Final Report

EU-PERU COOPERATION ON REGIONAL INNOVATION SYSTEMS IN THE FRAMEWORK OF REGIONAL POLICY

Contract Number – 2013CE160AT139

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1. EXECUTIVE SUMMARY EN

The report is the result of the project '***EU-Peru Cooperation on Regional Innovation Systems in the Framework of Regional Policy***' (Contract No. 2013CE160AT139), which began at the end of December 2014 and finished in September 2015.

This project forms part of regional policy dialogs to **share the experience and good practice of EU regional policy**, and to promote further cooperation between third countries and the European Commission, regional authorities and European institutions. It was carried out **in the regions of Cusco and Puno**, to provide technical assistance and specialized training by European experts to contribute to the design of public regional innovation policies, and to open up channels of cooperation between regions of Peru and Europe and between actors in the innovation system of these regions (regional governments, universities, research centers and businesses).

To this end, the project provided a number of **competitive analyses** of value chains in the regions of Cusco and Puno, more specifically in the **coffee and camelid fabrics sectors**. In addition to these assessments, the organization of **visits, workshops and tutorials** enabled the identification of the challenges of both chains and possible competitive improvement mechanisms for public and private bodies.

The project focused on having an **impact on the functioning of the system** in these regions through the **implementation of pilot activities that may in time have a demonstrative effect**; in other words, to go beyond merely carrying out an assessment by **achieving specific actions, making commitments and developing initiatives** to make the system efficient and increase the competitiveness of the value chains.

As for Puno and Cusco, the two regions share a border and, despite their different natural and territorial assets, also share many challenges in terms of innovation. The two chains selected (coffee and camelid fabrics) are also major sectors with the potential to act as a driving force (especially in exports) in both regional economies.

The smart specialization model based on the search for the '*specialized diversification*' enables each region to gear its strategy appropriately, according to its socioeconomic characteristics and the combination of dominant sectors in the economic structure.

This approach is perfectly adapted to the specific features and major challenges of developing economies such as Peru. More specifically, it involves **the strategic search for new niches of product diversification based on added value** and not 'commodities'. But **always based on the different assets and resources** (including the production of 'commodities') **in that region** compared to other world economies.

For the regions in the study, Cusco and Puno, it is crucial in this regard to find the assets (or value chains) on which this specialized diversification can be built, and to prioritize efforts to create a development dynamic in the region as a whole.

As an economic phenomenon, clusters not only enable us to explain and understand the factors determining competitiveness from a regional perspective, but also to act on them. To multiply the benefits, formal structures, known as cluster initiatives, can also be created to enable systematization of the positive effects of relationships between the actors involved. Not surprisingly, clusters are playing an important role in the framework of the new smart specialization model and its strategies.

It is for this reason that the choice has been made to try to generate this type of mechanism in the value chains of coffee and camelid fabrics in Cusco and Puno. The idea is that, based on this process, progress can be made towards an outline of a Smart Specialization Strategy for these regions.

Based on the assessment carried out, **a number of competitive gaps have been identified** which, in general, rather than affecting only the value chains of coffee and camelid fabrics, appear to be structural to the economic system as a whole in both regions. This is an extremely important factor in scaling up the analysis of these two chains to the entire region and presenting an initial outline of **a strategic reflection on smart specialization for Cusco and Puno.**

Therefore, the exercise carried out consisted of an attempt to relate each challenge/competitive gap identified in the initial assessment with the area of smart specialization (specialization, diversification and global context) in which it could have an impact. This took place alongside an initial non-exhaustive set of possible mechanisms to implement in the regional innovation system (by the Government itself, universities and/or research centers, infrastructure designed to facilitate competitiveness or businesses and producers themselves).

Competitive gaps refer mostly to the lack of connection between actors; the weakening of structures for collaboration; barriers and bottlenecks between segments of the value chains; the low level of modernization and staff training and capacity-building; a general lack of an entrepreneurial and innovative culture; a general lack of transparency and information for decision-making; and poverty among producers of the first stages of the chain (input providers).

Although this project did not attempt to define a smart specialization strategy, it did list elements in the assessment to enable **an initial basis to be drawn up to guide the implementation of concrete actions in line with the basic strategic approaches** set out here.

Given the three objectives that could help to shape smart specialization in both Cusco and Puno relating to international positions and the need for product diversification and simultaneous specialization with an impact on quality and productivity, we establish five main areas of work to focus on in the future. These areas are directly linked to the gaps previously identified in the assessment.

- Instruments that facilitate **connectivity and cooperation,** with mechanisms to generate critical mass, and to discover new niches of activity by combining experiences and opportunities between different value chains.

- Activities that provide **training and capacity-building**.
- Mechanisms to **modernize and increase the productivity**.
- Actions to facilitate the **generation and communication of key information**.
- Actions to spread **entrepreneurial culture** and raise awareness on the importance of innovation.

On this point, the following question consists of analyzing how the system (understood as all the regional actors in the value chains), specifically governments, can move forward in the implementation of these instruments. It is not an easy task since, as already noted, it involves the implementation of an entire regional strategy that would take up a significant number of resources and, above all, time, to put in place.

A summary of the initial recommendations for action consists of:

- Generating **competitive intelligence** for the entire chain.
- Improving **cooperative management structures** using those of the cluster model as a reference.
- **Improving the level of training**, and above all the **entrepreneurial culture**.
- Moving forward towards **higher added value products**.
- Encouraging **joint spaces for discussion**.
- Moving forward towards **demonstrative projects**.

There are a number of key challenges which, in the medium and long term, may contribute to elements of smart specialization for Cusco and Puno: specialization and diversification in the framework of a competitive international position.

The way to meet these challenges through policy, as well as the behavior of actors, will mark the difference between the success and failure of this type of process for both regions.

Given the diverse range of actions, the recommendation is to respond through a participatory, cluster-type mechanism. This collaborative working method will allow us gradually to meet in a direct way the challenges of each chain in terms of improving management structures, creating spaces for discussion, generating and sharing information, improving skills and building strategies to transform products in terms of value. Furthermore, this working dynamic will enable the implementation of pilot projects that help to put the collaborative work into practice and build trust and social capital over time.

The proposal to form a cluster initiative, or at least a collaborative, cluster-type working approach, is based on the suitability of this methodology in meeting the challenges identified.

- **HIGH LEVEL OF INFORMALITY** of activities throughout the value chain, which derives from the lack of professionalization and (in general) the lack of an entrepreneurial culture.
- **LOW LEVEL OF PARTNERSHIP** or, where this exists, bad management and leadership of group and/or cooperative structures, which weakens interest in collaboration among the participants.
- **RELATIVELY LOW LEVEL OF SOCIAL CAPTIAL** among the various stakeholders of the cluster, causing compartmentalization of the different segments of the chain and multiplying inefficiencies.
- **LOW LEVEL OF TRAINING AND CAPACITY-BUILDING** at all levels, making the lack of entrepreneurial culture endemic, as well as the lack of knowledge of the real profitability of the activity, its competitive advantages, potential contribution to wealth generation, etc. (lack of information and transparency).
- Large number of bottlenecks caused by the inability (due to lack of a joint response) to commit **INVESTMENT AND FUNDING** which, however, are **ACCESSIBLE WITH ECONOMIES OF SCALE** (for example, technologies, market analysis, distribution and/or export channels, etc.).

The pattern of work proposed for the cases of coffee and camelid fabrics in Cusco and Puno is based on a methodological approximation developed on the basis of the experience in supporting the definition, formalization and consolidation in Europe and Latin America of both Innovation and Smart Specialization Strategies and cluster initiatives.

As was noted at the beginning, the aim of the project was to raise awareness and generate capacities to improve the definition and implementation of support policies for competitiveness in each of the regions of Cusco and Puno. From now on, the future of these initiatives will depend on the goodwill and capacity of the various regional actors to take the necessary steps to implement them.

2. RESUMEN EJECUTIVO ES

Este informe es el resultado del proyecto "Cooperación EU-Perú sobre Sistemas Regionales de Innovación en el marco de la Política Regional" (Contrato Nº2013CE160AT139) que comenzó a finales del mes de diciembre de 2014 y finalizó en septiembre de 2015.

Este proyecto forma parte de los diálogos en Política Regional para difundir la experiencia de la política regional de la UE y sus buenas prácticas, y fomentar la cooperación de terceros países con la Comisión Europea, las autoridades regionales y los agentes europeos. Se llevó a cabo en las regiones de Cusco y Puno, para proveer de asistencia técnica y formación especializada por parte expertos europeos para contribuir al diseño de políticas públicas de innovación a nivel regional, generar canales de cooperación entre las regiones peruanas y europeas, así como entre los agentes del sistema de innovación de estas regiones (gobiernos regionales, universidades, centros de investigación y empresas).

Para ello, el proyecto planteó una serie de **análisis competitivos** en torno a cadenas de valor en las regiones de Cusco y de Puno, más concretamente en los sectores del café y de tejidos de camélidos. Junto a estos diagnósticos, la organización de visitas, workshops y tutorías permitió definir los retos de ambas cadenas y posibles mecanismos de mejora competitiva desde las instituciones público-privadas.

El proyecto se ha enfocado a lograr un impacto en el funcionamiento del sistema en estas regiones a través de la concreción de acciones piloto que puedan ejercer un efecto demostrativo en el tiempo. En otras palabras, superar la mera realización de un diagnóstico para materializar acciones concretas, construir compromisos y desarrollar iniciativas para la eficiencia del sistema e incrementar la competitividad en torno a las cadenas de valor.

En cuanto a Puno y Cusco, son dos regiones que comparten frontera y que a pesar de sus diferencias naturales y de activos territoriales, comparten muchos de los retos en materia de innovación. También las dos cadenas seleccionadas (café y tejidos camélidos) son sectores importantes y con potencial tractor (y sobre todo exportador) en ambas economías regionales.

El modelo de la especialización inteligente sustentado en la búsqueda de la "*diversificación especializada*" permite en cada territorio orientar su estrategia de manera apropiada, en función de sus características socioeconómicas y la combinación de los sectores dominantes en su estructura económica.

Se trata de un enfoque que se adapta perfectamente a las especificidades y a los grandes retos que presentan las economías en desarrollo como el Perú. Más concretamente, se trata de **la búsqueda estratégica de nuevos nichos de diversificación productiva basada en valor añadido** y no en "commodities", pero **siempre a partir de los activos y recursos diferenciales** (entre ellos la producción de "commodities") **que hay en ese territorio** frente a otras economías del mundo.

Para las regiones del estudio, Cusco y Puno, es clave en este sentido encontrar cuales son aquellos activos (o cadenas de valor) sobre las que se puede construir esa diversificación especializada, y priorizar los esfuerzos para desbloquear su potencial competitivo y generar una dinámica de desarrollo en el conjunto de la región.

Los clusters como fenómeno económico no sólo permiten explicar y comprender los factores determinantes de la competitividad desde una perspectiva territorial, sino también actuar sobre ellos. Para multiplicar los beneficios además se suelen crear estructurar formales, conocidas como iniciativas cluster, que permiten sistematizar los efectos positivos de las interrelaciones entre los agentes. No es de extrañar que en el marco del nuevo modelo de especialización inteligente y sus estrategias, los clusters estén jugando un papel importante

Es por ello que se ha optado por intentar generar este tipo de mecanismo en las cadenas de valor del café y de tejidos camélidos en Cusco y Puno. La idea es que a partir de este proceso se pueda avanzar hacia un esquema de Estrategia para la Especialización Inteligente de estas regiones.

A partir del diagnóstico realizado **se han identificado una serie de brechas competitivas** que, de manera general, no solo parecen afectar a las cadenas de valor del café y de los tejidos camélidos, sino que son estructurales al conjunto del sistema económico en ambas regiones peruanas. Lo cual es sumamente determinante para poder escalar el análisis de estas dos cadenas al conjunto regional y poder presentar aquí una primera orientación de lo que sería **una reflexión estratégica de especialización inteligente para Cusco y para Puno.**

Por lo tanto, el ejercicio llevado a cabo ha consistido en intentar relacionar cada reto/brecha competitiva obtenida del diagnóstico inicial con el ámbito de la especialización inteligente (especialización, diversificación y contexto global) en el que podía tener incidencia. Ello junto con una primera batería no exhaustiva de posibles mecanismos a poner en marcha en el sistema de innovación regional (bien por parte del propio gobierno, de las universidades y/o centros de investigación, infraestructuras facilitadoras de la competitividad o los propios empresarios y productores).

Las brechas competitivas hacen referencia fundamentalmente a la falta de conexión entre agentes, la desvirtualización de las estructuras para la colaboración, las barreras y cuellos de botella entre segmentos de las cadenas de valor, el bajo nivel de tecnificación y de formación y capacitación de las personas, una generalizada falta de cultura empresarial e innovadora, la falta generalizada de transparencia e información para la toma de decisiones y una situación de pobreza entre los productores de las primeras etapas de la cadena (proveedores de inputs).

Aunque en este proyecto no se trataba de definir una estrategia de especialización inteligente, sí se han dado los elementos en el diagnóstico para poder formular **una primera base que permita orientar el despliegue de acciones concretas en base a los lineamientos estratégicos básicos** planteados aquí.

Dados los tres objetivos que podrían contribuir a configurar una especialización inteligente tanto en Cusco como en Puno (posicionamiento internacional, necesidad de diversificación productiva y una paralela especialización que incida en calidad y productividad), podrían establecerse cinco grandes áreas de trabajo a concretar en

el futuro. Estas áreas precisamente están directamente vinculadas a las brechas anteriormente destacadas en el diagnóstico:

- Instrumentos que faciliten la **conectividad y la cooperación**, como mecanismos para generar masa crítica, y descubrir nuevos nichos de actividad fruto de la combinación de experiencias y oportunidades entre cadenas de valor diferentes.
- Acciones que provean de **formación y capacitación**.
- Mecanismos para la **tecnificación e incremento de la productividad**.
- Acciones para facilitar la **generación y comunicación de información** clave
- Acciones para extender la **cultura empresarial** y sensibilizar sobre la importancia de la innovación.

En este punto, la siguiente pregunta consiste en analizar cómo el sistema (entendido este como el conjunto de agentes regionales de las cadenas de valor), y en concreto los gobiernos, pueden avanzar en la puesta en marcha de estos instrumentos. No es una tarea fácil pues, como ya se indicaba anteriormente, se trata del despliegue de toda una estrategia regional que llevaría una importante cantidad de recursos, pero sobre todo tiempo para formalizarse.

De manera resumida las recomendaciones de acción iniciales consisten en:

- Generar **información de inteligencia competitiva** para toda la cadena.
- Mejorar las **estructuras de gestión cooperativas** tomando como referencia las del modelo cluster.
- **Mejorar el nivel formativo**, y sobre todo de **cultura empresarial**.
- Avanzar hacia la formalización de compromisos en torno a **productos de mayor valor añadido.**
- Favorecer **espacios de discusión conjuntos**.
- Avanzar mediante **proyectos demostrativos.**

Todo ello representa un conjunto de retos clave que, a medio y largo plazo, contribuirán a mejorar la competitividad de las economías de Cusco y para Puno mediante la especialización y diversificación especializada en el marco de un posicionamiento internacional competitivo.

La forma de acometer estos retos desde las políticas, así como la forma de actuar de los agentes, será lo que marque la diferencia entre el éxito o el fracaso de un proceso de estas características para ambas regiones.

Dada la heterogeneidad de las acciones, la recomendación es llevarlas a cabo a través de un mecanismo participativo tipo cluster. Esta forma de trabajo colaborativa va a permitir de manera **directa** acometer progresivamente los retos de cada una de las cadenas en lo referente a mejorar las estructuras de gestión, la aparición de espacios de discusión, la generación y puesta en común de información, la mejora de las capacidades o la construcción de estrategias para transformar los productos en

términos de valor. Es más, esta dinámica de trabajo permitirá poner en marcha proyectos piloto que contribuyan a materializar en hechos el trabajo colaborativo e ir construyendo confianza y capital social en el tiempo.

La propuesta de conformación de una iniciativa cluster, o al menos un enfoque de trabajo colaborativo tipo cluster se justifica en la idoneidad de esta metodología para poder responder a los retos identificados, entre los cuales los más significativos son los siguientes:

- **ELEVADO NIVEL DE INFORMALIDAD** de la actividad en toda la cadena de valor, que deriva en falta de profesionalización y (por lo general) una escasa cultura empresarial.
- **BAJO NIVEL DE ASOCIACIONISMO** o, en el caso de existir, una mala gestión y liderazgo de las estructuras grupales-cooperativas, que desvirtúa el interés de la colaboración para los participantes.
- **NIVEL DE CAPITAL SOCIAL RELATIVAMENTE BAJO** entre los diferentes stakeholders de los posibles cluster, lo que provoca una compartimentalización de los diferentes segmentos de la cadena, multiplicando las ineficiencias.
- **BAJO NIVEL DE FORMACIÓN-CAPACITACIÓN** a todos los niveles, lo que hace endémica la falta de cultura empresarial, además del desconocimiento del nivel de rentabilidad real de la actividad, sus ventajas competitivas, potencial contribución a la generación de riqueza, etc. (falta de información y trasparencia).
- Altos cuellos de botella por la incapacidad (derivada de la falta de respuesta conjunta) de acometer **INVERSIONES Y FINANCIACIÓN** que, sin embargo, serían **ACCESIBLES CON ECONOMÍAS DE ESCALA** (por ejemplo tecnológicas, de análisis de mercados, canales de distribución-exportación, etc.).

El esquema de trabajo aquí propuesto para los casos del café y de tejidos camélidos en Cusco y en Puno se basa en una aproximación metodológica desarrollada a partir de la experiencia en el apoyo a la definición, formalización y consolidación en Europa y Latinoamérica tanto de Estrategias de Innovación y Especialización Inteligente, como de iniciativas clusters.

