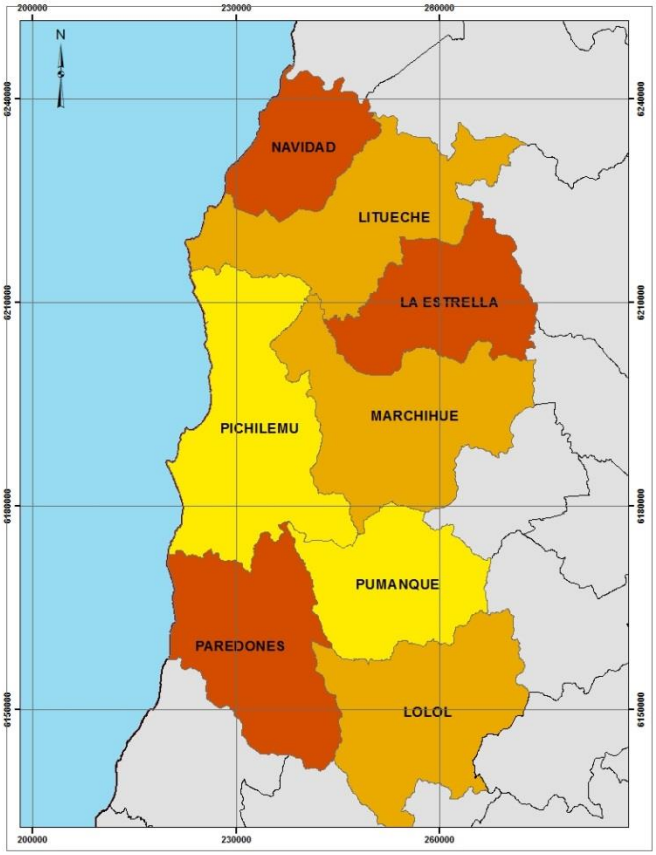

Figure 7: Erosion and Desertification in the communes of the project area. Source: CONAF- Programa de Acción Nacional contra la Desertificación / PANCD (2000).

Soil erosion and desertification are serious problems in the project area. The communes 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 cereal production are the main agricultural activities in the project area.

Livestock	heads	Percentage
Bovine	33.910	19,4%
Sheep	129.972	74,5%
Goat	10.689	6,1%
Sum	**174.571**	**100%**

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

Social - 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 homes.
The poorest communes 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 vulnerability. (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.

	Women		Men	
Characteristics:	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%
belonging to a farmer organization	65	4%	232	7%

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

Agro climatic information needs an strengthening of local capacity

Climate information products and services in agriculture aim to provide a full range of advice regarding climate, its impacts on crops, livestock and management practices to be followed 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 instruments like the Agro-Climatic web page (http://agroclimatico.minagri.gob.cl), the

National Agro-Climatic Network (RAN) (http://agroclimatico.minagri.gob.cl/ran/) and an Observatory for agro-Climatic risks information (http://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 proposed project (Table 11) which addresses this subject of agro climatic information needs.

Project / Programme Objectives:

List the main objectives of the project/programme.

Main objective:

- Increase 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:

- 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.

- Improve the decision supporting agroclimatic information management for actual climate and future climate changes for local MINAGRI professionals and farmer communities.

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- 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.

Project / Programme Components and Financing:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

For the case of a programme, individual components are likely to refer to specific sub-sets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions / projects.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
1.-Capacity building in climate variability and climate change related to appropriate farming practices with respect to soil, livestock, water and crop management.	1.1:Creation of training and advisory teams for agro-technology transfer for each one of the 8 communes of the project area, coordinated and supervised by local INIA experts 1.2: Implementation of 9 demonstration fields for agro-technology transfer (1.4, 1.5, 1.6 and 1.8) including its infrastructure and equipment (fencing, water troughs, electrical power supply, etc.): 4-5 hectares in each of the 8 communes plus one on INIA ground.	Increased 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 500 farmholds in the project area.	1.1.-1.2: 1,060,000
	1.3:Acquisition (including maintenance and operating costs) of agricultural machinery for the 9 demonstration fields:		1.3: 2,800,000

	Tractor, Regenerating pastures machine, Zero tillage seed drill machine, Horrow plow, Chisel plow, Subsoiler plow.		
	1.4: Training in sustainable soil management: plowing practices, fertilizing practices, soil fertility recovering practices, holistic soil management.		
	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.		1.5: 1,600,000
	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)		1.6: 300,000
	1.7: Installation of rain water and surface runoff harvesting facilities		1.7: 2,750,000

	in 550 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).		
	1.8: Capacity building through knowledge sharing and good practice demonstrations: • Visits of foreign experts (Australia and Brazil) and visits of members of the training and advisory team (1.1) to this respective countries. • Guided visits of farmers from the O Higgins region and neighboring regions to the demonstration fields of the project area (planned number: 3000 farmers) • Elaboration of manuals and workshops for dissemination of appropriated farming practice		1.8: 200,000

2.-Installation of an information system for agro-climatic risk management and climate change adaptation.	2.1. Strengthening of the existing network of automatic meteorological stations (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.	Improved capacity of the MINAGRI staff in the O Higgins region in agro-meteorological data 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.	2.1: 100,000
	2.2. 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		2.2: 200,000

	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.		

