

# Climate-Smart Agriculture in Peru

## *Supplementary material*

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This publication is a product of the collaborative effort between the International Center for Tropical Agriculture (CIAT), the lead center of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS); the Tropical Agricultural Research and Higher Education Center (CATIE); and the World Bank to identify country-specific baselines on CSA in seven countries in Latin America: Argentina, Colombia, Costa Rica, El Salvador, Grenada, Mexico, and Peru. The document was prepared under the co-leadership of Andrew Jarvis and Caitlin Corner-Dolloff (CIAT), Claudia Bouroncle (CATIE), and Svetlana Edmeades and Ana Bucher (World Bank). The main author of this profile was María Baca (CIAT), and the team was comprised of Andreea Nowak (CIAT), Miguel Lizarazo (CIAT), Pablo Imbach (CATIE), Andrew Halliday (CATIE), Beatriz Zavariz-Romero (CIAT), Rauf Prasodjo (CIAT), Claudia Medellín (CATIE), Karolina Argote (CIAT), Chelsea Cervantes De Blois (CIAT), Juan Carlos Zamora (CATIE), and Bastiaan Louman (CATIE).

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This Supplementary Material is in support of the Climate-Smart Agriculture in Peru profile within the Country Profiles for Latin America Series. The annexes below are references where relevant in the text. The Supplementary Material cannot and should not be read in isolation. It can only be read in association with the chapter.

**Annex I: Acronyms**

ADEX	Exporters Association
AECID	Spanish Agency for International Cooperation for Development
AF	Adaptation Fund
ANA	National Water Authority
AIC	Climate Change Research Agenda
BCRP	Central Reserve Bank of Peru
BG	Belgium Government
BP	Bicentennial Plan 2021
CSA	Climate Smart Agriculture
CIAT	International Center for Tropical Agriculture
CIF C	Climate Investment Funds
CIP	International Potato Center
CDB	Convention on Biological Diversity
CDM	Clean Development Mechanism
CGIAR	Consultative Group on International Agricultural Research
CCIG	Climate Change Initiatives Grants
COSUDE	Swiss Development Cooperation
CONCYTEC	National Council of Science and Technology
EDPYME	Small and Micro Business Development Entity
ENCC	National Climate Change Strategy
ENFP	National Forest Strategy of Peru
ERCC	Regional Strategy on Climate Change
FAO	Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FG	Finland Government
FIDECOM	Fund for Research and Development Competitiveness
FINCYT	Program of Science and Technology
FONTAGRO	Regional Fund for Agricultural Technology
GCCA	Global Climate Change Alliance
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Fund
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GHG	Greenhouse Gas Emissions
GIZ	German Society for International Cooperation
GORE	Regional Governments
GVP	Gross Value Production
IIAP	Research Institute of the Peruvian Amazon
INEI	National Institute of Statistics and Informatics
INIA	National Institute of Agricultural Innovation
IICA	Inter-American Institute for Cooperation in Agriculture
ICRAF	World Agroforestry Centre
IBD	Inter-American Development Bank
IFAD	United Nations International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
KFW	Bank of Responsibility
LEDs	Low Emission Development Strategies

MEF	Ministry of Economy and Finance
MINAM	Ministry Environment
MINCETUR	Ministry of Foreign Trade and Tourism
MINAGRI	Ministry of Agriculture and Irrigation
MIDIS	Ministry of Development and Social Inclusion
MDL	Clean Development Mechanism
MRV	Monitoring, Reporting, Verification
NAMA	National Appropriate Mitigation Actions
NOAK-NEFCO	Nordic Countries
OECD	Organization for Economic Cooperation and Development
ONG	Non-Governmental Organization
PCM	Chair of the Council of Ministers
PLANCC	Climate Change Planning
PLANAA	National Environmental Action Plan
PAAMCC	Plan of Action for Adaptation and Mitigation to Climate Change
PLANGRACC-A	Risk Management and Adaptation to Climate Change in the Agricultural Sector Plan
PES	Payment for Environmental Services
PNIA	National Agricultural Innovation Program
REDD	Reducing Emissions from Deforestation and Forest Degradation
R&D	Research and Development
SECO	Economic Cooperation and Development
SENAMHI	National Meteorology and Hydrology Service
SENASA	National Agrarian Health Service
SERNANP	National Service of Protected Natural Areas by the State
SCCF	Special Climate Change Fund
SNIP	National Public Investment System
UNALM	La Molina National Agrarian University
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
UP	Pacific University
USAID	United States Agency for International Development

## Annex II: Key facts on agriculture and climate change

**Table 1** Value of agricultural exports in Peru

Products	Export Value (1000 US\$)						Average Participation (%)	Variation % (2011/2010)
	2007	2008	2009	2010	2011	Average		
Coffee (green)	426890	643800	583789	887475	1580372	824465.2	29.0	78.1
Vegetables	302951	357525	283543	299463	388808	326458.0	11.5	29.8
Asparagus	235782	230427	250823	291405	291828	260053.0	9.1	0.1
Grapes	54964	85705	135834	179760	300804	151413.4	5.3	67.3
Chilli and pepper	96309	136199	102837	96928	131820	112818.6	4.0	36.0
Other	795357	1080041	1027660	1300311	1659400	1172553.8	41.2	27.6
Total	1912253	2533697	2384486	3055342	4353032	2847762.0	100.0	42.5