Como se comentaba al inicio del informe, el objetivo del proyecto era generar conciencia y capacidades para mejorar la definición y puesta en marcha de políticas de apoyo a la competitividad en cada una de las regiones de Cusco y Puno. A partir de ahí, el futuro de estas iniciativas dependerá de la voluntad y capacidad de los distintos agentes regionales para recorrer los pasos necesarios para su concreción.

3. INTRODUCTION

This report is the result of the project '***EU-Peru Cooperation on Regional Innovation Systems in the Framework of Regional Policy***' (Contract No. 2013CE160AT139), which began at the end of December 2014 and finished in September 2015.

This project forms part of regional policy dialogs to **share the experience and good practice of EU regional policy**, and to promote further cooperation between third countries and the European Commission, regional authorities and European institutions. It was carried out **in the regions of Cusco and Puno**, with the aim of helping to improve the capacity to design regional strategies in order to strengthen innovation systems and the application of policies that extend innovation to priority value chains.

To this end, the project provided a number of **competitive analyses** of value chains in the regions of Cusco and Puno, more specifically in the **coffee and camelid fabrics sectors**. In addition to these assessments, the organization of **visits, workshops and tutorials** enabled the identification of the challenges of both chains and possible competitive improvement mechanisms for public and private bodies.

This report compiles the results of the diagnostic analysis, the information collected during study visits and verified during workshops and tutorials, and recommendations for action.

4. OBJECTIVE AND BACKGROUND OF THE PROJECT

The objective of the project was to provide technical assistance and specialized training by European experts to contribute to the design of public regional innovation policies, and to open up channels of cooperation between regions of Peru and Europe and between actors in the innovation system of these regions (regional governments, universities, research centers and businesses)

The project focused on achieving an **impact on the system functioning** in these regions through the **implementation of pilot activities that may have a demonstrative effect over time**. In other words, to overcome the mere realization of a diagnosis in order to **achieve specific actions, make commitments, develop initiatives for the system efficiency,** and increase the competitiveness of the value chains.

To this end, it set out a series of elements to be developed over the months of the project, centered on:

- Providing **expert advice** to the Peruvian regions of Cusco and Puno, with a focus on:
  - Assessing and establishing priorities for smart specialization in each region.
  - Managing and improving innovation policies.
  - Using support mechanisms to establish an order of regional priorities on clusters and value chains.
- **Training** regional actors through workshops on innovation projects in value chains.
- Carrying out personalized **tutorials** on the ground based on thematic pilot activities.
- **Presenting and disseminating the final results** obtained.
- Achieving the first steps to proceed in the future to **the preparation of a regional innovation strategy** on priority value chains.

The project forms part of a framework of commitments for establishing a dialog on regional policies between the European Union and several countries in Latin America through the exchange of experiences and especially knowledge. This enables countries and regions in the Americas to access the know-how built up in the European Union in the framework of policies as broad as regional ones.

In this regard, the regional program for EU-Latin America cooperation is based around areas consistent with the Development Cooperation Instrument (DCI) and the follow-ups to summits between the EU, Latin America and the Caribbean (EULAC). It aims to contribute to the strengthening of the strategic partnership between the EU and Latin America at regional, sub-regional and bilateral levels[1].

From a historical perspective, bilateral relations between Latin America and Europe go back to the seventies. It was in the nineties that **relations between the European Union and Latin America took on a strategic nature** and began to consider the concept of a **bi-regional partnership**. These relations continued with renewed enthusiasm in the first decade of the 21st century[2].

[1] European Commission Latin America Regional Program Document 2007-2013 12/07/2007 (E/2007/1417).

2 IEO Virtual Library. First Summit between Heads of State and Government of the European Union, Latin America and the Caribbean. Rio de Janeiro, 28 and 29 June, 1999.

In light of the interest shown by other countries, the Directorate General of Regional Policy created a specialist group to lead dialog on regional policy. In 2009, the European Parliament approved funds for a pilot project entitled 'Enhancing regional and local cooperation through the promotion of EU Regional Policy on a global scale'[3].

A key turning point was the Commission communication in September 2009 entitled '*The European Union and Latin America: Global Players in Partnership*'[4]. This communication paved the way for the VI EULAC Summit in May 2010 in Madrid and focused solely on **issues of innovation, technological development and sustainable development.**

European Union-Latin America cooperation in this area has led to agreements for **dialog on regional policy with Brazil, Chile, Colombia, Mexico and Peru,** with others in the process. In particular, in May 2013, the **dialog between the EU and Peru**[5] on **regional policy and cross-border integration** was established. The dialog deals with the exchange of information and good practice in, inter alia, policies aimed at promoting **economic, social and territorial cohesion**, **innovation and technological development**; cross-border, transnational and interregional cooperation; the design and implementation of **regional and development policies** and cross-border integration, including the **strengthening of administrative capacity**, particularly at regional and local level; issues relating to decentralization and multilevel governance; the sustainability of economic development; and corporate social responsibility at regional level.

An example of the good results achieved so far in this dialog is the project 'EULAC-EUREGIO (CBRIS)'[6] , in which work was carried out with Peru and Brazil on advice and the exchange of good practice in cross-border cooperation to strengthen the value chain of aquaculture on the Amazonian border. The project identified a number of competitive improvement actions and interregional and cross-border policies through the formation of an '*Amazon aquaculture cluster*'.

This project uses a very similar methodology to the one used in that project, with a very strong focus on generating commitments by advising and training actors. The objective was to define a number of actions to be carried out in the very short term, this time on two value chains that are key not only for the economies of the regions of Cusco and Puno, but for that of Peru itself: coffee and camelid fabrics. To this end, the emphasis throughout the work was on two area of action:

- Identification of **value chains with the potential** to become pillars of economic activity and drivers of regional development in the regions and Peru and Cusco: **coffee and camelid fabrics.**
- Characterization of the value chains chosen to move forward in **meeting the challenges and needs** which, through the **recommendations of innovation**

3 European Commission, DG Regional Policy. European Regional Policy, an inspiration for countries outside the EU? 2009.

4 Commission of the European Communities. Communication of the Commission to the European Parliament and Council. 30/09/2009.

5 European Commission DG REGIO. Letter of intent on a dialog on regional policy and cross-border integration between the Ministry of External Relations of the Republic of Peru and the European Commission Directorate General of Regional and Urban Policy. 16/05/2013.

6 EU-Latin America Cooperation on Cross-Border Regional Innovation Systems in the framework of Regional Policy (Brazil and Peru) - Nº2013.CE.16.0AT.078

and competitiveness frameworks, enable them to become drivers of regional development.

For the implementation of the project, visits, workshops and tutorials were set up over 7 months with the aim of: (1) collecting information for the assessment and characterization of the key value chains; (2) specify with the actors the challenges and actions to be prioritized; and (3) raise awareness and generate commitments to develop mechanisms that allow these actions to be carried out on the basis of expert recommendations.

These actions on the ground took place in the regions of Cusco and Puno, both in the capitals of each region and at a workshop in the municipality of Echarati for various actors in the coffee sector and local technicians and managers. In both regions, in addition to working groups and presentations, visits were made to more than 25 public and private bodies in the triple helix (regional government, university, producers and entrepreneurs, and intermediaries such as cooperatives, chambers of commerce, etc.).

5. REGIONAL CONTEXT

An essential part of the project, especially in regards to the establishment of recommendations, is carrying out a regional assessment that enables identification and characterization of the critical value chains and challenges for competitiveness. To this end, it combined an analysis based on the bibliography and references (secondary sources) with interviews, comparisons and the views of various actors during the visits (primary sources).

The results of this assessment are presented as a summary of the most important aspects based around two elements:

- **Characterization** of the value chains of coffee and camelid fabrics in Cusco and Puno and **identification of the most significant challenges.**
- Preparation of an **analysis of strengths, weaknesses, opportunities and threats** (SWOT) for each of the chains.

Below, along with a general socioeconomic assessment of the regions of Cusco and Puno, is the context of Peru in terms of innovation, the key aspect around which is organized the characterization of the actions to be carried out to improve the capacity for competitiveness of the value chains considered.

5.1. SITUATION OF PERU IN TERMS OF COMPETITIVENESS AND INNOVATION: CONTEXT OF ACTION

A reference work in the recent characterization of innovation and competitiveness for Peru is the study 'Regional Innovation Systems in Peru: Policy Lessons', funded by the European Commission[7]. This demonstrates how, since the beginning of the 2000s, the Peruvian economy has increased its GDP by an annual average of 6.3%. It has been one of the fastest-growing economies in Latin America over the last decade. According to the Global Competitiveness Report[8] for 2013-2014, Peru is 61st (out of 148 countries), a 22-point increase on the ranking it obtained in 2008-2009.

However, if this indicator is disaggregated, we can see that the influence of innovation factors is not so positive, since Peru is 99th out of 148 countries. The worst results are obtained for the quality of education in mathematics and science (135), the quality of the education system (128), protection of intellectual property (122), and private investment in R&D&I (118)[9].

As Granda points out, everything seems to indicate that the growth enjoyed by Peru is extensive and due mainly to external factors. Thus, even compared to the economies of surrounding countries, Peru devotes very few resources to R&D&I: in 2004, investment barely reached 0.15% of GDP, whereas Brazil spent 0.90% and China 0.65%.

In fact, based on United Nations data on international trade (UN Comtrade), it appears that Peru's economy rests on trade dominated by export sales of natural raw materials (mostly minerals and metals)[10]. The 'commodity' nature of these products weakens possibilities for future growth and also makes the economy as a whole more susceptible to price and other shocks in the international markets.

In any case, as can be learned from the export structure of Peru, product type generally has a low level of differentiation, with no great added value and generalized market segments far from the niches with more sophisticated demand and high purchasing power.

By destination, according to the UN Comtrade breakdown of tariff lines, the two main focal points for Peru are the United States and China (the latter mainly as an entry point for inputs and raw materials for its manufacturing industry). To a lesser extent, Brazil and Chile also stand out in the south of the continent, as do certain European countries (Spain, Germany, etc.).

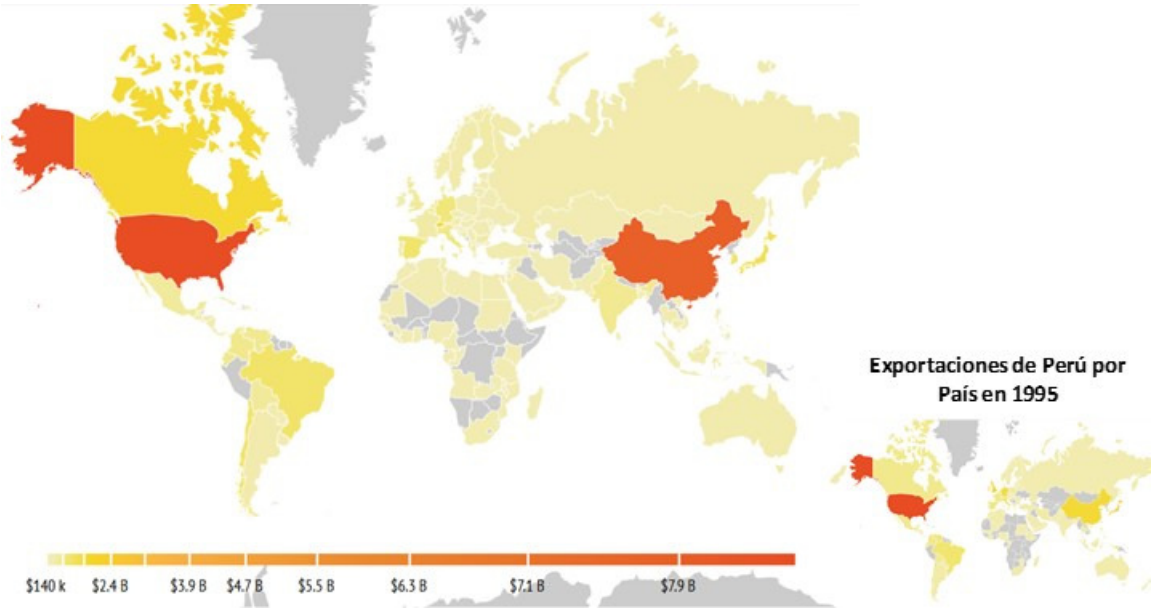
7 Germán Granda Alva in collaboration with María Angélica Ropert, Lenia Planas, Matías Boero and Ernesto Bustos. ISBN: 978-9972-57-318-7

8 'The Global Competitiveness Report 2013-2014', World Economic Forum.

9 Granda et al.

10 Harvard-MIT: Atlas of Economic Prosperity

Destination of exports from Peru in 2013



Source: compilation based on UN Comtrade data

Furthermore, the focus on raw materials with little differentiation in international markets has increased significantly in recent years. According to Comtrade data, barely processed and 'commodity' products made up 72% of all export sales transactions in 2013. Mineral products also increased from 20% in the mid-90s to 40% at the end of 2013.

In short, **the economic growth of Peru in recent decades is based mainly on the export of low-added-value mineral and agricultural products** (*'commodities'*), which implies a competitiveness model highly susceptible to market volatilities.

The improvement of **productivity** and **diversification** towards products and exports of greater added value are two crucial challenges for the sustainable growth of Peru in the medium and long term.

One of the main barriers to the transformation of the production system is a business structure made up in large part of micro-enterprises and freelancers which, in addition to their highly informal nature, face great difficulty in developing and even more so in innovating.

In this regard, although the business sector in Peru is very diverse, it generally shares the characteristic of insufficient propensity to invest in R&D&I. As a result of a **very traditional and not very professionalized business culture**, only a very small number of businesses (around 2%) carry out R&D&I activities. Furthermore, this activity is highly concentrated in a limited number of sectors.

Other considerable barriers include the various problems observed in the behavior and functioning of the innovation system itself which, like the economic system as a whole, features **separation between different parts of the production chains, a lack of alignment, information gaps and a low transfer level.** All of this results in considerable levels of inefficiency, both in terms of production and enhancement of knowledge.

It is also interesting to consider the photography of the national innovation system of Peru (which can be extended to different realities in different regions of the country) based on the updated analysis of the study carried out prior to this project[11] and the work of the OECD and UNIDO-EULAC[12].

The table below summarizes the key aspects to bear in mind relating to Peru in general and which affect Puno and Cusco in the framework of the analysis carried out for the value chains of coffee and camelid fabrics:

11 Granda et al.

12 OECD (Review of Innovation Policy in Peru, 2011) and UNIDO-EULAC (Science, Technology and Innovation Policy Review of Peru, 2011).

Aspects to consider in the framework of the National Innovation System of Peru

- *Strong economic growth not accompanied by greater levels of competitiveness/productivity.*
- *Lack of mutual understanding between the actors that make up the national/regional system in Peru.*
- *Interest at national and regional level in working to strengthen the governance of R&D&I.*
- *High level of informality as the main public policy challenge in Peru.*
- *Significant effect of the location of business activity (cities) in few areas.*
- *Problems for business innovation linked to:*
  - *Lack of information on supply in R&D*
  - *Lack of financial capacity*
  - *Lack of qualified staff*
  - *Lack of qualified suppliers*
  - *Absence of public support frameworks*
- *Lack of development of ICT at all levels*
- *Significant fluctuations in political cycles that make it difficult to maintain structural policies*

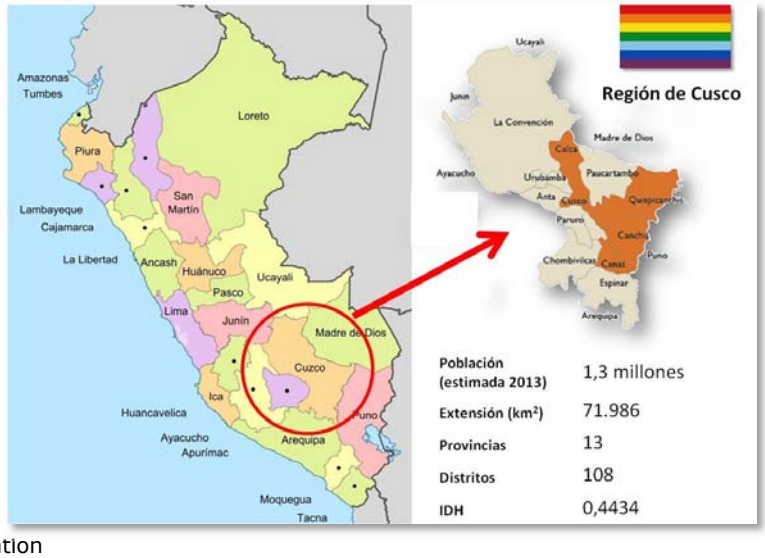
Source: compilation based on the study 'Regional Innovation Systems in Peru: Policy Lessons' (Nº 2012CE160AT147)

As for Puno and Cusco, the two regions share a border and, despite their different natural and territorial assets, also share many challenges in terms of innovation. The two chains selected (coffee and camelid fabrics) are also major sectors with the potential to act as a driving force (especially in exports) in both regional economies.

5.2. SITUATION IN THE REGION OF CUSCO

The region of Cusco has an area of 71,987 km^2 (5.6% of the territory of Peru). This region is located in the south-east of the country and is divided politically into three provinces and one hundred and eight districts.

Cusco in Peru as a whole: socioeconomic reference data



Source: compilation

The preliminary study[13] funded by the Commission shows a very diverse region with three different zones:

a) The Andean high zone, which represents 21% of the territory and whose main economy is based on livestock and agricultural activities. This zone is characterized by a huge concentration of poverty and exclusion linked to the predominantly rural landscape.

b) The inter-Andean valley, representing 23% of the territory. This is the most economically dynamic zone, linked to tourism and the agricultural, industrial and service sectors.

c) The Amazonian valley, which makes up 56% of the region, is home to 18% of the population and has abundant, but under-developed, natural, energy and tourist resources.