3. Project/Programme Execution cost			450,000
4. Total Project/Programme Cost			9,460,000[5]
5. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			500,000
Amount of Financing Requested			9,960,000

Projected Calendar:

Indicate the dates of the following milestones for the proposed project/programme

Milestones	Expected Dates
Start of Project/Programme Implementation	2015 (2nd semester)
Mid-term Review (if planned)	2017 (2nd semester)
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 the component 1 the rural farmers communities will increased their resilience capacity to the negative impacts of climate variability and climate change through the:

(i) Enhancement of abilities in soil, livestock, water and crop management.

(ii) Access to an agricultural machinery pool for soil management.

[5] This total corresponds to the sum of the components of the project (9,010,000) plus the cost of implementation (450,000)

(iii) Increase of water availability and crop productivity in 550 farm holds in the project area.

The agro-technology transfer concept of the Project consists in a combination of “learning by doing” and “learning by seeing”, where the farmers together with the local training and advisory teams will generate the expected concrete outputs 1.1 -1.8 of table 11.

The project aims to establish 9 demonstration fields including its infrastructure and equipment (fencing, water troughs, electrical power supply, 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 communes.
The other 8 demonstration fields will be established in each one of the communes of the project area: Paredones, Pichilemu, Marchihue, La Estrella, Litueche, Navidad, Lolol y Pumanque.

Each demonstration field will cover an area of about 4 to 5 hectares and will be located at the smallholders farms. A contract will be signed between the project authority and the owner of the farm, to detail the responsibilities of both parts.
Considering that soil and climate conditions are different in each commune, the practices that will be developed on the 9 demonstration fields shall depend, among others (see also table 3), on these differences.

The smallholders will 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.

As described in the expected output 1.3. of the Component 1 (table 11) , the project also considers the acquisition (including maintenance and operating costs) of agricultural machinery for the 9 demonstration fields which includes:
tractor, regenerating pastures machine, zero tillage seed drill machine, horrow plow, chisel plow, subsoiler plow.
This equipment is going to be used both for the works at the demonstration field and to strengthen the technological capacities of the small farmers in the communes who will take part of the transfer program. The respective requirements and the employment of this agricultural machinery pool shall be coordinated by the local advisory team.

The expected output 1.7 of the Component 1 (table 11.) refers to the Installation of rain water and surface runoff harvesting facilities in 550 farms including the acquisition of materials and equipment (roof materials, rain pipes, mobile water cisterns, pumps

powered by renewable energy resources (sun, wind), greenhouse installation) and training by the advisory teams in the use and maintenance of this facilities.
This activity will clearly improve climate adaptation and resilience building with respect to increasing water shortage and will furthermore improve the agricultural productivity in an important number of smallholder farms in the project area.

There will be 8 local training and advisory teams for agro-technology transfer for each one of the 8 communes of the project area. These teams are composed of a local technician, hired by the Project, and a local INIA expert.
The 8 teams will be coordinated and supervised by the regional INIA office.

The training activities of the advisory teams will be focus on three main subjects:

- Training in sustainable soil management: plowing practices, fertilizing practices, soil fertility recovering practices, holistic soil management.
- Training in the use of crops (wheat), forage crops (legumes, grass), fruit trees (olives, nuts) and livestock (sheep) tolerant to climate variability and climate change.
- Training in efficient water management (irrigation technology powered by renewable energy resources) and water harvesting and storage on the 9 demonstration fields and on 550 smallholder farms in the project area.

The target groups of the training activities in the project area will be the entire farm family, including women and adolescents 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.
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.

It is furthermore assumed that part of the capacity building block of Component 1 is the interchange with farmer communities from other Chilean regions with similar social and agro climatic characteristics and needs for improving farm management skills
In this context, the project will organize 3000 guided visits 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.

Component 1includes also capacity building activities through knowledge sharing and good practice demonstrations from agricultural experts and institutions from other countries:

Visits of foreign experts (Australia and Brazil) and visits of members of the training and advisory teams to these countries.

Australia and Brazil have been chosen considering their experiences and exemplary management of soil and water under climate change conditions (Australia: CSIRO and

National Research Flaghship Climate Adaptation; Brazil: EMBRAPA, Universidad de Londrina).

Finally it is assumed that the agro-technology transfer and capacity building activities of component 1 will furthermore provide synergies with three already exiting 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 this transfer program, the hectares under mechanized irrigation and the square meters of greenhouses built are expected to increase. Furthermore, small farmers will have the possibility to cultivate other species, 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. These seeds will be available to the project.

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 region, to improve its products and to make them available on a regular basis to climate hazards and climate change related decision making by the farmer population.