**Table 2** Value of agricultural imports in Peru

Crops	Import Value (1000 US\$)						Average Participation (%)	Variation % (2011/2010)
	2007	2008	2009	2010	2011	Average		
Wheat	411837	587765	388324	429353	591989	481853.6	16.5	38
Maize	335712	409864	324101	449634	627713	429404.8	14.7	40
Soybean (cake)	228380	314734	346776	376977	412707	335914.8	11.5	9
Soybean (oil)	230369	354467	230333	325710	404471	309070	10.6	24
Cotton	88806	96219	69397	139749	218472	122528.6	4.2	56
Other	894898	1248387	1029915	1345668	1650430	1233859.6	42.4	23
Total	2190002	3011436	2388846	3067091	3905782	2912631.4	100.0	27

Source:

**FAOSTAT. 2012.** Statistical database. Food and Agriculture Organization of the United Nations. Rome, Italy.  
(Available at: <http://faostat3.fao.org/faostat-gateway/go/to/home/E>).

### Annex III: Land use

Peru has a land area of 128,521,560 hectares, 30.1% of which is dedicated to agricultural activities (38,742,465 hectares). This represents a 9.5% increase over the last 18 years (1994-2012). Of this (30.1%) agricultural area, cropland represents around 5.5% (7,125,007 hectares), natural pastures a 14% (18,018,795 hectares), and the remaining 10.5% is area with mountain/forest or is other use. The crops harvested with highest coverage area in 2012 were coffee a 6% (425,400 hectares), potato 5.2% (367,700 hectares), maize 3.7% (261,600 hectares), white high-starch maize 3.4% (240,800 hectares), rice 2.5% (177,600 hectares), bananas 2% (145,700 hectares), cocoa 2% (144,000 hectares), and sugarcane 2% (141,300 hectares) (INEI, 2012).



**Figure 1.** Agricultural area in Peru (Superficie Agrícola en Perú)

The country has three natural regions: coastal, highlands, and rainforest. Coastal areas comprise 12% of the agricultural land, while the highlands and rainforest make up 58% and 31%, respectively. The highlands region has the most agricultural irrigation infrastructure with irrigation channels representing 74.6% of the total. The coast has 19.7% of agricultural irrigation systems and the rainforest has 5.6% (INEI, 2012). In the coastal valleys potatoes, corn, rice, and other crops for sale on the local market are traditionally grown under gravity irrigation. Non-traditional crops such as asparagus, artichokes, grapes, and other crops destined for export are mostly grown with pressurized drip irrigation. In contrast, the highlands region has a very diverse geography and microclimates. Gravity irrigation systems and traditional practices such as terraces dug into mountain slopes are used for cultivating potatoes, corn, beans, native tubers, vegetables, and flowers are the main crops grown in the highlands (Libelula, 2011)

#### Sources:

**INEI. 2012.** "Resultados definitivos. IV Censo Nacional Agropecuario 2012." Instituto Nacional de Estadística e Informática. Ministerio de Agricultura y Riego. Lima, Peru. (Available at: <http://proyectos.inei.gob.pe/web/DocumentosPublicos/ResultadosFinalesIVCENAGRO.pdf>). (Accessed: May 21, 2014).

**Libélula. 2011.** "Diagnóstico de la Agricultura en el Perú: Informe Final". Peru Opportunity Fund.

## Annex IV: Top production systems methodology

The selection of production systems was made taking into account the product's contribution to economic development and food security, indicators related to Net Production Value, percentage of participation of the production system in the national agricultural GDP, food supply, harvested area and variation of production were taking into account in order to identify the relevant production systems in the country. Rice, potato, coffee, maize, plantains and livestock (mainly cattle). Crops as rice, maize, potato, coffee, and plantain is mainly represented by small-scale farmers, with a strong contribution to the national food security and economy.

**Table 3** Selection of top products for economic development and food security

Production Systems in Peru	Net Production Value (constant 2004-2006 1000 I\$) (1000 Int. \$) (2007-2011)	%Nat GDP (2007-2011)	Food Supply (Kcal/capita/day) 2007-2011	Harvested Area (ha) (2007-2011)	Variation of Production	Rank
Barley	17284.5	0.02	34.2	149762.0	-6.9	13
Beans	50873.0	0.04	16.6	79242.6	-5.3	14
Banana/Plantain	390999.6	0.10	96.2	151785.6	-1.9	6
Cassava	122254.9	0.10	126.6	101339.6	-1.0	10
Cocoa	42641.6	0.03	2.8	70220.4	21.2	9
Coffee, green	287800.2	0.20	1.6	343360.0	18.7	3
Maize	40457.2	0.30	96.2	290963.2	-1.8	4
White high-starch maize	No data available	No data available	No data available	202867.8	-1.5	12
Potatoes	519488.8	0.30	210.6	283075.0	6.8	2
Rice, paddy	743157.8	0.40	521.4	374061.4	-7.3	1
Sugarcane	310647.4	0.10		73895.8	0.3	11
Wheat	29395.7	0.03	338.0	150376.6	-2.4	8
Milk, whole fresh cow	501629.1	0.30	79.8	No data available	4.0	5
Meat cattle	453709.1	0.20	13.0	No data available	3.1	7

### Sources:

**FAOSTAT. 2012.** Statistical database. Food and Agriculture Organization of the United Nations. Rome, Italy. (Available at: <http://faostat3.fao.org/faostat-gateway/go/to/home/E>).