In 2011, the population was 1,283,540 inhabitants. The highest concentration of the population was found in the province of Cusco (32.7%).

In economic terms, based on data from the INEI [National Institute of Statistics and Information] for 2011, Cusco contributed 3% of the GDP of Peru, the 8th highest regional percentage in the country. The main economic activity is mining and hydrocarbons, which represents 22.4% of the region's GDP, followed by construction (14.5%), trade (11%), agriculture, hunting and forestry (10.7%) and manufacturing (8.6%). Cusco is also the top tourist destination in Peru, its main icon being the citadel of Machu Picchu.

In the labor market, also according to INEI data, the majority of the labor force employed in the region is found in the agriculture and livestock sector (53.9%), also characterized by a low technical production level and high poverty rates. Trade and other services together make up 27.3% of the employed labor force. In general, all activities have high levels of informality and low levels of productivity.

Main characteristics of the REGION OF CUSCO

- Business structure of micro-enterprises cut off from innovation
- Strategic sectors in mining-hydrocarbons, agriculture and livestock, tourism, and manufacturing (textiles)
- General fragmentation of the regional innovation system
- Low level of collaboration in the system, lack of information and mutual understanding, few resources for R&D, lack of staff training
- Pattern of specialization in low-added-value products and niches ('commodities') and low productivity
- Lack of a Science, Technology and Innovation Plan (STIP)

13 Grande et al (2015)

Turning to the regional system, the Regional Economic Development Department is the Regional Government (GORE) body responsible for economic development. Within this body, the Sub-Department for the Promotion of Competitiveness is responsible for competitiveness policy.

CORCYTEC represents the decentralization of the National Council of Science and Technology (CONCYTEC). Its responsibilities are driving and coordinating science, technology and innovation activities, plans and projects in the region of Cusco, in line with national plans drawn up by CONCYTEC. The Regional Council of Science and Technology (CORCYTEC) is made up of 16 actors from GORE, business, R&D and social partners:

Representation on the Regional Council of Science and Technology (CORCYTEC) of the Region of Cusco

1. *The Regional Economic Development Manager of the Regional Government of Cusco, who chairs the Council.*
2. *The Regional Social Development Manager of the Regional Government of Cusco.*
3. *The Regional Production Manager (DIREPRO).*
4. *The Regional Education Manager of Cusco.*
5. *The International Technical Cooperation Manager of the Regional Government of Cusco.*
6. *The Manager of the National Institute of Agricultural Innovation (INIA).*
7. *The Vice-Chancellor for Research at UNSAAC [National University of Saint Anthony the Abbot in Cusco].*
8. *The Head of Research at the Andean University of Cusco.*
9. *The Head of the Cusco Chamber of Commerce.*
10. *The Head of the Túpac Amaru Higher Technological Institute.*
11. *The Head of the National Industrial Training Service (SENATI).*
12. *The Regional Association of Innovators of Cusco (ARIC).*
13. *The Secretary General of Caritas in Cusco.*
14. *The Global University of Cusco.*
15. *The Program of Adaptation to Climate Change (PACC).*
16. *The District Municipality of Wanchaq.*

Source: compilation based on the study 'Regional Innovation Systems in Peru: Policy Lessons' (Nº 2012CE160AT147)

The preliminary study carried out in 2013[14] shows the limitations to bear in mind, including: 1) the relative fragmentation of CORCYTEC; 2) the lack of a regional, strategic Science, Technology and Innovation Plan; and 3) the lack of interest in ICT among businesses.

Finally, concerning the preliminary strategic reflection exercises in the region, we must highlight the Competitiveness Development Plan drawn up in 2010 by the Regional Government with economic and social actors. This established technology and innovation as key factors of competitiveness. However, the aforementioned preliminary study shows that the progress made is not currently systematized, identifying a lack of information and finding many activities planned without budgetary support.

14 Granda (2015)

The fieldwork carried out to collect basic information for the regional socioeconomic assessment, in particular for the value chains of coffee and camelid fabrics, demonstrates awareness on the part of the actors of the need to overcome:

- The disconnect that exists between the different components of the innovation system and, in general, the different segments of the production chains (not just for coffee and camelids).
- The lack of development of the first segments of the value chain, with little information for decision-making and a low critical mass not because of numbers, but because of a lack of organization and coordination.
- The low level of innovation as a result of some entrepreneurs not having a suitable business culture or understanding of the need for improvement.
- The high number of informal producers with no real investment capacity and a highly individualistic culture in the business network (in coffee and camelids and the entire regional business structure).
- The antiquated and weakened structures for collaboration (trade unions, cooperatives and associations) that are far from the dynamic structures of intermediary organizations for the competitiveness and improvement of their members.
- A governmental structure with certain inefficiencies, especially regarding adequately reaching businesses and producers to improve the impact of the support mechanisms currently available to them.

Despite these major barriers, there are a whole range of positive aspects that could help in the process of competitive improvement of the value chains in question, but also in transferring these results to other chains under a system of 'regional strategies':

- Existence of a base of numerous producers with potential (although not yet real) capacity to reach a significant critical mass to respond to the demand of international markets.
- Regional image known worldwide, linked mainly to its heritage assets and tourism.
- Awareness of a leading group of producers and the Government of the crucial importance of innovation and differentiation on the basis of added value as a unique path to regional development.
- New phase of the Regional Government, with apparently committed and joined-up technicians and managers with some capacity to invest to improve competitiveness.

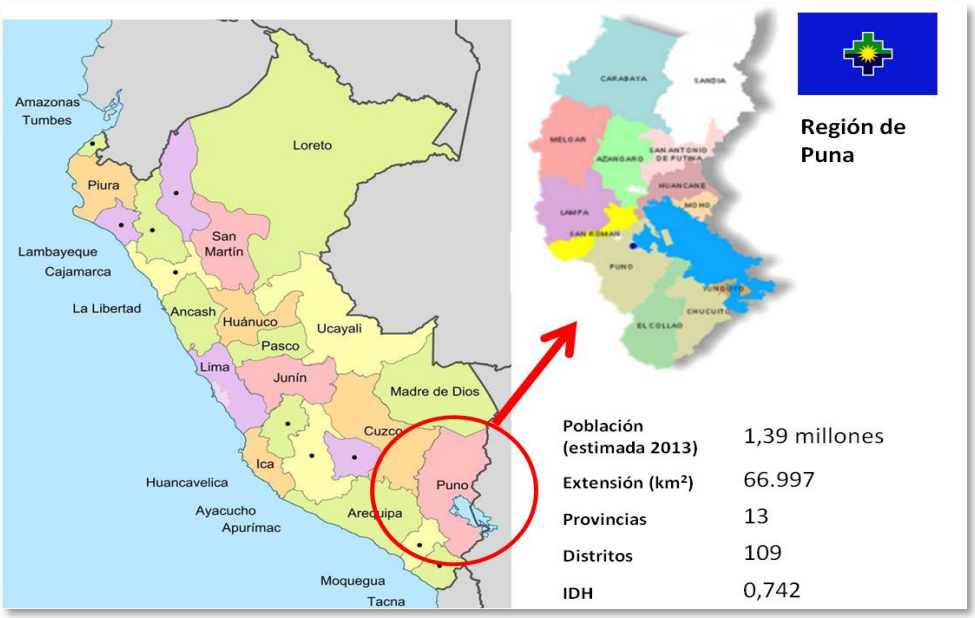
- Commitments and pilot projects, which this project in part summarizes, in line with possibilities for support from the Government of Peru (Ministry of Production and Ministry of Economy and Finance).

As a result of this project, there is an opportunity to respond to the particular weaknesses of the region. The disconnect, low level of innovation and lack of agreed coordinated strategic guidelines are the biggest handicaps to improving innovation in Cusco.

5.3. SITUATION IN THE REGION OF PUNO

The region of Puno has an area of 66,997 km2 (5.2% of Peru). Located on the Collao Plateau (the highest in South America), it is bordered to the north by Madre de Dios; to the east by Bolivia; to the south by Tacna; and to the west by Moquegua, Arequipa and Cuzco.

Visual of the region of Cusco in Peru as a whole: socioeconomic reference data



Source: compilation

The region of Puno has a population estimated in 2013 at 1,389,684 inhabitants (4.5% of Peru), spread over 13 provinces and 109 districts. The most populated provinces are San Román (17.27% of the population of the region) and Puno (16.48%).

In economic terms, the region of Puno has a Gross Domestic Product (GDP) of over 3,750 million nuevos soles (INEI data from 2009). By sub-sector, most of the region's GDP is concentrated in the primary sector, linked to mining and the extractive sector, and agriculture and livestock.

The region of Puno is the biggest national producer of tin, alpaca fiber, potato, sheep meat, wool and quinoa. In the vast majority of these segments, Puno's regional exports represent more than 40% of the total production of Peru.

The labor force in Puno is made up of approximately 800,000 people, with an unemployment rate of 1.9%[15], and an inactive population of close to 163,000 people (INEI data for 2009).

By sub-sector, of the total labor force, almost half (49.5%) are employed in the primary sector (with a sizable presence in the extractive sector), 14.4% in trade, 8.1% in manufacturing, 6.7% in transport and logistics, 3% in construction, and 18.3% in other service sector activities.

As reflected in the document 'Regional Development Plan of Puno up to 2021',[16], although the service sector seems to be performing well, the primary (agricultural and agri-food industries) and secondary (manufacturing industry) sectors are not. In any case, productivity is generally much lower than the average for Peru.

Main characteristics of the REGION OF PUNO

- Business structure of micro-enterprises cut off from innovation
- Strategic sectors: mainly agriculture and livestock and mining (primary), although this is in decline.
- General disconnect in the regional innovation system: lack of collaboration and mutual understanding, little effort on R&D&I
- Pattern of specialization in low-added-value products for export
- Low level of productivity of the most strategic activities
- Lack of a specific ICT Plan

Turning to the regional system, one of the responsibilities of the Regional Government of Puno, through the Regional Economic Development Department, is promoting the development of science, technology and innovation. To this end, it aims to improve the environment of innovation and promote alliances and agreements between the public and private sectors[17].

With the same role as in Cusco, CORCYTEC is made up of 19 actors from GORE, business, R&D and social partners:

15 INEI data for 2009

16 Regional Development Plan of Puno up to 2021 - Regional Government of Puno

17 Regional Ordinance Nº007-2010 of 31 July, 2009 - Regional Government of Puno

Representation on the Regional Council of Science and Technology (CORCYTEC) of the Region of Puno

1. *Regional Government of Puno, which chairs the Council.*
2. *Regional Economic Development Department*
3. *Regional Social Development Department*
4. *Regional Production Department (Mi Empresa) (PRODUCE)*
5. *Chamber of Commerce and Production of Puno*
6. *Chamber of Commerce and Production of Juliaca*
7. *National University of the Altiplano Puno (UNA Puno)*
8. *Néstor Cáceres Velásquez Andean University (UANCV)*
9. *Peruvian Union University (UPU)*
10. *Acora Public Higher Technological Institute (Chairman of the IST, Puno region)*
11. *National Industrial Training Service (SENATI Puno)*
12. *National Industrial Training Service (SENATI Juliaca)*
13. *Provincial Municipality of Puno*
14. *National Institute for the Protection of Competition and Intellectual Property (INDECOPI)*
15. *National Institute for Natural Resources (INRENA)*
16. *National Institute of Statistics and Information (INEI)*
17. *Agricultural Experiment Station (IIpa INIA Puno)*
18. *Research, Education and Development Centers (CIED Puno)*
19. *Round Table for Combating Poverty (MCLCP Puno)*
20. *Association of Professional Organizations of Puno*

Source: compilation based on Regional Ordinance Nº007-2010 - Regional Government of Puno

Turning to the preliminary strategic reflection exercises, we must highlight the 'Regional Development Plan of Puno up to 2021' drawn up by the GORE in collaboration with actors from the regional triple helix18/

This Development Plan, although not specific to science, technology and innovation, gives these aspects an important role as factors of competitiveness. Its key point is the need to solve the problem of low productivity, the low added value of products, the lack of an entrepreneurial culture, the lack of high-value exports and the general lack of interest in science, technology and innovation. This requires regional leadership, translated into political action and action by the CORCYTEC.

Other aspects include the pillars of 'economic dynamism and competitiveness' and 'political, institutional and organizational *dynamism*' both directly related to the operation and support of the regional system of R&D&I.

The fieldwork carried out to collect basic information for the regional socioeconomic assessment of Puno demonstrates an apparent similarity as regards the foundations of competitiveness to that found in Cusco (for example, on the issue of niche areas, human and technical resources, geographical proximity, shared/dependent communication hubs, etc. However, assets (natural, geographical, etc). and the

18 125 members participated in the Technical Committee which fed back and updated the Plan in 2012

starting point of each value chain (concerning commitments, business culture, propensity for cooperation, etc.) are specific to each region.

In any case, the various meetings held with actors in the triple helix revealed, in the case of the value chains of coffee and camelids, the need to work on:

- The disconnect between different segments in the production chains.
- The total isolation of knowledge-generating structures (universities and centers) from the most basic needs of the production system (including the supply of suitable professionals adapted to the profiles of producers).
- A business network with a large number of informal producers, with no real capacity for investment, and a culture of partnership greatly weakened by failed experiences over time.
- Under-developed first segments of the value chains (producers) who, in many cases, live below the poverty line, making it impossible to professionalize the activity and leap forward towards added value.
- A governmental structure with inefficiencies in making an impact through the support mechanisms currently available, especially with regard to reaching businesses and producers adequately.
- A lack of real awareness, in the public and private sectors, of the crucial importance of innovation and differentiation on the basis of added value.
- Extreme weather conditions depending on the time of year, along with difficult terrain (which, for example, makes it difficult to access various logistics and marketing channels)

Despite these significant barriers, as in Cusco, there are positive aspects that could serve as a basis for a process of competitive improvement under a system of 'regional strategy':

- Existence of a base of numerous producers with potential (although not yet real) capacity to reach a significant critical mass to respond to the demand of international markets (as regards coffee and camelid fibers).
- Opportunity offered by the geographical location (Cusco-Puno, Arequipa-Puno, Tacna-Puno and the border with Bolivia) to develop logistics and the capacity to export its products.
- Set of commitments and pilot schemes which, although on a smaller scale than in Cusco, seem to be set in the framework of the project, in line with the possibility of support from the Government of Peru.

In general terms, the level of performance is below that found in Cusco, both in public and private initiatives, in the areas targeted by the project, although the GORE is more focused on urgent issues than the structure of the system itself.

In any case, thanks to the possibilities for leadership both of some producers and segments of the research sector and the regional government itself (production and

agriculture departments), and taking advantage of the proposed actions, a change can be brought about in the sense of competitive development of the regional economy.

5.4. CUSCO AND PUNO: A COMPARATIVE ANALYSIS

Cusco and Puno (because of their geographical, heritage and socio-cultural nature) share many elements of competitiveness. Furthermore, they share not only the chains of coffee and camelid fabrics (which are equally important in both regions), but also other regional value chains.

These elements of competitiveness are basic intangibles that unlock the potential of each region, such as an entrepreneurial and innovative culture, the capacity for cooperation between actors and links in the production system, the generation of knowledge, and administration, etc.

Furthermore, the synergies found between the value chains of coffee and camelids in both regions would allow for an interesting interregional focus, especially in the border area with Bolivia.[19]

Prior to the analysis of the priority value chains, a joint SWOT analysis was carried out for Cusco and Puno with the specific features of each region.

19 A similar characterization was in fact observed in the project EULCA-EUREGIO (CBRIS) where, although the study of the value chains of aquaculture was limited to the regions of San Martin and Loreto in Peru, and the Amazon State in Brazil, the fieldwork reflected the extension of the chain to other neighboring regions in Peru (such as Ucayali and Madre de Dios) and even third countries (such as Colombia).

SWOT analysis of Cusco and Puno

STRENGTHS (S)	OPPORTUNITIES (O)
➢ Value chains with very high export potential and premium market segments (fabrics and coffee) ➢ Other key activities (such as tourism) that may strengthen export chains on the basis of heritage and natural resources. ➢ A group of leaders that, although small, can initiate demonstrative projects for competitiveness. ➢ Good geographical location (on the border) as a cornerstone of development	➢ International markets in various regional value chains whose segments (premium) are growing constantly (fabrics, coffee, tourism). ➢ Recently elected regional leaders and universities with an interest in leading competitive processes ➢ Critical mass in various value chains, although these are still not developed
WEAKNESSES (W)	**THREATS (T)**
➢ Low level of training and capacity-building in the private sector to carry out successful competitiveness actions ➢ Lack of experience in formulating the necessary policies (innovation, RTD, clusters, etc.). ➢ Lack of modernization in the regional economic structure ➢ Individualism of producers, low level of social capital and lack of professionalization ➢ Weak intermediate structures to support competitiveness	➢ Weather conditions and diseases that are attacking the production base of various value chains. ➢ Budget reductions in local and regional government as a result of the reduction in export prices (tariffs) ➢ High level of informality in various economic activities

6. ESPECIALIZACIÓN INTELIGENTE PARA CUSCO Y PUNO

6.1. ¿POR QUE UN ENFOQUE DE ESPECIALIZACION INTELIGENTE?

Recently, the issue of '**smart specialization**'[20] has emerged as a response to the challenges posed by **regional competitiveness** in a **global context**. The idea behind this is that all regions should find certain market niches where they can gain a competitive and/or comparative advantage, and focus their efforts (at least in terms of promotion) on encouraging their development and consolidation, in a way that has a knock-on effect on the rest of the economy.

Furthermore, each region should not only **promote 'specialization'** in these priority niches, but at the same time **seek means of 'diversification'** through innovation to ensure development that is sustainable over time.

The smart specialization model based on the search for this '*specialized diversification*' enables each region to gear its strategy appropriately, according to its socioeconomic characteristics and the combination of dominant sectors in the economic structure.