In this context (expected output 2.1, table 11), the project will acquire and install 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 following communes

- Navidad: AMS located at the Agricultural High School “Pablo Neruda”.
- Pichilemu: AMS located at the National Forestry Coorporation (CONAF)
- Paredones: AMS located at the National Forestry Coorporation (CONAF)
- Pumanque: AMS located at municipality ground.

Component 2 (expected output 2.2, 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 and in an uncomplicated language.
- Training of local INIA staff, the 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 will consider the special characteristics and needs of the small farmers, their families and their communities.
Some activities to be developed under this item are the emission of bulletins, climate forecasts and alerts, and include the elaboration of manuals and audio-visual materials for the target population: small farmers (men and women), adolescents, students from farm schools, etc.

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 clever” 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 proposed 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 actual situation is expected to improve through the two project components described in pages 23-27.

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

	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 12. Actual situation in the project area and expected project benefits

Actual 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 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 550 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 may increase 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.
• Low climate adaptation capacity of small farmers because they have no access to crop varieties and livestock races which are better adapted to climate change and extreme climate conditions.	• Increased crop and pasture production due to adequate land management and the use of appropriated equipment (e.g. zero tillage planter)
• Small farmers do not have appropriate access to agro-climatic information and are not trained in applying this information for agro-management decision making.	• Increased climate adaptation capacity because the Project provides crop varieties and livestock races better adapted to climate change and extreme conditions.
• 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.	• The project generates and disseminates on regular basis appropriated agro-climate information for farm management and trains farmer communities in its correct interpretation and application for “climate clever” decision making. • Small farmers are better informed about technical and financial support options and have improved abilities in the filing of the respective applications.

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

One of the principal outputs of the project is the implementation of nine demonstration fields for agro-technology transfer. Eight of these fields will be located at the farmers’ property 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 at the projects end.

The output 1.7 of component 1, which consists in the installation of rain harvesting systems on 500 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 conducted, 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 new crop varieties and animal breeds on the demonstration field will be distributed cost-free to the farm owners. The economic benefits of the yield and the corresponding seed and offspring production belong to the farmers. The development and test of these varieties has already been financed by INIA.

The agricultural machinery pool of the project will be available either cost-free or for minimum costs to the small farmers of the project.

The local advisory teams for agro-technology transfer and training, coordinated by the local INIA office will consist of two technicians; one of them will be paid by INIA and the other by the project.

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

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.

The program is especially consistent with the “National Climate Change Adaptation Plan for Agriculture and Forestry”, published in 2013 by the Chilean government (Ministry of Environment and Ministry of Agriculture) which includes 21 adaptation measures.
The Plan can be downloaded from: http://www.mma.gob.cl/1304/articles-55879_InstrumentoFinalCC_Silvoagropecuario.pdf.

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 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.

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 SIRDS (Incentive system for sustainable agricultural soil management). It has been assumed that the joint efforts of these activities will generate synergies in farm management capacity building, climate change adaptation and rural poverty reduction.

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 the existing legal framework and procedures, which includes direct and outsourced operations, via tender.

In addition, a large part of the 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 nor an evaluation or a declaration of environmental impact.

Some activities will need pertinent authorizations such as building authorizations, but the process of approval must start at the implementation time and involves local institutions.

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.

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” method.

In this context, the farmers, the local MINAGRI experts and the local advisory teams are working 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 approximated 3000 farmers from outside the project area.

This combined learning and knowledge sharing approach will be enriched by learning through best practice experiences from leading agricultural institutions of other countries through visits from and to Brazil and Australia.

The project will implement a monitoring system with respect 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 the Project execution.

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.

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

The supporting MINAGRI institutions are:

INIA (Agriculture Investigations Institute). Its mission is to generate and transfer knowledge and strategic technologies in order to innovate and enhance the agriculture competitiveness.

INDAP (Institute for Agriculture Development). Its mission is to support the development of the small farmer's agriculture to generate human, economic and productive resources that will contribute both to overcome the conditions of poverty and to make national agriculture sustainable and competitive.

These institutions are responsible, among others, for three programs: PRODESAL (local rural development program), SAT (technical assistance service) and SIRDS (Incentive system for sustainable agricultural soil management) which will contribute to the sustainability of the projects outcome. 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.

At the end of proposed Project, its local advisory teams will be part of the Technical Assistance Programs of INDAP 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.

INIA will guarantee the continuous access of farmers to the agro machinery pool acquired by project.

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.

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

The proposal has been categorized as Category C, considering there're 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.

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	✓	

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

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

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

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

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

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

Project Objective(s)[6]	**Project Objective Indicator(s)**	**Fund Outcome**	**Fund Outcome Indicator**	**Grant Amount (USD)**
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**

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.

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

[6] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

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 project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Gladys Santis *Adaptation Officer* *Ministry of Environment*	Date: *July 28th, 2014*

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme 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"; "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 COOPERACION INTERNACIONAL – DIRECTOR EJECUTIVO ***Enrique O'Farrill-Julien*** Acting Director AGCI Implementing Entity Coordinator	
Date: July 30, 2014	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	

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

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