**The World Bank. 2012.** "Total population, rural population, prosperity shared, rural poverty" Washington, D.C., USA, 2012. (Available at: <http://data.worldbank.org/indicator/all>). (Accessed: April 10, 2014).

## Annex V: Climate change projections

### Current climate for Peru

From the perspective of multiannual variation of extreme temperatures and precipitation, the highest temperatures occur in the northern coast and the lower jungle. The lowest temperatures are registered in the highland zones, mainly in the High Andean Plateau.

Concerning precipitation, the central and southern coast show very scarce precipitation or none; in the mountain region, rainfall is moderate and in the northern and southern jungle there is heavy rainfall. Variation of multiannual average precipitation ranges from 1 to 50 mm in the coast, except for the Northern region that shows values between 50 to 200 mm; in the mountain region between 50 to 1000 mm, while in the jungle values vary between 1000 to 3000 mm.

All the variations that the Peruvian climate shows from one year to another, known as inter-annual variability, are mostly determined by the occurrence of El Niño /Southern Oscillation (ENSO) and the extreme events associated with it and that cause great economical loss because of their impacts.

### Climate change projections for Peru

In general, the country will experience increases in annual maximum temperature by up to 1.6 °C compared to current climate conditions, according to projections to 2030. This would mostly occur in the southeastern highlands in the autumn season (MAM) and in the northeastern and east-central highlands in the winter season (JJA). Seasonal irregularities in the behavior of rainfall are expected, with more significant shortages during summer in most parts of the country. Autumn rainfall, on the other hand, will tend to register above-average values. With respect to spatial distribution, in the winter and spring rainfall increases and shortages would fluctuate from -30% below to + 20% above their averages. In the case of maximum precipitation to 2030, a decreasing trend is expected in most parts of the country with isolated cases of rainfall increase in comparison to current values (SENAMHI, 2009).

**Table 4** Climate change projections for Peru to 2030

Climate model	Coast	Highland	Rainforest
Temperature projection to 2030	Seasonal maximum temperature in show more intense positive variations in the winter (JJA) and spring (SON) periods by 2030, with values from +1.2 to +1.6°C.	The High Plateau region would not experience significant variations, except for the autumn season, when temperatures could increase by +1.2°C.	In the north, would experience the most intense variations during spring (SON), with temperature increases of up to 2.4°C, and up to +1.6°C in other seasons. Southern rainforests would experience periods of greater variation in the winter and spring with temperature increases of up to +1.16°C. Variations could be very pronounced in the central rainforest during the summer (DJF) with increases of up to +1.2°C.
Precipitation projection to 2030	Precipitation increases would occur in the northern coast with projected increases between +10% and +20%.	Annual precipitation reveals shortages caused by precipitation decreases of between -10 and -20%, mostly in the highland region.	Annual precipitation decreases of -10% in the northern and central rainforest. Precipitation increases would occur in the southern rainforest, with projected increases between +10% and +20%.

Source: SENAMHI, 2009.

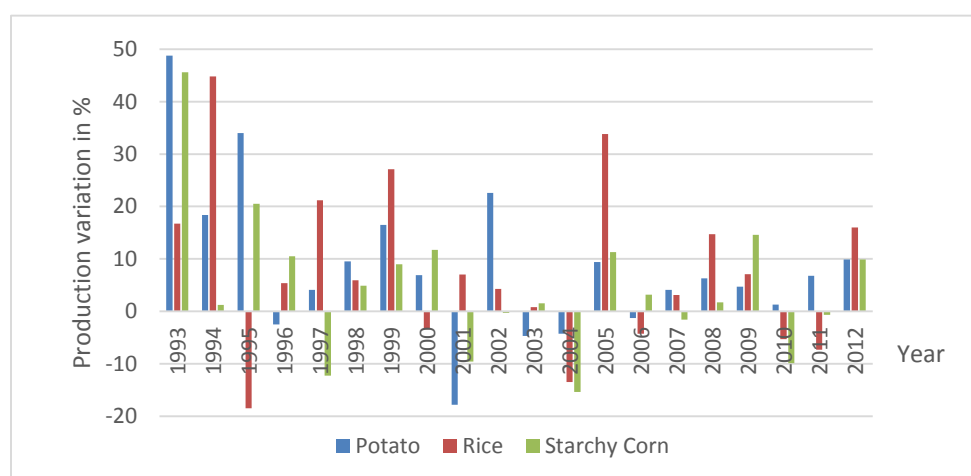
**Table 5** Climate change projections and risk on key crops for food security