This approach is perfectly adapted to the specific features and major challenges of developing economies such as Peru. More specifically, it involves **the strategic search for new niches of product diversification based on added value** and not 'commodities' (but **always based on the different assets and resources** (including the production of 'commodities') **in that region** compared to other world economies.

For the regions in the study, Cusco and Puno, it is crucial in this regard to find the assets (or value chains) on which this specialized diversification can be built, and to prioritize efforts to create a development dynamic in the region as a whole.

To this end, bearing in mind the phases of the smart specialization process considered for a particular region, the value chains of coffee and camelid fabrics have been chosen to build this process. This is because, by unlocking their potential and meeting their challenges, we can:

- Move forward as regards specialization (for example, through greater modernization, value proposition of current products, diversification, etc.).
- Discover niches of diversification, which may be:
  - In the same activity (for example, towards more sophisticated product and/or market segments in which the region does not currently operate)
  - In other businesses (for example, strengthening tourism, health and well-being, new technologies, etc.).

20 For a more detailed explanation of this concept and its implications, you can consult the WPs [Working Papers] written by INFYDE that are cited in the bibliography and Platform S3 developed by the European Commission (http://s3platform.jrc.ec.europa.eu/)

All of these approaches involve **prioritizing the actions to be taken** by various actors. This is in a context of limited resources and competitive international pressures, where the smart specialization model **enables the setting of the most interesting potential results** and **the most efficient (or smart) way of achieving them.**

6.2. CLUSTER APPROACH AS AN INSTRUMENT FOR REGIONAL SMART SPECIALIZATION

As an economic phenomenon, clusters not only enable us to explain and understand the factors determining competitiveness from a regional perspective, but also to act on them. To multiply the benefits, formal structures, known as cluster initiatives, can also be created to enable systematization of the positive effects of relationships between the actors involved.

WHAT IS A CLUSTER?

A geographical concentration of interconnected businesses, specialist suppliers, service providers, businesses in closely related industries and similar bodies (for example, universities, R&D centers, trade associations) in fields in which they compete, but also cooperate.

WHAT IS A CLUSTER INITIATIVE?

Cluster initiatives are organized efforts to promote and accelerate the growth and consolidation of clusters linked to a region, involving in the process businesses in the sector and other related industries, government and the research community.

In recent decades, clusters have become elements that explain regional development and policy instruments that seek to promote this development. Not surprisingly, clusters are playing an important role in the framework of the new smart specialization model and its strategies.

Why can clusters play a key role in smart specialization?

1. Because of their inherent capacity to support cooperation between various actors of innovation (triple/quadruple helix)
2. Because of their tremendous potential to generate diversification processes based on existing specializations.
3. Because of their unique capacity to encourage inter-sectoral cooperation and facilitate technological hybridization.
4. Because of their potential as a channel to facilitate internationalization.
5. Because of their scope in the business network and access to SMEs

It is for this reason that the choice has been made to try to generate this type of mechanism in the value chains of coffee and camelid fabrics in Cusco and Puno. The idea is that, based on this process, progress can be made towards an outline of a Smart Specialization Strategy for these regions.

6.3. A SMART SPECIALIZATION STRATEGY FOR CUSCO AND PUNO

Based on the assessment carried out, **a number of competitive gaps have been identified** which, in general, rather than affecting only the value chains of coffee and camelid fabrics, appear to be structural to the economic system as a whole in both regions of Peru. This is an extremely important factor in scaling up the analysis of these two chains to the entire region and presenting an initial outline of **a strategic reflection on smart specialization for Cusco and Puno.**

Therefore, the exercise carried out consisted of an attempt to relate each challenge/competitive gap identified in the initial assessment with the area of smart specialization (specialization, diversification and global context) in which it could have an impact. This took place alongside an initial non-exhaustive set of possible mechanisms to implement in the regional innovation system (by the Government itself, universities and/or research centers, infrastructure designed to facilitate competitiveness or businesses and producers themselves).

Competitive gaps refer mostly to the lack of connection between actors; the weakening of structures for collaboration; barriers and bottlenecks between segments of the value chains; the low level of modernization and staff training and capacity-building; a general lack of an entrepreneurial and innovative culture; a general lack of transparency and information for decision-making; and poverty among producers of the first stages of the chain (input providers).

The table below includes the assessment carried out of competitive gaps, aspects of the impact on elements of smart specialization and a (non-exhaustive) list of initial mechanisms to consider:

Table of challenges for the smart specialization model in Cusco and Puno: possible action mechanisms for policies

COMPETITIVE GAPS	Elements of SMART SPECIALIZATION (degree of relevance for the element)			Some possible MECHANISMS
	SPECIALIZATION	DIVERSIFICATION	GLOBAL CONTEXT	
LACK OF CONNECTION between knowledge generators and training providers and the private sector	**HIGH**	**MEDIUM**	**LOW**	• Technology transfer • Mobility of staff/researchers • Technological entrepreneurship
WEAKENING OF COOPERATIVE STRUCTURES due to inefficient management	**HIGH**	**HIGH**	**MEDIUM**	• Training and capacity-building activities • Development of cluster structures • Internships and exchange of experiences
BOTTLENECKS between different segments of the value chain	**VERY HIGH**	**LOW**	**HIGH**	• Collaborative round tables • Development of cluster structures
Very low level of **MODERNIZATION** with an impact on productivity	**HIGH**	**LOW**	**HIGH**	• Technology transfer • Technical training activities • Specialist technical assistance
LOW LEVEL OF TRAINING AND CAPACITY-BUILDING of technicians and managers in production plants	**HIGH**	**MEDIUM**	**LOW**	• Training activities (in general) • Mobility of researchers • Technical assistance
Lack of an **ENTREPRENEURIAL AND INNOVATIVE CULTURE** and interest in differentiation and added value	**MEDIUM**	**HIGH**	**MEDIUM**	• Awareness actions • Training activities in management and innovation
Little or no **INFORMATION AND TRANSPARENCY** in the system	**MEDIUM**	**HIGH**	**LOW**	• Studies (technological, economic, market, etc.). • Communication activities
Limited **LEADERSHIP** (political and business) to transform the system	**MEDIUM**	**MEDIUM**	**HIGH**	• Joint round tables • Capacity-building activities in management
Critical situation (poverty and development) of **PRODUCERS**	**HIGH**	**MEDIUM**	**LOW**	• Marketing platforms • Cooperatives of producers

As can be seen, not all the gaps have the same degree of impact on the three aspects of smart specialization, and they must therefore be treated differently according to the purpose (element of smart specialization) for which they are intended. A similar discourse applies when referring to the type of instrument which would be used to respond to the gap in question.

Although this project did not attempt to define a smart specialization strategy, it did list elements in the assessment to enable **an initial basis to be drawn up to guide**

the implementation of concrete actions in line with the basic strategic approaches set out here.

Given the three objectives that could help to shape smart specialization in both Cusco and Puno relating to international positions and the need for product diversification and simultaneous specialization with an impact on quality and productivity, we can establish five main areas of work to focus on in the future. These areas are directly linked to the gaps previously identified in the assessment.

- Instruments that facilitate **connectivity and cooperation,** with mechanisms to generate critical mass, put actors in contact with each other and move forward towards the establishment of channels that unlock the capacity to discover new niches of activity by combining experiences and opportunities between different value chains (for example, the potential that exists between coffee or camelid fabrics and tourism in both Puno and Cusco).
- Activities that provide **training and capacity-building** aimed, on one hand, at facilitating the application of technologies and the technical knowledge acquired and, on the other hand, improving the skills and abilities of workers and businesses in the sector (professionalization of activities, reduction in the level of informality, etc.).
- Mechanisms to **modernize and increase the productivity** of various activities in order to create higher quality products (and services) (at the level of international trade standards), improve profit margins and increase supply to quantities capable of meeting the demand of international markets.
- Actions to facilitate the **generation and communication of key information** for each value chain, which may be focused on technical aspects (for example, technology foresight) or market aspects (studies of international demand). But in any case, there must be resources available to the various actors in order to provide transparency between segments of the chain (and in the economic system itself) and strengthen confidence and social capital, critical elements for participatory governance.
- Actions to spread **entrepreneurial culture** and raise awareness on the importance of innovation as a basic requirement without which the other levers will not succeed in unlocking the potential of both regions to meet the objectives of smart specialization. In particular, professionalize the activity using, among other instruments, '***entrepreneurial envy***'[21] through success stories of business leaders.

21 'Entrepreneurial envy' is a term coined in the framework of smart specialization and entrepreneurial discovery, which refers to the inspirational power of demonstrative business projects that manage to succeed, in an unfavorable environment, by applying the hypotheses of innovation, value differentiation and continuous improvement to obtain a business return. These models for businesses and entrepreneurs inspire others who do not 'believe' in these hypotheses, but do believe in the greater progress of these leaders' businesses.

On this point, the following question consists of analyzing how the system (understood as all the regional actors in the value chains), specifically governments, can move forward in the implementation of these instruments. It is not an easy task since, as already noted, it involves the implementation of an entire regional strategy that would take up a significant number of resources and, above all, time, to put in place.

However, there are mechanisms which, in the short term, may cover a large part, if not all, of these recommendations in such a way as to build the foundations of a smart specialization strategy and its (participatory) governance.

A large part of these mechanisms may be covered directly by a cluster initiative. At the same time, more indirectly and as a result of the collaborative platform between actors in the regional triple helix, it could contribute to the other instruments and actions identified.

Given the 'sectoral' emphasis of the cluster instrument (which is based on logical collaboration with the value chain), the short to medium-term implementation of this approach in the regions of Cusco and Puno requires delving into the assessment of the value chains of coffee and camelid fabrics, which are the two activities (of specialization) chosen.

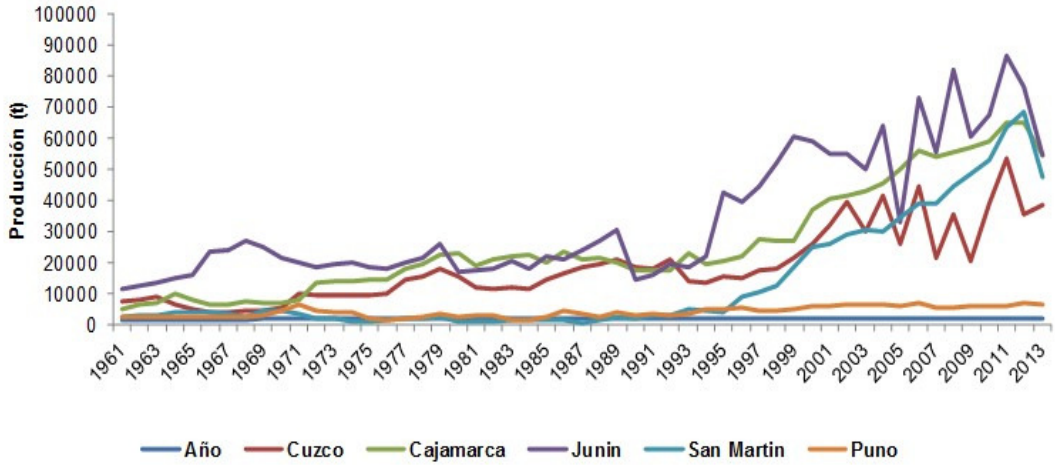
6.4. PILOTS SCHEMES FOR SMART SPECIALIZATION IN PUNO AND CUSCO : PRIORITIES IN COFFEE AND CAMELIDS

Work during the visits to Cusco and Puno focused on characterizing and studying the chains of coffee and camelid fabrics in order to gain a better understanding of how these can contribute in the medium term to the smart specialization of these regions. This was completed with an analysis of secondary sources (preliminary studies and plans).

Coffee value chain

The coffee industry is an important activity in Peru, especially in the regions of Cusco and Puno, where in 2013 it was already considered as a potential cluster[22].

Coffee production in Peru between 1961 and 2013



Source: Compilation based on data from the Ministry of Agriculture and Irrigation, SIEA (Integrated System of Agricultural Statistics)

Given the weather conditions and terrain, and although coffee production is more characteristic of Cusco than Puno, the sector can be considered a driving force for smart specialization in both regions.

Unlike Puno, between 1961 and 2013, Cusco was one of the biggest producers in Peru. Even with significant rises and falls over the past 13 years, it has consolidated its position as the region with the third largest production. The Ministry of Agriculture and Irrigation shows comparative data in which Puno has lower production and a smaller harvested area, but tends to have a higher farm price. According to this data, the kg/ha performance varies wildly over time in both regions.

22 'Mapping of clusters in Peru', study by the National Council of Competitiveness

Trends in the farm price and performance of coffee in Cusco and Puno

Year	Farm price (SI/kg)		Performance (kg/ha)	
	Cusco	Puno	Cusco	Puno
2000	3.10	3.83	540	785
2001	2.16	2.02	627	744
2002	1.63	2.01	716	782
2003	2.27	2.08	543	787
2004	2.52	2.39	740	794
2005	4.80	3.07	467	733
2006	3.72	4.08	817	873
2007	4.41	5.79	392	673
2008	4.83	5.80	623	663
2009	4.83	6.70	349	692
2010	6.17	6.09	661	657
2011	8.89	8.41	894	663
2012	6.48	9.75	610	722
2013	4.23	7.49	684	670

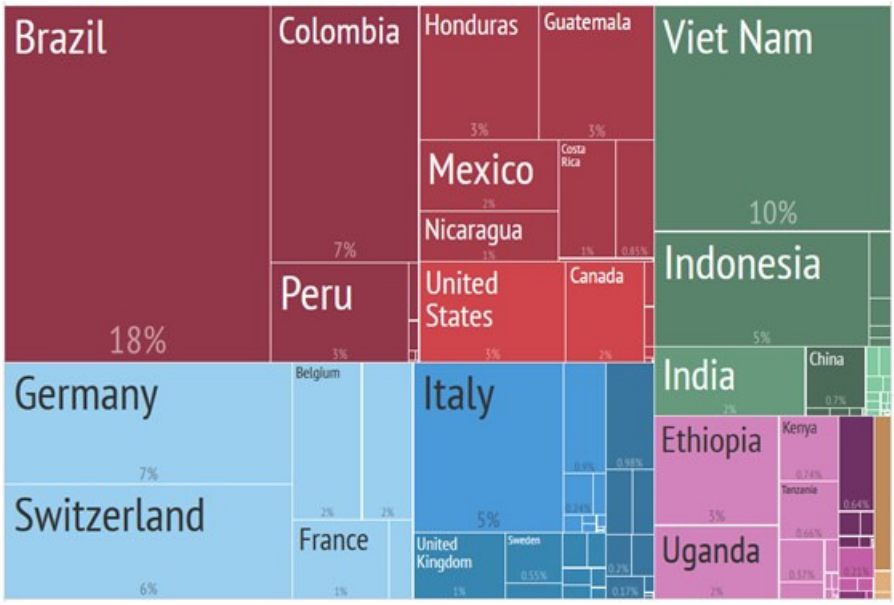
Source: Compilation based on data from the Ministry of Agriculture and Irrigation, Integrated System of Agricultural Statistics

Since coffee is one of the main export products in Peru, it is necessary to analyze the structure of its trade[23]. The international market is dominated by Latin American countries, with Brazil (18% of global exports) and Colombia (7%) topping the list. In Asia, the main exporter is Vietnam (10%). We must also highlight European countries such as Germany (7%), Switzerland (6%) and Italy (5%), although in these cases we are talking about a processed product for final consumption, rather than the primary source products of Latin American countries.

Peru is not one of the main exporters of coffee by volume (in 2013 it accounted for only 3% of global production), but it has a comparative advantage in terms of product characteristics.

23 We have used the Harvard-MIT 'Atlas of Economic Prosperity' study on trade flows by product and countries of origin and destination compiled by the United Nations ('UN Comtrade database').

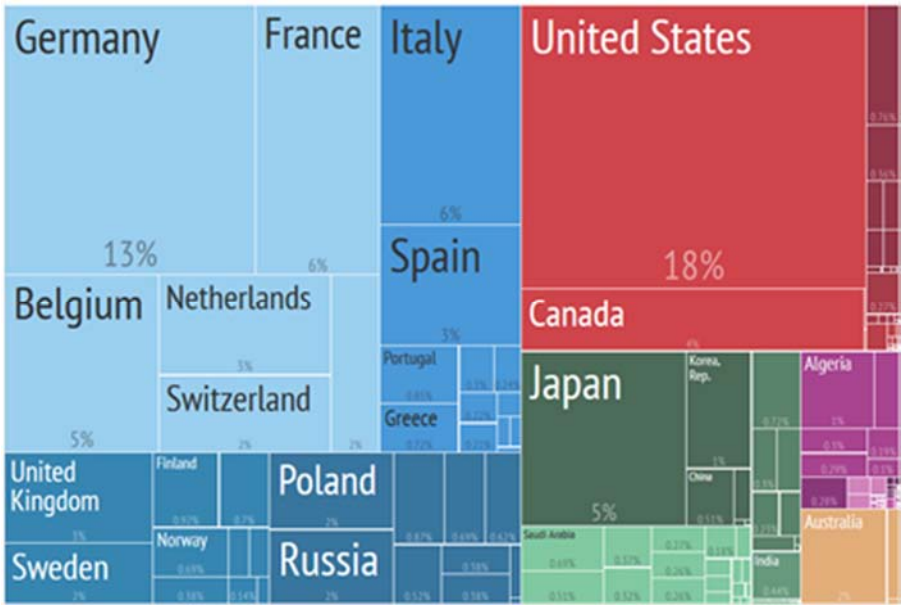
Main exporters of coffee in 2013 (%total)



Source: Harvard-MIT: Atlas of Economic Prosperity

Among importers, Europe accounts for more than 60% of purchases, with Germany (13%), France and Italy (6% each) topping the list. We must also highlight the United States (the biggest importer with 18%) and Japan (5%).