Region	Climate change projection to 2030	Crops impact
The northern coast	Increasing temperature in 2°C and +10 to 20% rainfalls.	The yield of rice and maize will be not affected.
	El Niño events with increases 6°C.	The yield of rice and maize will be affected.
Central coast (Except Cañete)	Increasing temperature in 1°C and decreasing rainfalls in 20%.	The yield of rice and potato will be affected by hydric stress.
The southern coast	Decreasing rainfall in 20%.	Yield of rice will be affected.
Highland (Some areas of La Libertad, Cajamarca, Lima, Junín, Huancavelica, Moquegua, Tacna and Puno)	Increasing temperature in 1,5°C and +10 to 20% rainfalls.	The yield of potato, maize, wheat and barley will be not affected.
Highland (except in some areas of Cusco and Apurímac)	Increasing temperature in 1,5°C and decreasing rainfalls in 20%.	The yield of potato, maize, wheat and barley will be affected.
Rainforest (Except in San Martín and Huánuco)	Increasing temperature in 1°C and +10% rainfalls.	The yield of rice, maize, cassava and coffee will be affected.

Source: MINAGRI, FAO, SENAMHI, 2012

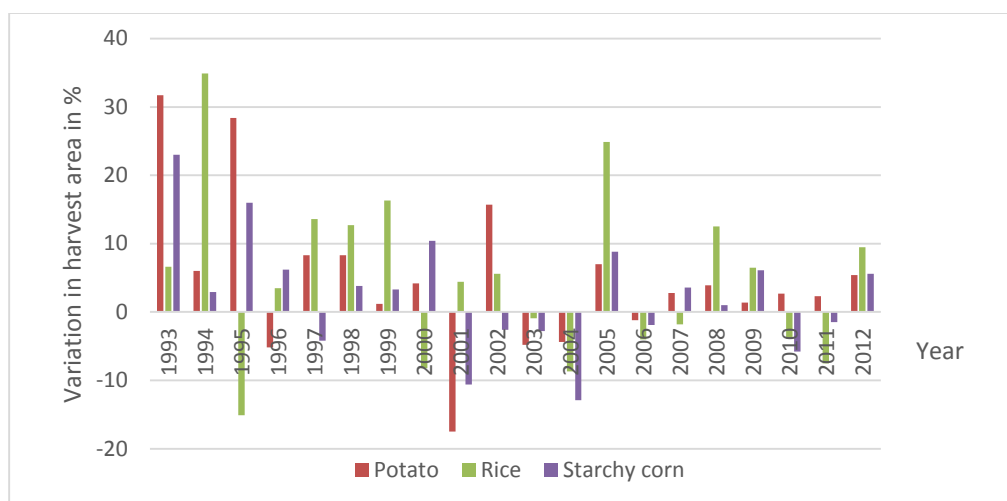
**Productivity of three main crops**

Agricultural production in the country has had significant increases to national level. As shown in Fig.1, during the period of 1992-2012, rice production increased by 367%, potato increased by 231% and corn starch to 151%. Also observed positive and negative variations in some years, e.g. rice in 1994 had a maximum variation of 44.8% and in 1995 had a minimal variation of -18.5%. In 1993, potato and maize maximum variations were 31.7% and 23% respectively (Fig.2).

**Figure 2** Evolution of national production of three main crops, 1993-2012 (OEEE-MINAGRI)

Harvested areas also increased in the same period (1992-2012). Rice harvested area increased by 236%, potatoes 45.6% and starchy corn 66.1%. Positive and negative variations are also observed in a few years.

For example rice in 1994 provided a maximum variation of 34.9% and a minimum variation of -15.1% in 1995 (Fig. 2).



**Figure 3** Evolution of national harvest area of three main crops, 1993-2012 (OEEE-MINAGRI)

For the same period statistics show an increase in yields for the three crops. The potato crop of 7.4 ton / ha in 1992 increased to 14.3 t / ha in 2012, rice 4.48 ton / ha increased to 7.7 ton / ha and corn starch 0.9 tons / ha to 1.3 ton / ha.

#### Sources:

**SENAMHI. 2009.** "Climate Scenarios for Peru to 2030: Second National Communication on Climate Change." National Meteorology and Hydrology Service. Lima, Peru. (Available at: <http://www.senamhi.gob.pe/?p=1604>). (Accessed: May 10, 2014).

**MINAGRI; Gobierno del Perú; FAO. 2012.** "Plan de Gestión de Riesgo y Adaptación al Cambio Climático en el Sector Agrario-PLANGRACC-A 2012-2022". Ministerio de Agricultura y Riego. Lima, Peru.

**OEE; MINAGRI. 2014.** Series Históricas de Producción Agrícola-Compendio Estadístico. (Available at: [http://frenteweb.minagri.gob.pe/sisca/?mod=consulta\\_cult.Sistema](http://frenteweb.minagri.gob.pe/sisca/?mod=consulta_cult.Sistema)). Integrado de Estadísticas Agrarias Ministry of Agriculture and Irrigation. Lima, Peru.