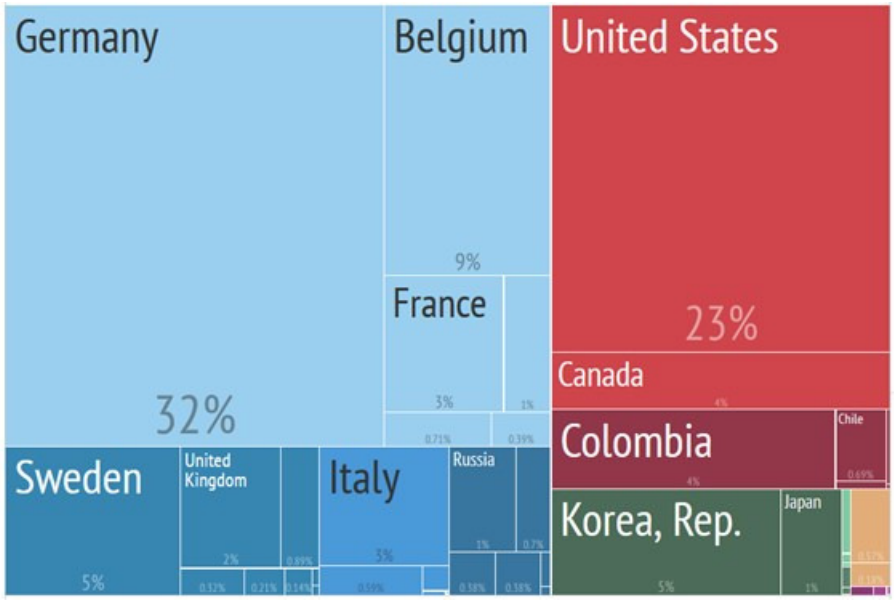
Main importers of coffee in 2013(%total)



Source: Harvard-MIT: Atlas of Economic Prosperity

Most of the countries that purchase coffee from Peru are in Europe, with Germany the largest buyer (32% of all purchases), followed by Belgium (9%) and Sweden (5%). Outside Europe, the main importers are the United States (the second largest buyer with 23%), South Korea (5%) and Colombia (4%).

Main countries of destination of coffee from Peru (2013)



Source: Harvard-MIT: Atlas of Economic Prosperity

Turning now to the structure of the coffee value chain in Peru, and more specifically the value chains of coffee in Cusco and Puno, businesses are focused on coffee production (producers that organize themselves around coffee cooperatives), with some others that also include other parts of the chain for processing, marketing and distribution.

The **value chain forms a complete cluster** which is fairly well developed, including all segments such as artisanal products, 1st and 2nd-degree cooperatives, processing companies, brokers for export and specialist restaurants in the local market[24].

The aforementioned study by the National Council of Competitiveness did not specify in detail the number of businesses[25], export volume or total turnover of the sector in

24 It is, however, true that all the actors interviewed came to the conclusion that this segment was under developed and that there is not much of a coffee culture in either region, even though they are the main producers of quality-differentiated coffee in Peru.

25 The study noted a total of 11 businesses for Cusco and Puno, with an export value of 54 million dollars, which accounts for almost 50% of the total produced by the sector. This assessment is much lower than the real figure, conditioned by the high rate of informality the effect of coffee cooperatives that bring together the different links and problems accessing reliable statistical and economic information, as noted methodologically in the preliminary study.

Cusco and Puno, although it did show relatively low figures, much lower than those recorded in other areas such as the north and the region of Junín.

According to its figures, total production in the regions of Cusco and Puno accounted for around 13% of total production of the country. However, a differential element, which may contribute to the position of the coffee value chain in Cusco and Puno, is the fact that **Peru is the biggest producer of organic coffee in the world.** In this segment, Cusco and Puno also have **advantages due to the terrain** (height), where **higher-quality coffee** can be produced for sophisticated international markets, with a higher return due to significantly higher prices.

An important factor to bear in mind is the devastating effect of rust in the country (not just in Cusco and Puno), which has affected over 40% of production in Peru.

It should be noted that a significant number of final processors and brokers for export are located in Lima, although they export coffee mostly from the north of the country and not so much from the south (Cusco and Puno). Therefore, a strategy to increase exports could be based on promoting the development of these businesses and export structures in the region, although that would require a set of analyses and actions to facilitate the direct output of coffee from the region to global markets.

Furthermore, at the international level, **the coffee market appears to have become very sensitive to differentiation and added value**, as reflected by the level of growth in market shares of sustainable and specialty coffees. Given the characteristics of the coffee produced in Cusco and Puno, an approach focused more on demand for specialty coffees with greater growth would be interesting[26].

Below is a **representation of the coffee value chain** as a diagram that illustrates the production logic from production of the raw material to the final marketing of the product, passing through intermediaries (brokers, cooperatives), roasters and processors, and auxiliary industries (suppliers of seeds, various fertilizers and chemicals, equipment, etc.). In this regard, it is important to consider marketing and distribution channels[27] (superstores and organized supermarket and hypermarket chains), independent[28] and specialist[29] retailers and other '*convenience*' distributors[30].

In any case, when defining the scope of the cluster, one must also consider a range of public and private actors who influence competitive factors for businesses, such as training providers, generators of knowledge and applied technology, and public bodies (regional governments and their departments, national government, etc.).

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26 Specialty coffees can be classified into different categories according to their quality, which is assessed by qualified experts according to international standards. Coffees from these regions were awarded over 80 points (out of a total of 100). Another feature of specialty coffees is 'fair trade'; in other words, they have a hallmark because of their different production, harvest and processing conditions.

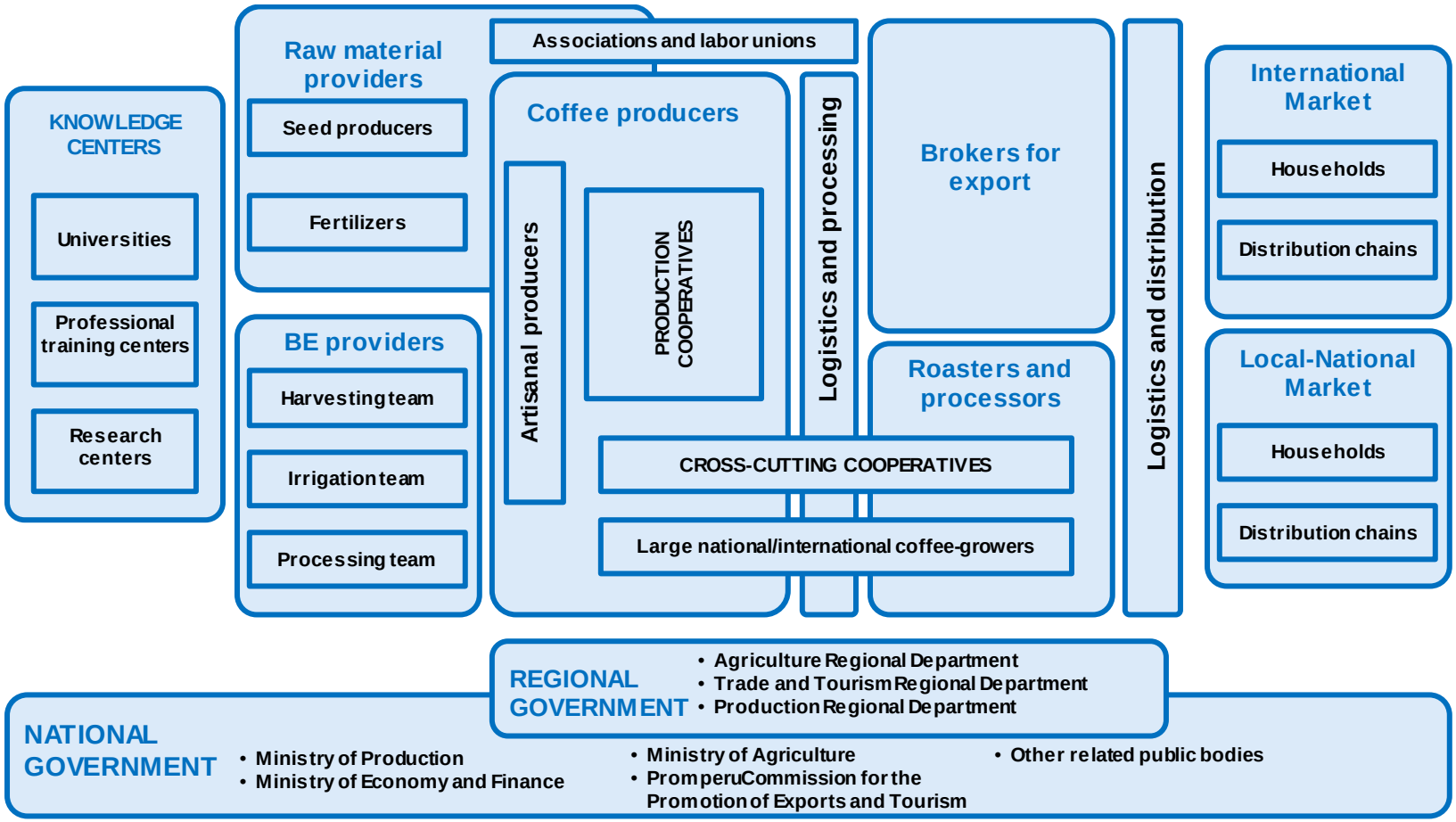
27 The actors interviewed have shown that a distinction must be made between local-national and international marketing channels.

28 Generally non-organized market stalls (shops) with few points of sale.

29 Chains of shops that generally have an international brand (such as, for example, Starbucks)

30 For example, gas stations, establishments in residential areas, shopping centers with very long opening hours.

Diagram of the coffee value chain for Cusco and Puno: complete value chain



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Camelid fabrics value chain

Similarly to that observed with coffee, the activity carried out in the production of camelid textile fibers is strategic for Peru as a whole.

The regions of Puno and Cusco have a **clear competitive advantage in the camelid fabrics value chain** because this product is considered exclusive due to its high valuation in the international textile market. Furthermore, Peru is the largest global producer of these fibers.

In terms of international pricing, the Ministry of External Trade and Tourism (MINCETUR) identifies the vicuña fiber as the most expensive. Super-thin alpaca is cheaper and is used for the same purpose in textiles (knit and woven)[31].

Characteristics of fiber at the international level

Fiber	Fineness (microns)	Top price ((US$/kg)	Use in textiles
Vicuña	10-15	850	Knit and Woven
Alpaca Baby	22.5	14	Woven
Alpaca Suri	26.0	13	Knit and Woven
Super-thin Alpaca	26.5	9	Knit and Woven
Yak	19-21	19	Knit and Woven
Cashmere	15-19	80	Knit and Woven
Kid Mohair	25.0	27	Knit and Woven
Young Mohair	28.0	21	Knit and Woven
Adult Mohair	35.0	11.5	Woven

Source: Ministry of External Trade and Tourism (MINCETUR), 'Market profile and export competitiveness of clothing made of vicuña. Assessment'
http://www.mincetur.gob.pe/comercio/otros/penx/pdfs/Prendas_de_Vestir_de_Vicuna.pdf

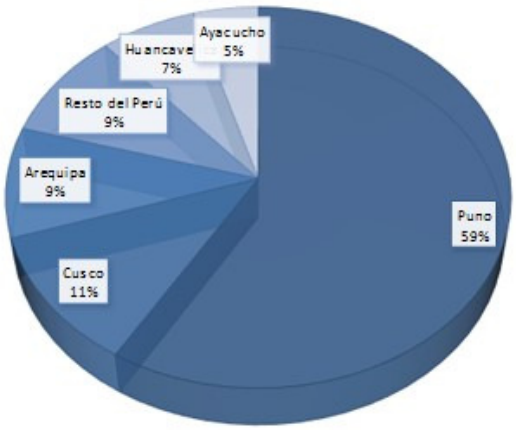
31 Ministry of External Trade and Tourism (MINCETUR), 'Market profile and export competitiveness of clothing made of vicuña. Assessment' http://www.mincetur.gob.pe/comercio/otros/penx/pdfs/Prendas_de_Vestir_de_Vicuna.pdf

As regards the status and distribution of South American camelids, of the total 118,678 vicuñas in Peru, the majority are found in Ayacucho (34%) followed by Puno (15.3%) and Lima (14.9%)[32].

The largest concentration of the 1,006,614 llamas is found in Puno (35.7%) which, alongside Cusco, Huancavelica and Junín, makes up 77.47% of the total[33].

Of the 2,900,900[34] alpacas, Puno clearly tops the list (59%) followed, at a great distance by Cusco in second place (11%)[35]. The remaining 30% is spread[36] in smaller amounts (Arequipa 9%, Huancavelica 7%, Ayacucho 5%)

Production of alpaca fiber in Peru (2010)



Source: Compilation based on UNIDO data

Small producers are responsible for the majority of production of alpaca fiber, but they also have a lower yield (3.5 pounds/year) compared to large businesses that have less involvement in the production of fiber but a higher yield (5 pounds/year)[37]. This lower yield is explained by the lower level of modernization, training and knowledge and, above all, the high level of informality that brings with it a lower level of professionalization of the alpaca fiber sector.

As can be seen in the graph, the international export market for fibers is dominated by China (48% of all exports). Lagging behind are Turkey (7%), Italy and France (4% each).

32 'PRESENT SITUATION OF SOUTH AMERICAN CAMELIDS IN PERU' Technical cooperation project in support of the breeding and use of South American camelids in the Andean region TCP/RLA/2914 INEI, Table 3, p. 17, data source CONACS [National Council for South American Camelids] (2000)

33 Ibid. p.16, and data source CENAGRO [National Agricultural Livestock Census] (1995) and CONACS (2004)

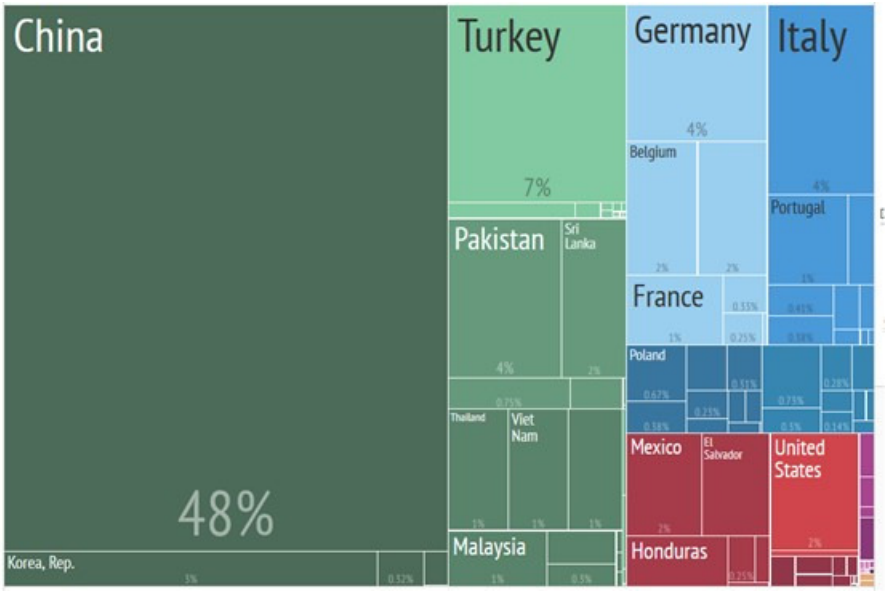
34 'PRESENT SITUATION OF SOUTH AMERICAN CAMELIDS IN PERU' Technical cooperation project in support of the breeding and use of South American camelids in the Andean region TCP/RLA/2914 INEI, Table 1, p. 13, data source CENARGO (1995) and CONACS (2004)

35 Ibid. p. 13

36 Data from UNIDO, 'State of play of the camelid textile sector in Peru (National Assessment)'. TF-AND-TEX-006-V3.01/05/10

37 Calculations by the National Council for South American Camelids in 'Market profile and export competitiveness of clothing made of alpaca. Assessment' www.mincetur.gob.pe/comercio/otros/.../Tejido_Prendas_de_Alpaca.pdf

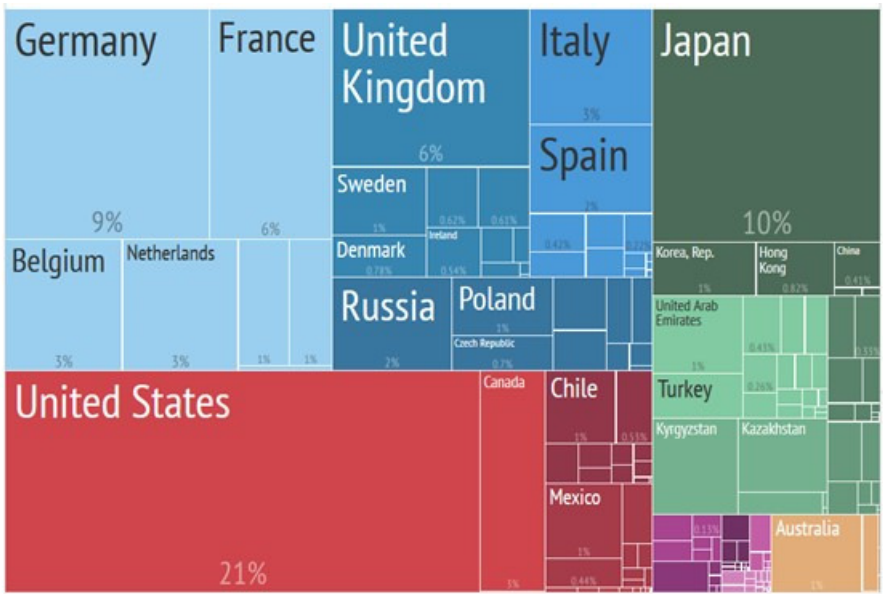
Main exporters of fibers in 2013 (% total)



Source: Harvard-MIT: Atlas of Economic Prosperity

Imports are spread out much more evenly than exports. Europe accounts for almost 30% of all purchases, followed by the Americas (mostly the United States, the largest individual importer with 21%) and, in last place, Asia (Japan and the Middle East).