## Annex VI: Ongoing CSA practices

Climate smartness reflects the performance of a practice regarding: carbon stocks and emissions (Carbon smart), nitrogen stocks and emissions (Nitrogen smart), energy-use efficiency (Energy smart), weather-related risk reduction (Weather smart), water-use efficiency (Water smart), and local knowledge promotion (Knowledge smart).

**Table 6a.** Selection of CSA practices in Peru based on climate-smartness assessments (1).

Calculations are based on qualitative ranking, where positive change in each smartness category was noted as 5=very high; 4=high; 3=moderate; 2=low; 1=very low; 0=no change; N/A=not applicable, and N/D=no data.

Production System	Main practices	Climate Smartness							Adoption level	High Interest
		Water	Carbon	Nitrogen	Energy	Weather	Knowledge	Average		
Plantain	1 Agroforestry	4.0	5.0	3.5	4.0	4.0	4.0	4.1	High	
	2 Organic agriculture	3.0	3.0	4.0	4.0	4.0	5.0	3.8	Medium	
	3 Cover crops with Kudzu	N/D	N/D	3.0	N/D	N/D	4.0	3.5	N/D	
Rice	1 Pest- and disease tolerant varieties	4.0	3.0	N/D	N/D	4.0	4.5	3.9	Medium	
	2 Efficient nitrogen fertilizer application	3.0	3.0	4.0	N/D	3.0	4.5	3.5	Low	
	3 Alternate wetting and drying (AWD)	5.0	2.5	N/D	2.5	3.0	2.0	3.0	Medium	
	4 Direct seedling	3.0	3.0	2.5	2.0	3.0	N/D	2.7	Medium	
Potato	1 Recovery of ancestral production practices	N/D	N/D	N/D	N/D	4.0	5.0	4.5	High	
	2 Efficient use of fertilizers	N/D	3.0	N/D	N/D	4.0	4.0	3.7	Medium	
	3 Pest- and disease-resistant varieties	3.0	3.0	N/D	N/D	4.0	4.0	3.5	Medium	
	4 Use of heaters	3.0	4.0	4.0	3.0	5.0	3.0	3.7	N/D	
Coffee	1 Post-harvest community infrastructure	5.0	N/D	N/D	N/D	N/D	4.0	4.5	Low	x
	2 Tree crop rejuvenation	N/D	5.0	3.0	N/D	N/D	4.0	4.0	Low	x
	3 Agroforestry	4.0	5.0	3.5	3.0	4.0	4.0	3.9	Low	x
Maize	1 Terracing/stone contour bunds	3.0	N/D	N/D	N/D	4.0	3.5	3.5	Low	
	2 Intercropping	5.0	N/D	2.0	N/D	3.0	N/D	3.3	Low	x
	3 Efficient management of water	5.0	2.5	N/D	2.5	3.0	2.0	3.0	Medium	
	4 Intercropping	5.0	N/D	3.0	N/D	3.0	N/D	3.7	Low	
Livestock - Cattle	1 Stocking rate management	3.5	2.0	4.0	N/D	4.0	4.0	3.5	Medium	
	2 Silvopastoral systems	2.5	3.0	4.0	3.0	4.0	3.0	3.3	Medium	
	3 Improved pastures	2.5	1.0	3.0	2.0	N/D	2.0	2.1	Low	
	4 Hay production and silage	2.5	1.0	1.0	1.0	N/D	2.0	1.5	Medium	
Multi-crop	1 Agroforestry	4.0	3.5	N/D	5.0	5.0	3.5	4.2	Low	x
	2 Terracing/stone contour bunds	3.0	N/D	N/D	N/D	4.0	3.5	3.5	Low	
	3 Short-cycle varieties	3.0	2.0	2.0	2.5	5.0	3.0	2.9	Medium	

**Table 7b** .Selection of CSA practices in Peru based on climate-smartness assessments (2)

Calculations are based on qualitative ranking, where positive change in each smartness category was noted as 5=very high; 4=high; 3=moderate; 2=low; 1=very low; no change, not applicable, and no data are all treated at 0.