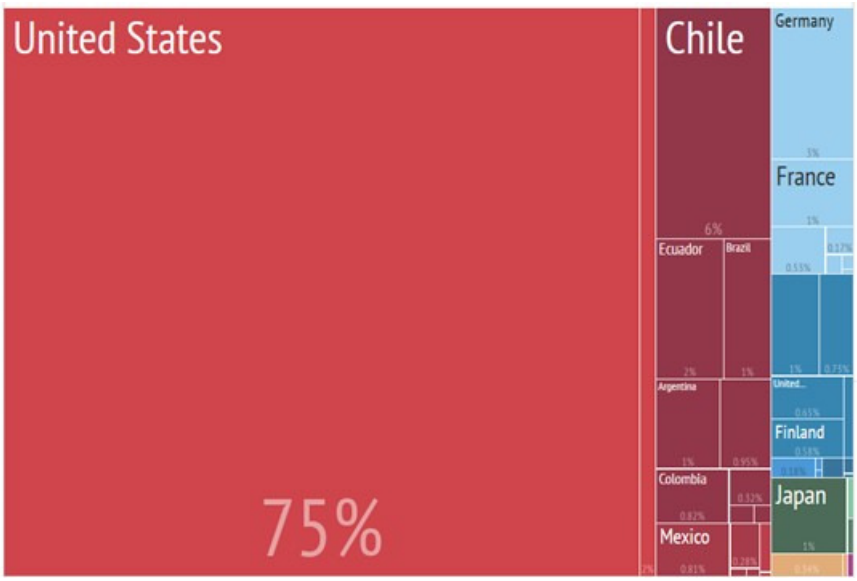
Main importers of fibers in 2013 (% total)



Source: Harvard-MIT: Atlas of economic prosperity

Focusing on the importance of fibers from Peru, one can see that the majority of purchases are made by the United States with 75% of the total. In second place is Chile with 6%.

Main countries of destination of textile fibers from Peru (2013)



Source: Harvard-MIT: Atlas of economic prosperity

If we take into account the market for finished textile products (consumer products), the target markets are different, with the United States in the lead (almost 40% of the total), followed by the European Union (mostly Germany and the United Kingdom).

However, in relation to alpaca fiber in particular, the main customers are China, followed by Germany and Italy, with these 3 countries accounting for approximately 80% of the total[38]. One of the uses of the fiber in these countries is to mix it with other fibers to increase the quality of fabrics.

The camelid fabrics value chain was also considered as a potential cluster in the study '*mapping of clusters in Peru*'. The potential cluster brings together the regions of Cusco and Puno with others in Peru, in particular Arequipa (also with some processors in Lima).

This value chain forms part of the clothing sector, with specific potential as a **premium product** (haute couture linked to the camelid species of vicuña and alpaca, which compete with other types of fiber such as cashmere). There is also another market for tourists in the regions of Cusco and Puno, which implies the need for some differentiation from other areas in Peru. In fact, **the regions of Cusco and Puno are responsible for the majority of production of raw materials**, whereas Arequipa focuses on processing these raw materials (in other words, the value chain is divided on regional lines).

With regard to **business structure**, the **vast majority are micro-enterprises and craft firms**, so the number of producers (often informal and outside the system) is very large.

38 *Natural fibers. Alpaca', http://www.naturalfibres2009.org/es/fibras/alpaca.html

Like that of coffee, the production of the camelid fabrics value chain has **a clear export trend** (according to figures from SUNAT [National Superintendence of Tax Administration], approximately 70% of total production). Peru is in fact the largest exporter of alpaca fiber in the world. There are around a hundred official businesses, with an export volume of approximately 140 million dollars (420 million nuevos soles)[39]. In these figures, the **companies with the largest** export volume are Michell with over 40% and Inca Tops with approximately 20%.

The value chain has been defined according to the cluster concept noted in previous chapters, so it brings together all activities that generate value and have a competitive influence on the activity, from obtaining raw materials (raising sheared livestock) to marketing of the finished product.

In the graph showing the extended value chain included in this chapter, we can see the different segments considered. Firstly, providers of raw materials (farm reproduction of alpacas, vicuñas, etc.). Next comes maintaining the livestock, which includes shearing (generally manual). It involves producers with a very high level of informality and a lack of professionalization.

The raw material generated by producers of this first level of the chain is sold to intermediaries of various kinds (for example, rescuers, minority brokers majority brokers, etc.). These actors then sell the fiber to large textile producers; in many cases, there is little separation between them[40].

Another key part of the value chain is the local phase of spinning the fabric. There are businesses that are highly involved in the different phases of the process up to obtaining the finished product, especially Michell and Inca Tops, which together practically have a monopoly on production. In addition to this process, these businesses are also present in production alongside a number of other, smaller businesses (for example, craft firms that are purchased by third parties and subsequently put together their own product portfolio).

The production part of the chain is completed (often in the international market) by the manufacturer, distributing the finished product in its own shops or to third-party distributors. With regards to marketing channels, we can highlight several: multi-brand stores, large department stores, single-brand[41] channels and brand-name stores[42]

Also noteworthy is the role played by designers (businesses or individual '*freelancers*', as well as specialist design schools) who bring marketable value (finished product) to the marketing of the base product (fiber).

39 National Council of Competitiveness (2013) 'Mapping clusters in Peru'

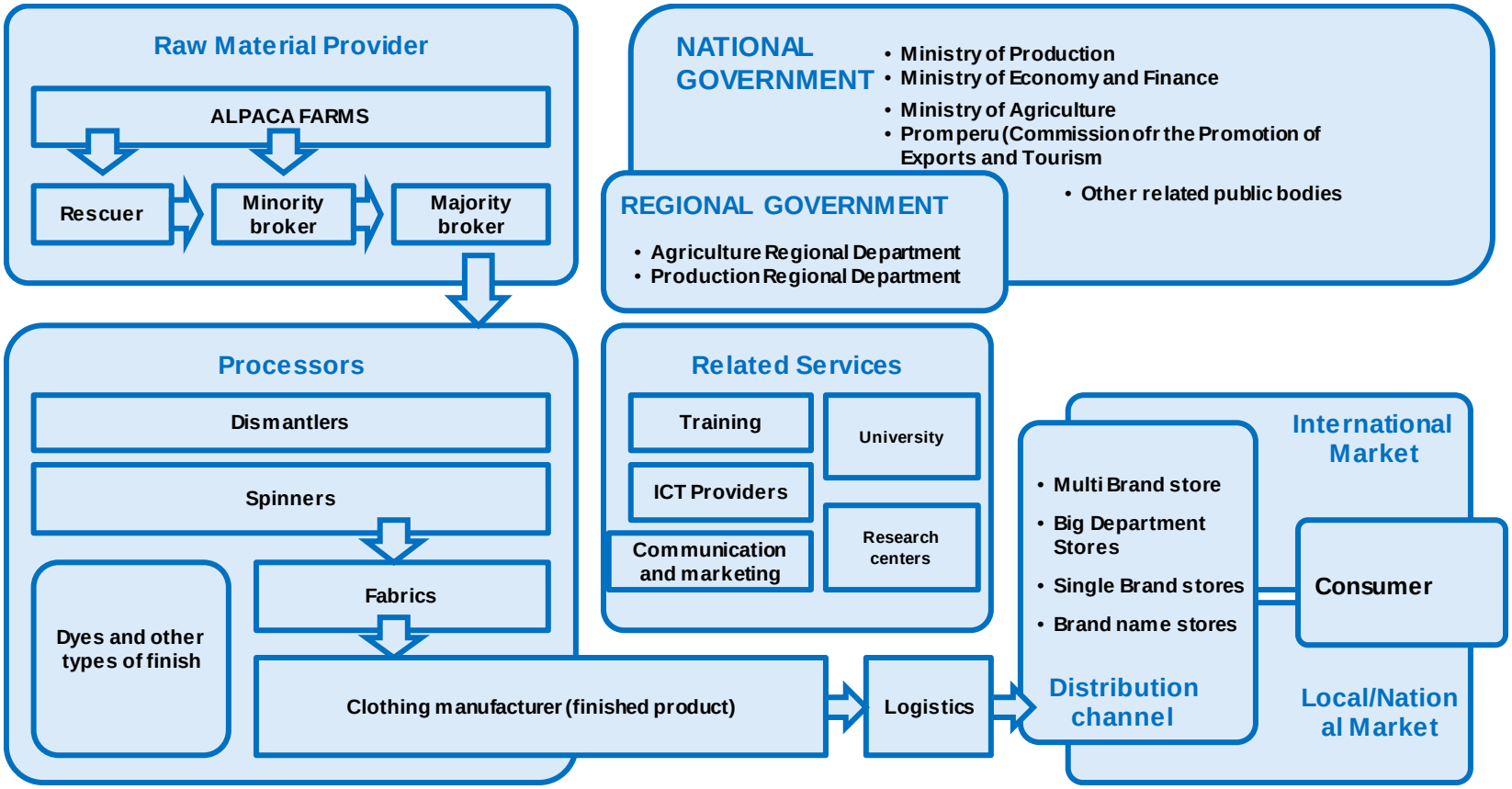
40 The interviews carried out show that often the broker (whether an individual rescuer, minority broker or majority broker) has a relationship with the textile producer, which in many cases leads to a 'trade-off' that is harmful to the producer, and causes various problems in the process (to the detriment of quality) that reduce the competitiveness of the product (given that the initial producer does not see the need to improve the quality of the product because they are being paid a very low price).

41 This is a marketing channel for producers of the final products (shops with a differentiated brand, for example, Michell and Inca Tops with Kuna).

42 This is a marketing channel that combines shops with brands, with the sale of their products to third parties (multi-brand stores, for example).

In any case, following the definition of cluster outlined as a reference, we should consider not only the production and marketing part of the chain, but also all the public and private actors that influence competitive factors for businesses.

Diagram of the camelid fabrics value chain for Cusco and Puno: complete value chain



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7. ASSESSMENT AND SWOT ANALYSIS OF COFFEE AND CAMELID FABRICS

7.1. MAJOR CHALLENGES OF THE VALUE CHAINS FOR SMART SPECIALIZATION IN CUSCO AND PUNO

7.1.1. Challenges in the coffee value chain

One of the main challenges that can be seen in the coffee value chain is the obvious **lack of connection (A)** between actors that generate knowledge and provide technology, training, specialist technical assistance, etc., and the private sector, especially smaller coffee producers with a lack of modernization and knowledge.

This disconnect is also evident throughout the production segments of the chain (providers of materials-producers-processors). There is, in this regard, a **weakening of the cooperative structure (B)** due to previous bad experiences, making it even harder to ensure that the entire system functions in a coordinated manner.

In this regard, we have seen over time a decline in the biggest cooperation structures (with the largest critical mass) in terms of management and transparency, as well as the equitable distribution of income, which is one of the most basic pillars for proper functioning of the system. As a result, we have seen a gradual decline in confidence and destruction of social capital that it will no doubt be necessary to repair prior to taking any of the actions recommended for the value chain.

In most cases, these structures had been created to respond to a lack of an entrepreneurial culture and modernization and poor living conditions in current **livelihood (C)** dynamics. This is because in the first links of the coffee chain, the majority of producers are illiterate, carry out subsistence activities and have high poverty rates; they are cut off from the development seen in recent decades in the rest of Peru.

This situation is in fact one of the conditions that generate significant **bottlenecks (D**) throughout the entire value chain. More specifically, these bottlenecks are identified by:

- the unequal distribution of margins between segments (already mentioned among the harmful effects of the poor functioning of cooperative structures);
- the gradual prioritization of quantity over quality in production strategies (as a result of the low pay offered by brokers);
- and the very low level of modernization of production.

These issues persist, and do not seem to have been resolved by the various actions taken by regional governments (production departments, agriculture departments, etc.). In any case, they are structural problems that would require a very different quantitative and qualitative public policy approach.

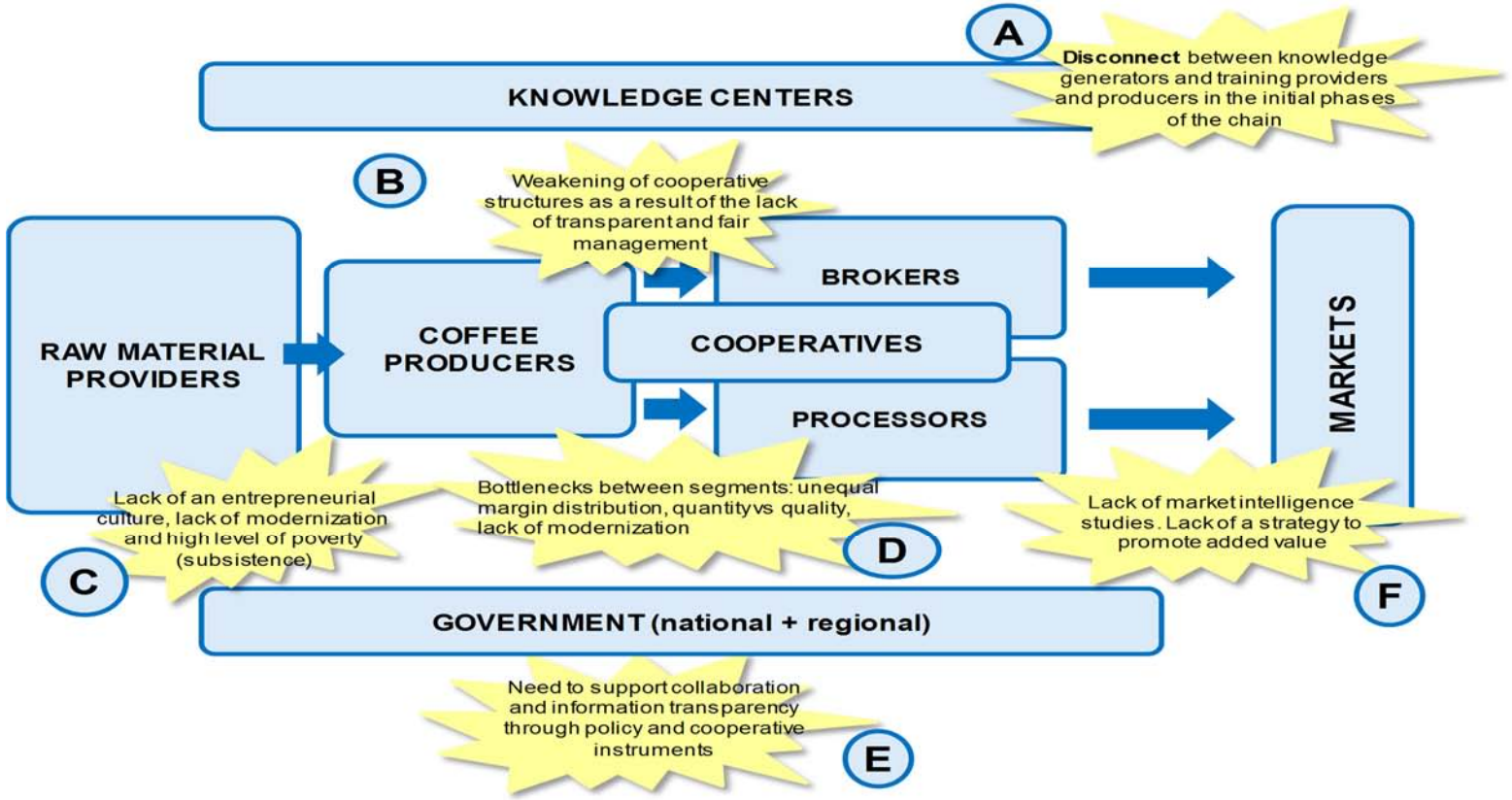
In order to start providing effective solutions, a series of **cooperative support instruments (E)** is required, including a number of actions (whether brought together in a single package or by different departments and public bodies) to deal with the barriers linked to deficiencies in training, modernization, cooperative organization, etc. In fact, one of the recommendations of this very report is the integration of those measures in a single action package, following another set of much more sophisticated measures in the form of a Smart Specialization Strategy. This integration can be facilitated with the cluster approach (launch and consolidation of a formal collaboration structure for the entire value chain).

Finally, another of the main problems identified in the final part of the chain, but which affects all segments, is the lack of strategic information on sales, marketing and international market position. This problem is in fact linked to the lack of transparency and information (which is one of the causes of the low level of professionalization and entrepreneurial culture in primary producers). Hence the need to strengthen **market studies and/or monitoring systems (F).**

A study of international demand, supplemented by an analysis of the technical, training and management requirements of the value chain linked to the demand, will enable an entire action strategy to be built, as well as initiatives and pilot projects to implement it in the long term.

The graph below includes a simplified representation of the coffee value chain with reference to the aforementioned problems according to their impact on each link in the chain.

Main problems in the coffee value chain in Cusco and Puno



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7.1.2. Challenges in the value chain of cmelid fabrics

As highlighted, in general (and also applicable to coffee, with the exception of large cooperatives), one of the main challenges observed in the camelid fabrics value chain is the broad diversity of intermediaries. This brings with it distortions in the production process such as tampering with the fiber originally brokered from the breeders and the increase in the final price of the product due to the margin received by each actor in the chain. All of this has a very negative impact on the price received by the producer (and negative consequences on professionalization and improving the quality of the product).

This fact is the result of a series of significant **bottlenecks (C)** that impact directly on the significant distortions in the sharing of distribution margins, and therefore on the gradual loss of quality[43]. Unlike coffee, in the value chain of camelids, there is no previous experience of an intermediation structure that acts (at least in some way) on this barrier.