Production System	Main practices	Climate Smartness							Adoption level	High Interest
		Water	Carbon	Nitrogen	Energy	Weather	Knowledge	Average		
Plantain	1 Agroforestry	4.0	5.0	3.5	4.0	4.0	4.0	4.1	High	
	2 Organic agriculture	3.0	3.0	4.0	4.0	4.0	5.0	3.8	Medium	
	3 Cover crops with Kudzu	0	0	3.0	0	0	4.0	1.2	N/D	
Rice	1 Pest- and disease tolerant varieties	4.0	3.0	0	0	4.0	4.5	2.6	Medium	
	2 Efficient nitrogen fertilizer application	3.0	3.0	4.0	0	3.0	4.5	2.9	Low	
	3 Alternate wetting and drying (AWD)	5.0	2.5	0	2.5	3.0	2.0	2.5	Medium	
	4 Direct seedling	3.0	3.0	2.5	2.0	3.0	0	2.3	Medium	
Potato	1 Recovery of ancestral production practices	0	0	0	0	4.0	5.0	1.5	High	
	2 Efficient use of fertilizers	0	3.0	0	0	4.0	4.0	1.8	Medium	
	3 Pest- and disease-resistant varieties	3.0	3.0	0	0	4.0	4.0	2.3	Medium	
	4 Use of heaters	3.0	4.0	4.0	3.0	5.0	3.0	3.7	N/D	
Coffee	1 Post-harvest community infrastructure	5.0	0	0	0	0	4.0	1.5	Low	
	2 Tree crop rejuvenation	0	5.0	3.0	0	0	4.0	2.0	Low	
	3 Agroforestry	4.0	5.0	3.5	3.0	4.0	4.0	3.9	Low	x
Maize	1 Terracing/stone contour bunds	3.0	0	0	0	4.0	3.5	1.8	Low	
	2 Intercropping	5.0	0	2.0	0	3.0	0	1.7	Low	
	3 Efficient managment of water	5.0	2.5	0	2.5	3.0	2.0	2.5	Medium	
	4 Intercropping	5.0	0	3.0	0	3.0	0	1.8	Low	
Livestock - Cattle	1 Stocking rate management	3.5	2.0	4.0	0	4.0	4.0	2.9	Medium	
	2 Silvopastoral systems	2.5	3.0	4.0	3.0	4.0	3.0	3.3	Medium	
	3 Improved pastures	2.5	1.0	3.0	2.0	0	2.0	1.8	Low	
	4 Hay production and silage	2.5	1.0	1.0	1.0	0	2.0	1.5	Medium	
Multi-crop	1 Agroforestry	4.0	3.5	0	5.0	5.0	3.5	3.5	Low	
	2 Terracing/stone contour bunds	3.0	0	0	0	4.0	3.5	1.8	Low	
	3 Short-cycle varieties	3.0	2.0	2.0	2.5	5.0	3.0	2.9	Medium	

Source: Author's compilation based on interviews (2014)

## Annex VII: Relevant Institutions and Organizations related to Climate-Smart Agriculture

**Table 7** Institutions and Organizations in Peru

Institutions	Sector of operation	Role/Charge	Initiatives related to the three pillars of CSA (productivity, adaptation and mitigation)	Projects/National Programs	Cooperating Organizations
Presidency of the Council of Ministers (PCM for its acronym in Spanish)	Agriculture Environment	Coordinate and articulate national policies with state entities, civil society and the private sector.	Productivity  Research in Biotechnology, Aquaculture, Environment	Sierra Exportadora national program  National Council of Science and Technology (CONCYTEC)	Funds of the Government of Peru and International Cooperation
Ministry of Agriculture and Irrigation (MINAGRI for its acronym in Spanish)	Agriculture and Irrigation (Public)	Technical - Normative Promoter Promote agricultural development for competitiveness, sustainability and equity with the value chain approach in coordination with local government.	Vulnerability reduction and adaptation to climate change.  Modern Irrigation Technologies  Strengthening and capacity building  Financing of public investment projects  Providing resources for management, association and adoption of technologies for sustainable business	Management and Climate Change Adaptation Plan (PLANGRACC-A)  Subsector Irrigation Program (PSI for its acronym in Spanish) -My Irrigation (MI RIEGO) -Jungle Irrigation Subsector Program - JICA Program  Agorural  AGROIDEAS	FAO, Government of Peru  International Bank for Reconstruction and Development (BIRF)  Japan Bank International Cooperation (JBIC)
National Institute of Agrarian Innovation	Agriculture Public Agency affiliated with MINAGRI	Research, technology transfer, technical assistance, conservation of genetic resources	-Research: Genetic breeding -Technology Transfer and Support -Conservation of plant genetic resources	Agrarian Innovation Program (PNIA for its acronym in Spanish): Agroforestry; small animals; rice, cattle and sheep, camels, Andean crops and agribusiness, degraded ecosystems, fruit, vegetables, corn, and fodder grasses, tubers, roots and genetic resources.	BID, BM, Government of Peru, Government of Japan
National Agrarian Health Service (SENASA)	Agriculture	Preserve agrarian health, quality of inputs, organic production and agrifood safety	Inspection services, verification and plant and animal health certification  Strengthening local capacity	National programs to control pests and diseases.	Government of Peru, ADEX
National Water Authority (ANA for its acronym in Spanish)	Agriculture and Natural Resources Public organization affiliated with MINAGRI	Integrated management of natural resources and management of environment quality	Management of water use and preservation of environmental quality	National Water Resources Plan	
AgroBanco	Agriculture Public	All types of activities as a bank	Financing	Renewal Program in coffee (medium-term loans), fruit, vegetables and livestock	National Treasury Public Financing Fund (FONAFE)

Ministry of the Environment (MINAM for its acronym in Spanish)	Environment (Public)	Promote environmental sustainability of the country by preserving, protecting, restoring and insuring environmental conditions, ecosystems and natural resources.	National, regional and local environmental management  Research and local capacity building  Conservation of Natural Resources	44 MDL projects approved 3 MDL projects pending approval  National Environmental Action Plan (PLANAA)  Forest Investment Plan 2013  Climate Change Strategy 2003. Updated to 2009.  National Parks and Reserves.  Preparation of 5 NAMAS.	Government of Peru, Regional Governments, International Cooperation
National Service of Meteorology and Hydrology of Peru – SENAMHI	Environment Public Affiliated with MINAM	Public services, consulting, scientific research and studies in the areas of meteorology, hydrology, agro-meteorology and environmental issues. Support for global atmospheric monitoring.	Scientific climate research  Specialized services in climate and environment.  Climate monitoring.		
Peruvian Amazon Research Institute – IIAP	Environment Public Affiliated with MINAM	Promote appropriate methodologies for the efficient and orderly use of the Peruvian Amazon and its natural resources.	Research-Education  Capacity building  Transfer of technology	22 projects in execution or executed	Equity and International Cooperation
Assessment and Environmental Control Agency - OEFA	Environment Public Affiliated with MINAM	Verify compliance with environmental legislation by all natural and legal persons.	Supervise the functions of assessment, monitoring, auditing, control, sanctioning and implementing incentives in environmental issues conducted by various state agencies. This is conducted in an independent, impartial, prompt and efficient manner, according to the legal provisions in the National Environmental Policy.		
National Service of Protected Areas– SERNANP	Environment Public Affiliated with MINAM	Ensuring the conservation of protected areas in the country, their biodiversity and the maintenance of environmental services.	Conservation and climate change mitigation.		
National Service of Environmental Certification for Sustainable Investment - SERNANP	Environment Public		Review and approve detailed Environmental Impact Studies (EIA-d) for public, private or mixed capital investment projects nationwide.		

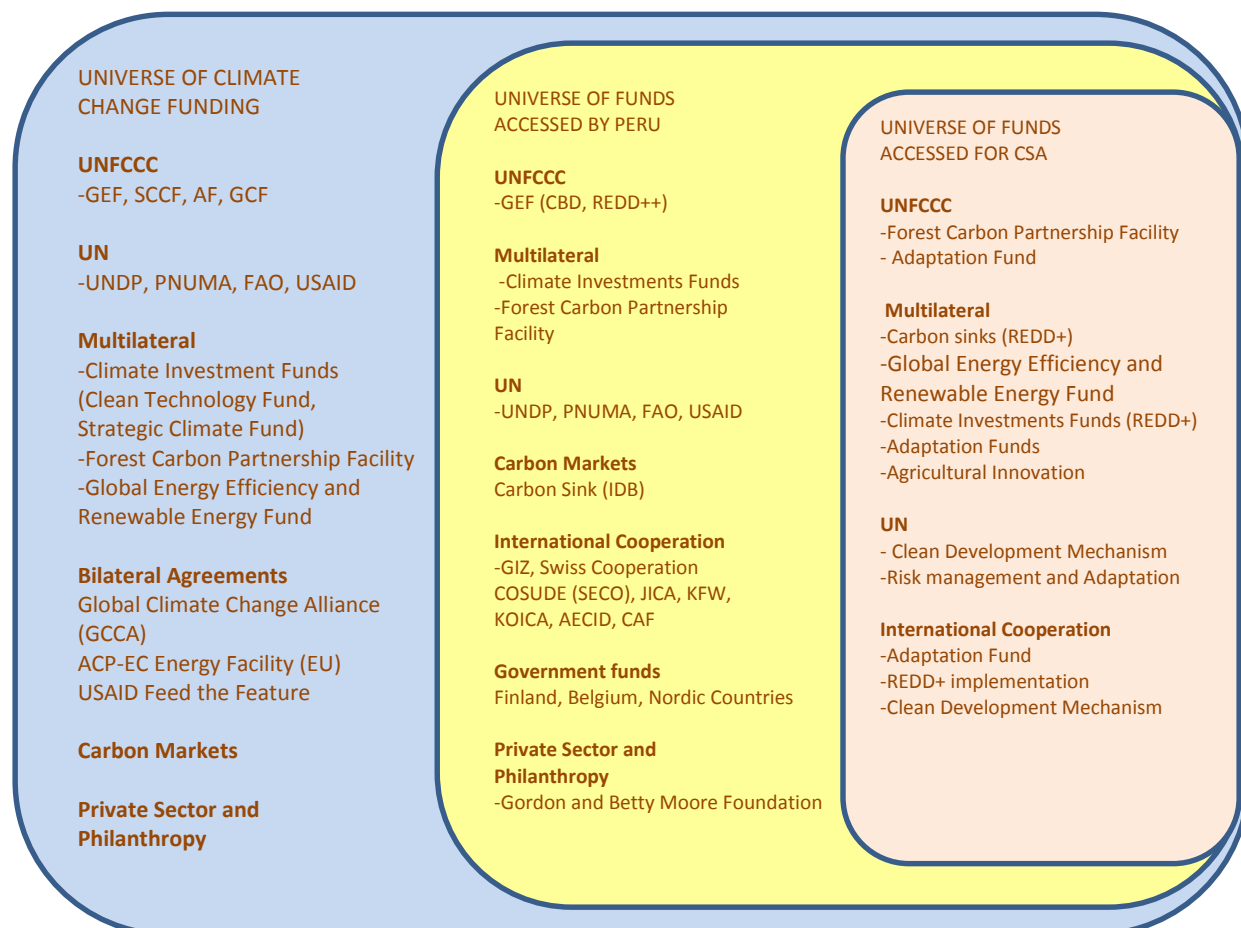
Ministry of Development and Social Inclusion (MIDIS)	Society  Public	Improve the quality of life vulnerable populations and those living in poverty, promote the exercise of their rights, access to opportunities and the development of their own capabilities.	Development of rural families' productive capacities. Trainings and capacity building (Yachachiq). Simple technological innovations with an agro-ecological approach.	National Strategy for Development and Social Inclusion "Include to Grow" Program: FONCODES and JUNTOS	FAO, Action Against Hunger Coalition
Ministry of Foreign Trade and Tourism (MINCETUR)	Agriculture  Commerce  Public	Responsible for the promotion of exportation and international trade negotiations.	Promotion of exportation	Promotion of Peru for export and tourism- PROMPERU	
Ministry of Economy and Finance (MEF)	Economics  Public	Plan, direct and control affairs relating to budget, treasury, debt, accounting, fiscal policy, public investment, and economic and social policy.		Agency for Promotion of Private Investment in Peru PROINVERSION	
Ministry of Production (PRODUCE)	Fishing Industry  Public	Design, establish, implement and monitor the fishery sector and Small Microenterprise (MYPE) and industry.	Rational use of fishery resources	MYPE, Industry and Fishery	
Marine Institute	Fishing Public	Scientific Research and the study and knowledge of the Peruvian Sea and its resources.	Research	Agreements with International Universities	
Regional Governments	All sectors  Public	Organize and conduct regional governance according to their unique skills in the context of national and sectoral policies to contribute to the holistic and sustainable development of the region.	Support research and technology transfer in the agricultural sector.  Promote sustainable use of forest resources and biodiversity.	Regional Strategies to Combat Climate Change	Equity, Regional Compensation Fund, International Cooperation
Exporters Association (ADEX)	Agriculture  Private	Help generate decentralized and sustainable development of Peruvian exports.	Technological innovation Capacity building with social and environmental responsibility.		
La Molina National Agrarian University (UNALM)	Public	Training of competent professionals for agriculture, fisheries, food and economic sectors.	Research on crops Education	Regional Development Institutes in Coast, Highland and Jungle Data Center for conservation	
National University of Engineering	Public	Developing leaders in science, engineering and	Education Research	Center for Energy and Environmental Conservation	