A challenge shared with coffee is the **lack of connection (A)** between knowledge generators and technological providers, training providers, providers of specialist technical assistance, etc., and producers (especially breeders and shearers). This is despite the fact that, as highlighted in the meetings held, there are interesting research initiatives by both local (regional governments and universities) and national actors (the Technological Institute of Production (ITP) and its CITES [Technological Innovation Centers], for example).

Although the initial situation of breeders and shearers of alpacas, vicuñas, etc. in terms of **quality of life and subsistence production conditions (B)** is similar to coffee harvesters/producers, they do not have established intermediation structures like coffee-growers. This reality may be, in equal parts, an opportunity and a weakness. On one hand, it is not part of the weakening of this structure as in the case of coffee (lack of confidence built up over the years), but on the other hand, nor is there previous experience of how to build structures that are, in any case, necessary.

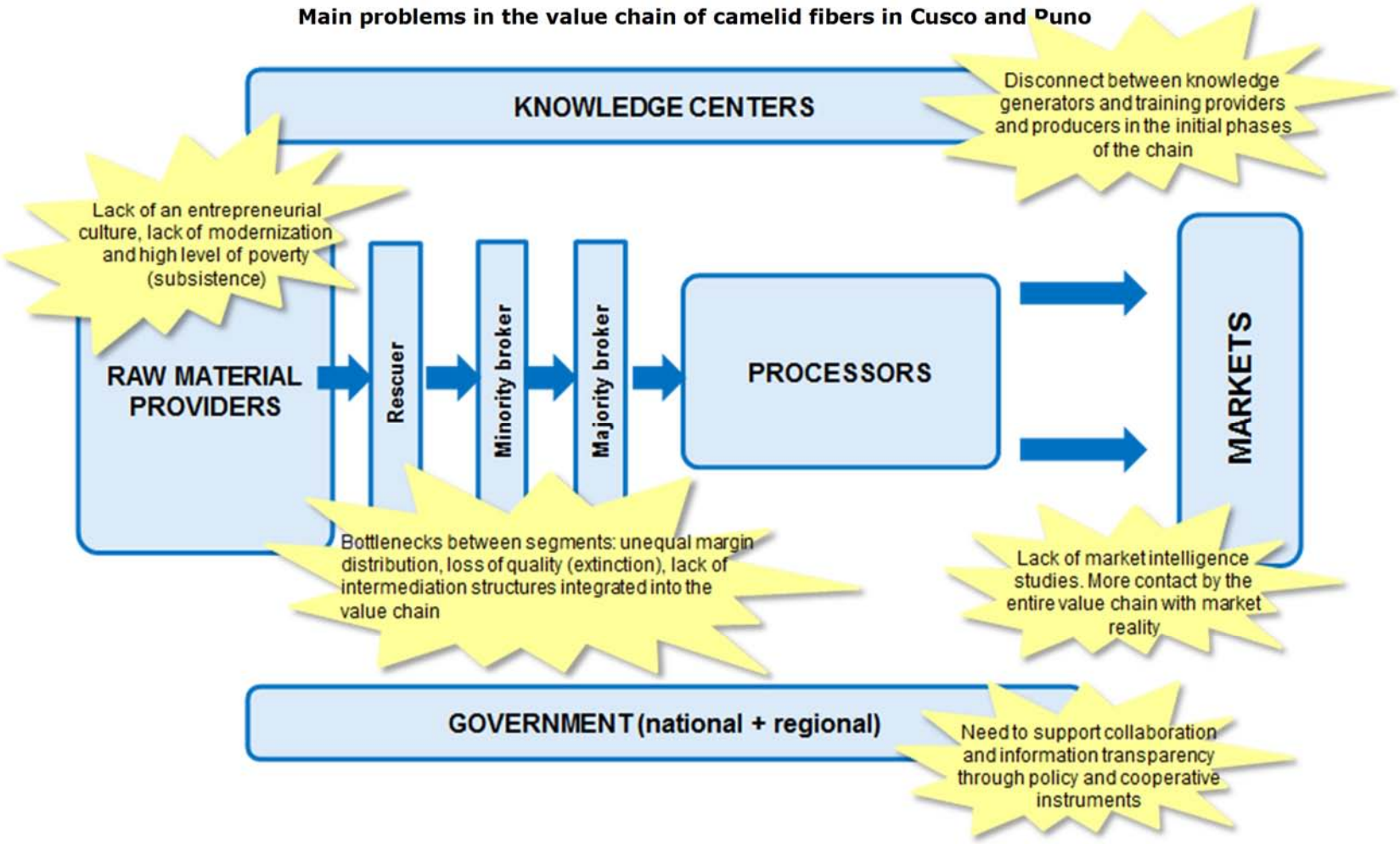
As observed with coffee, these problems also do not appear to have been resolved by the various actions taken by regional governments and special projects. These are also structural problems that require systemic and important political and strategic action, but also coordinated, joined-up and committed action, by all the actors in the value chain.

[43] This is in fact an aspect that goes beyond the merely economic, and affects biodiversity. According to the interviewees, we are witnessing a loss of purity in the genetic seed of the animals (especially alpacas) as a result of the low profitability of the fabric for the producer, whether because of the flight towards other types of activities or crossbreeding with other species for other kinds of derivative products (meat, etc). Thus, we can see that the problems currently experienced by breeders may affect the quality of the breed not just in the medium term, but even in the long term, bringing with it a deterioration in the fiber obtained.

Thus, a series of **policies and cooperative support instruments (E)** will be required that includes a number of actions to deal with these barriers. As has already been suggested for coffee, everything, both in Cusco and in Puno, points to a cluster dynamic as an interesting approach to move forward in the configuration of these coordinated actions.

Finally, also in this case, another of the aspects that may give a boost to the chain, and especially as initial content to be developed by this cluster, would be to carry out an **international market study (F).** This study would be the basis for working on the other aspects through transparency and confidence-building, in which an intermediate collaboration structure, not yet in place in camelid fibers, would be key.

The graph below includes a simplified representation of the problems facing the value chain of camelid fibers.


Main problems in the value chain of camelid fibers in Cusco and Puno
KNOWLEDGE CENTERS
Disconnect between knowledge generators and training providers and producers in the initial phases of the chain
Lack of an entrepreneurial culture, lack of modernization and high level of poverty (subsistence)
RAW MATERIAL PROVIDERS
Rescuer
Minority broker
Majority broker
PROCESSORS
MARKETS
Bottlenecks between segments: unequal margin distribution, loss of quality (extinction), lack of intermediation structures integrated into the value chain
Lack of market intelligence studies. More contact by the entire value chain with market reality
GOVERNMENT (national + regional)
Need to support collaboration and information transparency through policy and cooperative instruments

7.2. SWOT ANALYSIS FOR THE VALUE CHAINS OF COFFEE AND CAMELID FABRICS IN CUSCO AND PUNO.

7.2.1. Outline of SWOT analysis: basic consideratiions to bear in mind

The methodology of the **SWOT analysis** (Strengths, Weaknesses, Opportunities, Threats) consists of presenting the **opportunities, needs, challenges and possible actions** to strengthen the value chains as a result of the assessment.

In the case of this project, the SWOT analysis has been linked to the level of the value chain for coffee and camelid fabrics, but some of the key regional challenges (or areas for work) that require action in the future have also been specified. Thus, based on the '*strategic outline of smart specialization*', the SWOT analysis presents elements of competitiveness in the following areas:

- Connectivity and cooperation
- Entrepreneurial and innovative culture
- Training and capacity-building
- Modernization and productivity
- Information and transparency

Below are the details of the SWOT analysis for each value chain around the areas identified:

SWOT analysis of the coffee value chain

STRENGTHS

- There is great potential in demand for specialty coffees (especially coffees with a hallmark) because their differential value is appreciated by the market.
- Peru has built up an image in the segment of specialty coffees, since in this segment it is in fact the largest producer in the world, even ahead of Brazil and Colombia.
- The majority of coffee production in both regions takes place at height, which leads to higher-quality products (finer Arabic coffee).

OPPORTUNITIES

- General increase in coffee consumption at the international level, and a significant increase in developing countries
- Coffee is one of the most exported products at the international level.
- Growing interest in quality over quantity in international markets (position of specialty coffees).

WEAKNESSES

- Low productivity of coffee exports in both regions, as a result of the low level of modernization and training
- Organic degradation of certain areas as a result of unsustainable farming methods (use of fertilizers and chemicals)
- Total dependence on other countries for the processing of the product (there is no national auxiliary industry).
- Lack of organization throughout the chain, especially with regards to traceability and food safety.

THREATS

- Plague of rust that has significantly affected coffee production not only in Cusco and Puno, but in the entire country.
- The price (especially of commodities) is determined internationally with the risk of harmful 'trade-offs'.

SWOT analysis of the camelid fabrics value chain

STRENGTHS

- The Andean zones of Cusco and Puno have the best alpacas and vicuñas in the world, due to both genetics and climate. This enables them to offer the best fabric of this kind in the global market.
- Peru is the largest exporter of this type of fabric in the world (more than 80% of the total market).

OPPORTUNITIES

- Camelid fabric is on the rise in international markets, linked especially to the image of value and quality compared to other existing fibers.
- Tourism, which is another of the big attractions of both Cusco and Puno, is a departure point and gateway to knowledge of fiber in the world (marketing).

WEAKNESSES

- The majority of camelid fabric exports in Peru are 'tops' or crude fiber, with no focus on the added value margin that could be generated by processing it into fabric or a finished product.
- Camelids have high mortality rates because of the effect of plagues and diseases, and even the effects of extreme weather and climate change.
- There is a certain lack of capacity to meet growing international demand as a result of a lower production volume (low level of modernization and professionalization of breeders and shearers).
- Low-quality infrastructure in grains that affects and reduces the competitiveness of the entire chain.
- Weak business organization of small producers and breeders
- The value chain is not located in only one region and the distribution of segments is not the same either, with the processing industry (textiles) concentrated in Arequipa and breeding and shearing in Cusco and Puno (lower added value).)

THREATS

- Purchase (legal or illegal) of specimens of Andean camelid by third countries that could generate another delocalized value chain and future competition that may replace the current unique advantage.
- High number of intermediaries in the production chain, making it difficult to make effective changes to improve the efficiency of the system.
- Low profitability of alpaca breeders who usually abandon camelid production to work in other, more attractive and profitable activities.
- High concentration of exports (and therefore the market) in few companies (duopoly) can make it difficult to change the marketing structure.La elevada concentración de las exportaciones (y por ende del mercado) en unas pocas empresas (duopolio) puede dificultar cambios en la estructura de comercialización.

7.2.2. Summary of recommendations in the policy arena: coffee and camelids in Cusco and Puno.

Following the general assessment of the regions of Cusco and Puno, and the study of the value chains of coffee and camelid fabrics, below is a summary of the joint actions necessary for both coffee and camelids for the regions of Cusco and Puno.

The focus of simplifying the recommendations following the analysis carried out in the previous pages is on the possibilities this opens up for, for example, **establishing joint channels for action between the two regions** (interregional collaboration) under the premise that, according to what has been observed, **the physical borders of both value chains do not follow the established administrative boundary.** In this regard, a summary of the initial recommendations for action consists of:

- Generating **competitive intelligence** (above all with regards to the reality of international markets) and making it transparent and accessible for the entire chain.
- Improving **cooperative management structures (**or generating these where they do not exist) using those of the cluster model as a reference.
- **Improving the level of training**, and above all the **entrepreneurial culture**, of producers of raw materials.
- Raising awareness and moving forward towards the formalization of commitments on **higher added value products** (rather than quantity and 'commodities').
- Encouraging **joint spaces for discussion** between all members of the value chain to enable the generation of new commitments that are sustainable over time (irrespective of political cycles, individual interests, etc.).
- Moving forward towards **demonstrative projects capable of making** all necessary efforts at the regional level: cluster dynamics, strategic round tables, sectoral poles, market studies, etc.

8. PROPOSALS FOR ACTION

Throughout the document, we have reflected on the results of the assessment and the possibility of building a process of smart specialization based on the methodology used in Europe in the recent RIS3 Strategies.

In this regard, we have noted a number of key challenges which, in the medium and long term, may contribute to elements of smart specialization for Cusco and Puno: specialization and diversification in the framework of a competitive international position.

The way to meet these challenges through policy, as well as the behavior of actors, will mark the difference between the success and failure of this type of process for both regions.

Given the diverse range of actions, the recommendation is to respond through a participatory, cluster-type mechanism. The cluster concept should be understood here as linked to **a working method that is joint, committed, coordinated and in line with some common objectives by and for the region through the strengthening of a value chain.**

This collaborative working method will allow us gradually to meet in a **direct** way the challenges of each chain in terms of improving management structures, creating spaces for discussion, generating and sharing information, improving skills and building strategies to transform products in terms of value. Furthermore, this working dynamic will enable the implementation of pilot projects that help to put the collaborative work into practice and build trust and social capital over time.

This process of building commitments and goodwill will also **indirectly** build up experience over the years in participatory governance dynamics, without which it is impossible to put into practice processes of defining and implementing smart specialization strategies.

The process of building participatory governance is complex and above all long term, given that the implementation of a cluster approach (in various value chains) is an initial phase.

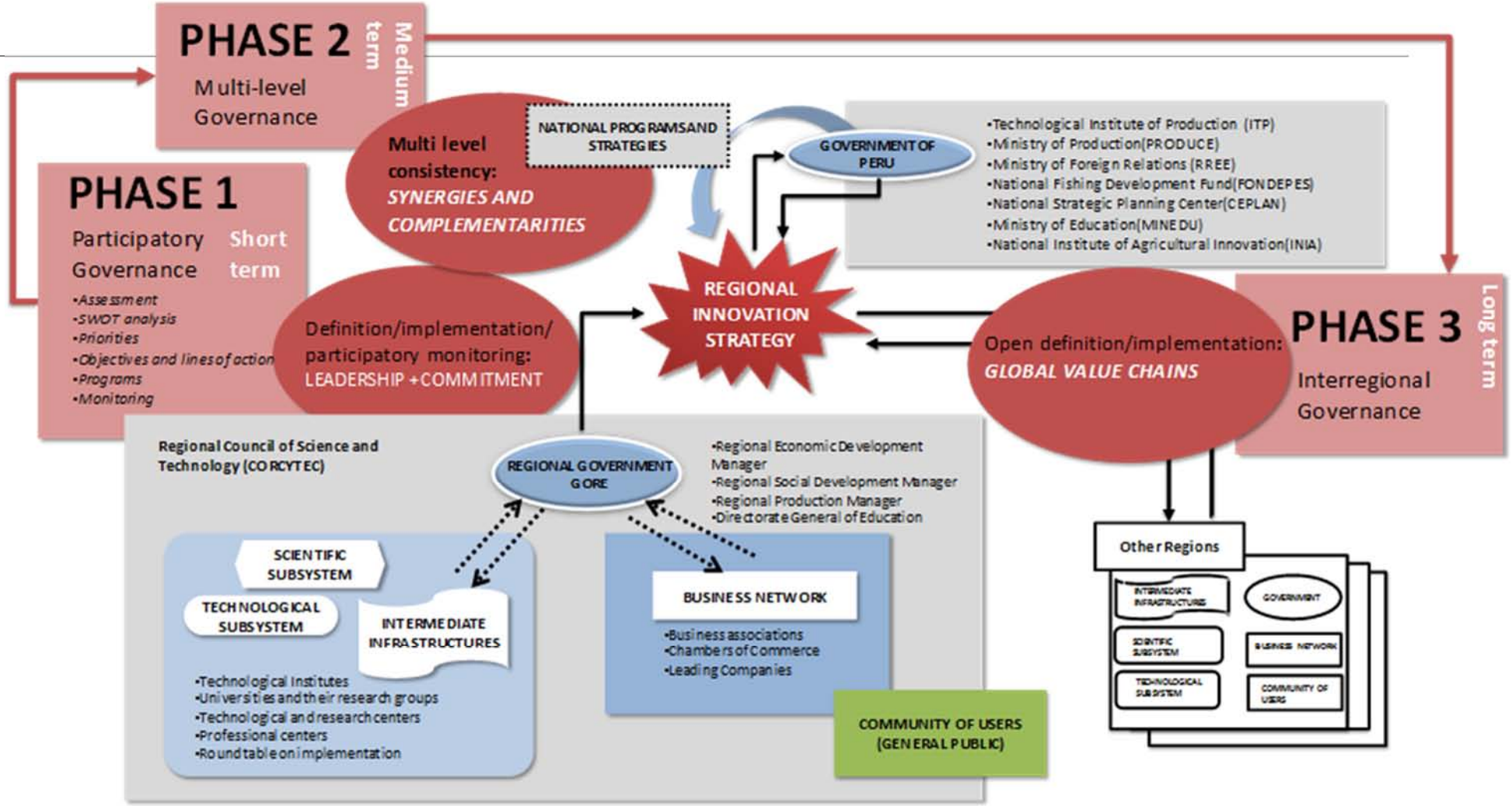
This initial phase (PHASE 1) is the one defined in this project: it initiates a process of defining challenges and the actions to be taken to meet them (assessment, SWOT analysis, priorities, actions to be taken, etc.), creating commitments that are sustainable over time among the different actors in the region, generally in the framework of a shared strategy.

As a stronger commitment is obtained from the various actors, the strategy itself will fall into line and find synergies in the supra-regional context (PHASE 2); in other words, seeking complementarities with the priorities (and value chains) of other regions, as well as taking advantage of the possibilities offered by national authorities.

Finally, and in the longer term, according to the strategy and participatory governance, consolidation will take place both at the regional level with regards to collaboration/complementarity with other regions and at the national level. The

regional value chains themselves will be strengthened and, by acquiring sufficient competitive muscle, an opportunity will arise to improve their international position (PHASE 3).