		architecture, equipped with skills for research, innovation and technology management.			
Pacific University	Private	Leadership training in economics and business management.	Education Research	Research Center of the University of the Pacific	
Pontifical Catholic University of Peru	Private	Humanistic, scientific and integral training.	Research Information Services	-Institute of natural sciences, territory and renewable energy -Rural Telecommunications Group	
Confederation of Amazonian Nationalities of Peru	Civil society	Represent indigenous Amazonian peoples organizations and provide them with the means to ensure the defense of their rights and sustainable development	Education Capacity Building Reforestation Sustainable management of resources	-Butterfly Project -Roundtables -Reforestation Project	NGOs (CARE, PRONATURALE ZA, CHIRAPAQ)
Consortium of the Development of Andina Eco region	Civil society	It is an organization committed to overcoming poverty and social exclusion in the Andean region through the sustainable management of natural resources	-Andean Forests Network -Andean biodiversity monitoring on High Mountain Network Influence of economic incentives on Common-property Forest Management: Rural decision making in the context of RED ++ -Generation of knowledge and capacity building as an adaptive response to environmental changes in the Andes. -Andean Ecosystems Hydrological Monitoring Regional Initiative	-Institutional Programs: Andino Panorama, Andino Dialogue, Andino Monitoring, Infoandino	COSUDE, GIZ, GEF, Mountain Forum, Water&Food, Forest Trends, others.
International Potato Center	Agriculture NGO	Achieve food security, well-being and gender equity for poor people in root and tuber farming and food systems in developing countries.	Research and innovation in science, technology and capacity building for potato and sweet potato crops and Andean roots and tubers.		Consultative Group on International Agricultural Research
World Agroforestry Center	Agriculture and Environment NGO	Agroforestry transformation: a massive increase in the use of productive trees in productive landscapes by rural families.	Research and capacity building	Agreements for: -Develop the Forest Thursday, Industrial Park Monitoring.	Consultative Group on International Agricultural Research

Source: Author's compilation, based on interviews and literature review

## Annex VIII: International Climate Smart Funding

**Table 8** International funds accessed by Peru



Source: Author's compilation, based on interviews and literature review