This is the process (international escalation) that varies greatly according to the nature and starting point of each value chain. Thus, in the case of coffee and camelid fabrics, the base product clearly has a very significant export focus because of its nature, so it is to be expected that this leap into the international market can be carried out in a relatively short period of time. In any case, this does not mean that the earlier phases can be skipped as part of the process of strengthening and consolidating the value chain and preparing the various actors to insert themselves into global value chains.


PHASE 2
Multi-level Governance
Medium term
PHASE 1
Participatory Governance
Short term
•Assessment
•SWOT analysis
•Priorities
•Objectives and lines of action
•Programs
•Monitoring
Multi level consistency:
SYNERGIES AND COMPLEMENTARITIES
NATIONAL PROGRAMS AND STRATEGIES
GOVERNMENT OF PERU
•Technological Institute of Production (ITP)
•Ministry of Production(PRODUCE)
•Ministry of Foreign Relations (RREE)
•National Fishing Development Fund(FONDEPES)
•National Strategic Planning Center(CEPLAN)
•Ministry of Education(MINEDU)
•National Institute of Agricultural Innovation(INIA)
Definition/implementation/ participatory monitoring:
LEADERSHIP +COMMITMENT
REGIONAL INNOVATION STRATEGY
Open definition/implementation:
GLOBAL VALUE CHAINS
PHASE 3
Interregional Governance
Long term
Regional Council of Science and Technology (CORCYTEC)
REGIONAL GOVERNMENT GORE
•Regional Economic Development Manager
•Regional Social Development Manager
•Regional Production Manager
•Directorate General of Education
SCIENTIFIC SUBSYSTEM
TECHNOLOGICAL SUBSYSTEM
INTERMEDIATE INFRASTRUCTURES
•Technological Institutes
•Universities and their research groups
•Technological and research centers
•Professional centers
•Round table on implementation
BUSINESS NETWORK
•Business associations
•Chambers of Commerce
•Leading Companies
COMMUNITY OF USERS (GENERAL PUBLIC)
Other Regions
INTERMEDIATE INFRASTRUCTURE
GOVERNMENT
SCIENTIFIC SUBSYSTEM
BUSINESS NETWORK
TECHNOLOGICAL SUBSYSTEM
COMMUNITY OF USERS

8.1. HOW TO LAUNCH A CLUSTER APPROACH

The proposal to form a cluster initiative, or at least a collaborative, cluster-type working approach[44], is based on the suitability of this methodology in meeting the challenges identified.

- **HIGH LEVEL OF INFORMALITY** of activities throughout the value chain, which derives from the lack of professionalization and (in general) the lack of an entrepreneurial culture.
- **LOW LEVEL OF PARTNERSHIP** or, where this exists, bad management and leadership of group and/or cooperative structures, which weakens interest in collaboration among the participants.
- **RELATIVELY LOW LEVEL OF SOCIAL CAPTIAL** among the various stakeholders of the cluster, causing compartmentalization of the different segments of the chain and multiplying inefficiencies.
- **LOW LEVEL OF TRAINING AND CAPACITY-BUILDING** at all levels, making the lack of entrepreneurial culture endemic, as well as the lack of knowledge of the real profitability of the activity, its competitive advantages, potential contribution to wealth generation, etc. (lack of information and transparency).
- Large number of bottlenecks caused by the inability (due to lack of a joint response) to commit **INVESTMENT AND FUNDING** which, however, are **ACCESSIBLE WITH ECONOMIES OF SCALE** (for example, technologies, market analysis, distribution and/or export channels, etc.).

When the current functioning, due to various market failures and regional idiosyncrasies, does not enable us to resolve problems, the formalization of a cluster initiative responsible for coordinating and aligning the various actors, or at least maintaining a dynamic that ensures a joint space for them, will help to generate a process of competitive improvement.

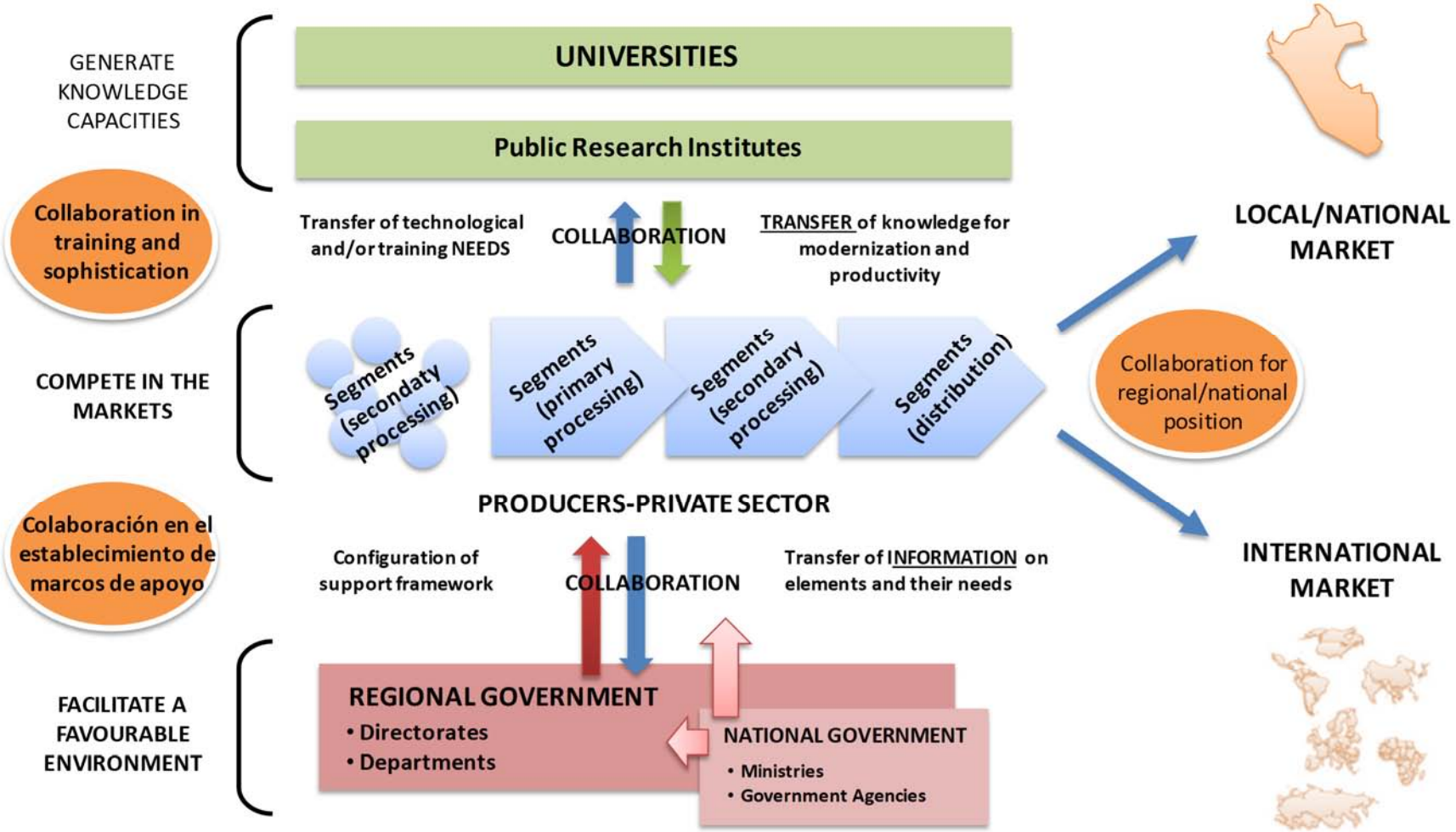
The pattern of work proposed here for the cases of coffee and camelid fabrics in Cusco and Puno is based on a methodological approximation developed on the basis of the experience in supporting the definition, formalization and consolidation in Europe and Latin America of both Innovation and Smart Specialization Strategies and cluster initiatives.

The key is incorporating in the cluster working dynamic the various actors involved in the process of creating value in and around the entire chain. This means not simply private production initiatives, as is often the case in other partnership experiences, but seeking to involve public and private actors in the areas of administration (regional and national governments and their subsidiaries), research, training and application of knowledge (universities and their departments and researchers, specialist training centers, applied research centers, etc.), as well as other interest groups that can contribute to the competitiveness of the value chain (for example, customers, communities of users, thematic profit and non-profit organizations, financial institutions, etc.).

[44] INFYDE Working Paper 2, '*Clusters in the new competitive context*'

As well as generating a work dynamic that is sustainable over time (which often requires the establishment of some formal minimum requirements among actors (rights and responsibilities), as well as division of powers), it is necessary to make collaboration a reality. This reality is generally reflected in a strategic document for the cluster that arises from a process of reflection similar to that carried out in this project (although more detailed). For the cases of coffee and camelid fabrics, identification of joint challenges and shared recommendations makes it possible to bring the work of the potential cluster in line with three types of strategic guidelines, namely:

1) collaboration to achieve **training/capacity-building** of staff of participating organizations and the **gradual sophistication** of their instruments (technology, marketing, organization, etc.).
2) collaboration to **improve support frameworks** provided by the government with a focus on the value chain and resolution of the problems identified in this assessment
3) collaboration for the identification of **international position strategies,** both at the level of the value chain and the region itself (and even Peru, given the percentage of the national total represented by regional production).


GENERATE KNOWLEDGE CAPACITIES
UNIVERSITIES
Public Research Institutes
Collaboration in training and sophistication
Transfer of technological and/or training NEEDS
COLLABORATION
TRANSFER of knowledge for modernization and productivity
LOCAL/NATIONAL MARKET
COMPETE IN THE MARKETS
Segments (secondaty processing)
Segments (primary processing)
Segments (secondary processing)
Segments (distribution)
Collaboration for regional/national position
PRODUCERS-PRIVATE SECTOR
Colaboración en el establecimiento de marcos de apoyo
Configuration of support framework
COLLABORATION
Transfer of INFORMATION on elements and their needs
INTERNATIONAL MARKET
FACILITATE A FAVOURABLE ENVIRONMENT
REGIONAL GOVERNMENT
• Directorates
• Departments
NATIONAL GOVERNMENT
• Ministries
• Government Agencies

8.2. ROADMAP FOR COFFEE AND CAMELIDS

The mechanism for implementing a cluster-type working dynamic can be considered through the definition, in the first instance, of a roadmap.

A **roadmap** is a plan for the different phases (in the short, medium and sometimes also long term) necessary to meet certain objectives in line with the set goal; in this case, increased competitiveness of production in the region. The roadmap may be more or less specific on milestones and targets, and may in turn include a smaller or larger number of pilot projects to be carried out. The methodology for the definition of the roadmap consists of the development of three phases:

1) Carrying out **competitiveness assessments** of the cluster and the region in which it is located (PHASE 1);
2) Encouraging a culture of cooperation and **participatory governance** (PHASE 2); and
3) Formulation of a **Strategic Plan** for the cluster (PHASE 3).

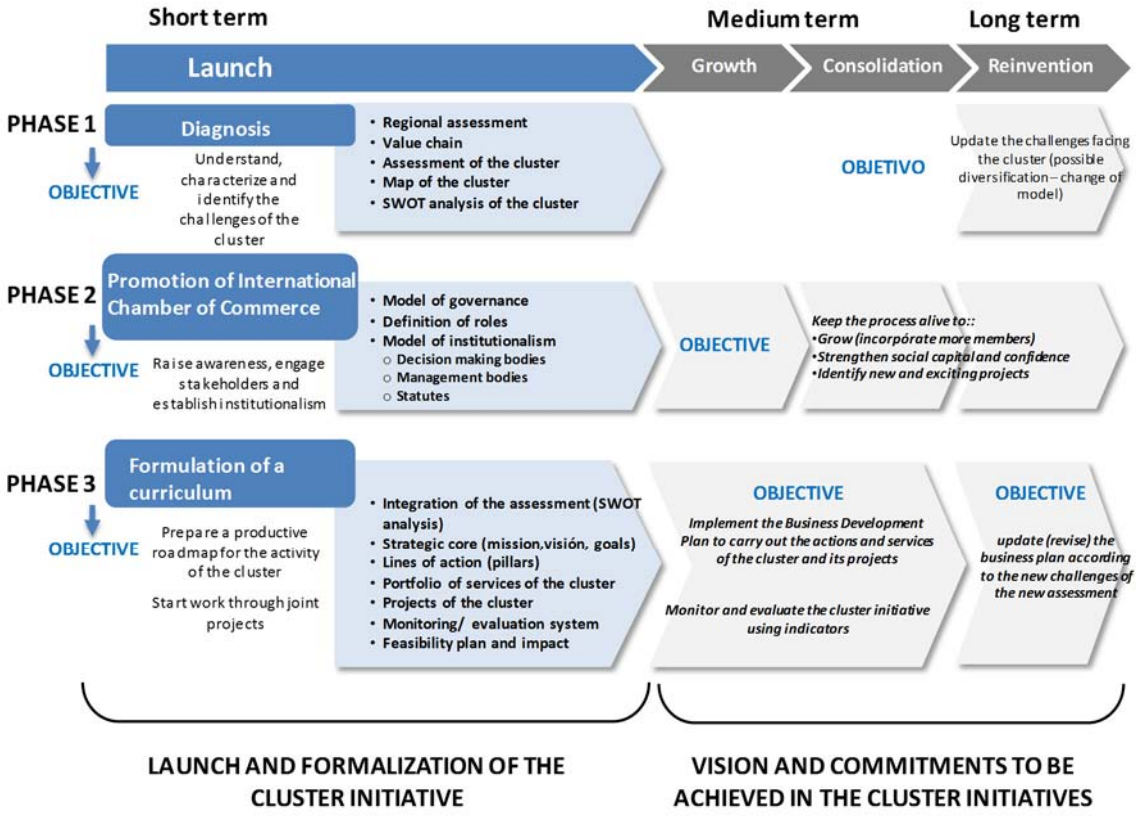
These three phases enable us to formalize a cluster-type dynamic on the basis of the identification of critical challenges to be dealt with, the construction of commitments between actors and the definition and implementation of a number of actions in the framework of a joint strategy to improve the competitiveness of the value chain.

Furthermore, these three phases are not only limited to the joint work of actors in the chain in the short term, but must be gradually refocused to achieve consolidation of the chain with a view to the competitive improvement of the actors who make it up.

At the same time, we must achieve sufficient capacity to reach greater levels of sophistication, and even the reinvention of the model, responding to different needs in the long term.

The graph below includes a draft outline of the process of defining and implementing the proposed roadmap:

Draft outline for the development of a roadmap: definition, launch and consolidation of a cluster structure



Source: adaptation based on INFYDE Working Paper 18: Methodological guide to setting up clusters in Latin America

As was noted at the beginning of the document, the aim of the project was to raise awareness and generate capacities to improve the definition and implementation of support policies for competitiveness in each of the regions.

To this end, in addition to previous socialization processes, over the last month of the project, major closing conferences have been organized in each region where, as well as outlining to public and private actors the results included in this assessment, an explanation was made of the cluster working methodologies and a discussion was held on ways to implement the aforementioned pilot projects. From now on, the future of these initiatives will depend on the goodwill and capacity of the various regional actors to take the necessary steps to implement them

9. BIBLIOGRAFÍA

Documentary sources

- Consejo Nacional de Competitividad (2013) "*Estudio de mapeo de clusters en Perú*".
- Consejo Regional de Concertación Agraria (2013) "*Agenda Agraria Regional*" Gobierno de Cusco
- Esteban, R Brenes, Kryssia Madrigal, Felipe Pérez y Konrad Valladares (2012) "*El cluster de los camélidos en Perú: diagnóstico competitivo y recomendaciones estratégicas*". Harvard University
- Granda Alba (2015) "*Estudio sobre sistemas regionales de innovación en el Perú: lecciones de política*" Universidad del Pacífico
- Gobierno de Puno (2013) "*Plan Estratégico Institucional*"
- Gobierno de Cusco (2008) "*Plan Estratégico de Desarrollo Regional Concertado de Cusco 2021)"*
- INFYDE WP Nº1 (2013) "*Estrategias de Especialización Inteligente: un imperativo ineludible a 2020*". INFYDE
- INFYDE WP nº5 (2013) "*Guía rápida para la definición de Estrategias Regionales para la Especialización Inteligente -RIS3*" INFYDE
- INFYDE WP nº6 (2013) "*Instrumentos de política RIS3: los clusters"* INFYDE
- INFYDE WP nº9 (2014) "*Gobernanza y especialización inteligente*" INFYDE
- INFYDE WP nº 18 (2015) "*Guía metodológica para el montaje de clústers en Latinoamérica*" INFYDE
- IPTS (2012) "*Guide on Research and Innovation Strategies for Smart Specialisation (RIS3 Guide)*". Comisión Europea
- MINAGRI (2015) "*Mesa La Convención – Cumplimiento de los Acuerdos*" Presentación organizada por MINAGRI en la provincia de La Convención. Marzo de 2015
- PROM-PERU (2013) "*Cadena productiva de Café en Cusco*". CPE PROMPERU MRSE

Statistical sources

- INSTITUTO NACIONAL DE ESTADÍSTICA E INFORMÁTICA
  http://www.inei.gob.pe/
- MINISTERIO DE ECONOMÍA Y FINANZAS
  http://www.mef.gob.pe/index.php?option=com_content&view=article&id=266&Itemid=100606
- SUNAT – SUPERINTENDENCIA NACIONAL DE ADUANAS Y DE ADMINISTRACIÓN TRIBUTARIA
  http://www.sunat.gob.pe/estadisticasestudios/estadistica_regiones.html
- BANCO CENTRAL DE RESERVA DEL PERÚ
  http://www.bcrp.gob.pe/estadisticas
- SIAR PUNO
  http://siar.regionpuno.gob.pe/index.php?accion=verListElementos&idTipoElemento=37
- SIAR CUSCO
  http://www.siar.regioncusco.gob.pe/index.php?accion=verListElementos&idTipoElemento=37