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Peru's Sustainable Trade Potential: Biodiversity-based Products

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Any errors or omissions are the sole responsibility of the authors.

List of Acronyms

ADEX	Peruvian Exporters Association
AP	Apurimac Project
BAU	Business as Usual
BioCAN	Biodiversity Programme of the Andean Community of Nations
CAF	Development Bank of Latin America
CAN	Andean Community of Nations
CBD	Convention on Biological Diversity
CEPLAN	National Centre for Strategic Planning
CCL	Chamber of Commerce of Lima
CNPB	Biological Products National Center
CSR	Corporate Social Responsibility
CU	Control Union
EIA	Environmental Impact Assessment
EU	European Union
EVA	Ecosystem Values Assessment & Accounting
FDA	United States Food and Drug Administration
FAO	Food and Agriculture Organization
FDI	Foreign Direct investment
FLO	Fairtrade Labelling Organizations International
FOB	Free on Board
FSC	Forest Stewardship Council
FTA	Free Trade Agreement
CBA	Cost-Benefit Analysis
GDP	Gross Domestic Product
GEI	Green Economy Initiative
GEF	Global Environment Facility
GIIB	Group of Research and Innovation in BioTrade
GIZ	German Federal Enterprise for International Cooperation
IFOAM	International Federation of Organic Agriculture Movements
INEI	National Institute for Statistics and Computing
IPPN	Peruvian Institute for Natural Products and Ingredients
ITC	International Trade Centre
MEA	Multilateral Environmental Agreement
MEF	Ministry of Economy and Finance
MINCETUR	Ministry of Foreign Trade and Tourism
MINAGRI	Ministry of Agriculture and Irrigation
MINAM	Ministry of Environment
MEF	Peruvian Ministry of Economy and Finance
MNE	Multinational Enterprise
NBC	National BioTrade Commission
NBS	National BioTrade Strategy
PAGE	Partnership for Action on Green Economy
P&C	Principles and Criteria

PIP	Public Investment Project
PNPB	National Programme for the Promotion of BioTrade
PPP	Public-Private Partnership
PR	Public Relations
PRODERN	Programme for Sustainable Economic Development and Strategic Management of Natural Resources
PRODUCE	Ministry of Production
PromPeru	Peru's Export and Tourism Promotion Board
R&D	Research and Development
NGO	Non-Governmental Organization
NTFP	Non-timber Forest Product
RAS	Rainforest Alliance Certified
SECO	Swiss State Secretariat for Economic Affairs (Switzerland)
SEIA	National System of Environmental Impact Assessment
SENASA	National Agricultural Health Service
SIICEX	Integrated System for Foreign Trade Information
SIPPO	Swiss Import Promotion Programme
SME	Small and Medium-sized Enterprise
SNIP	National System of Public Investment
SNMPE	National Society for Mines, Oil and Energy
SPDA	Peruvian Society for Environmental Law
SUNAT	National Superintendence of Customs and Tax Administration
UEBT	Union for Ethical BioTrade
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
VUCE	Foreign Trade Single Window

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Executive Summary

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Peru is a "mega-biodiverse" country and its agricultural sector produces a great variety of native products, offering a unique potential for international BioTrade. The Peruvian government, together with the private sector and the international donor community, is looking for effective and long-term solutions to establish the economic stability of BioTrade and to open pathways for businesses to reach final clients in the growing international market for sustainable products. The application of green economy measures and certification for production and processing of BioTrade products can facilitate access to new export markets, which would allow for value addition and price premiums for goods produced in a sustainable manner,.

The BioTrade model already plays an increasing role in the country's economy but it still needs to attract foreign investors and major international companies. This study demonstrates that exports under the BioTrade model can offer a broad range of economic, social and environmental benefits, but the sector has not reached its full potential. The study argues that sustainability certification and value-added product development are useful tools to better harness the sustainable trade potential of the native products that are traded under the BioTrade approach in Peru. The findings are supported by a case study focussing on the value chains for quinoa and maca. Costs and benefits are estimated under the two scenarios: organic production and conventional production.

In regards to the first instrument (certification), the study found that overall sustainability certification results in better market access and sales for native biodiversity-based products. So far, the most commonly used certification among the Peruvian BioTrade companies is organic certification, which is also the highest in demand among consumers of natural products and ingredients worldwide. Challenges in certification include the need for substantial start-up capital, and additional time and skills requirements. Moreover, the decision to shift to more sustainable trade practices is often based on short-term price signals rather than more realistic expectations for long-term profitability. Certification is hampered by a lack of knowledge of sustainability standards, a lack of appropriate financial facilitating mechanisms for small-scale producers, and a lack of effective market linkages between small producers and international buyers.

The second instrument (value addition) aims to address the low value-added levels of native products exported from Peru. Native products are harvested in the fields, lightly processed and exported in bulk form. Importing companies ultimately earn the largest profits in the entire value chain. Challenges in the value-added approach are mainly the deficient positioning of Peru as a world supplier for biodiversity-

based products, a lack of consistent supply capacity and a lack of expertise to upgrade production methods and marketing processes.

The policy recommendations emphasize that the capacities of both private sector and public sector need to be strengthened in order to facilitate the green economy in the BioTrade sector. Peruvian farmers and sellers often lack the knowledge regarding sustainable trade practices.

The challenge of lacking financial facilitating mechanisms can be solved in three ways. Firstly, information about existing national and international financial facilitating mechanisms should be more widely dispersed. Secondly, small-scale producers should negotiate for a fee reduction with private certification bodies. Thirdly, a certification fund for small-scale producers should be established.

To address the lack of effective market linkages, Peruvian BioTrade producers and companies should be linked more closely to other small-scale international buyers and suppliers. Multinational companies at the regional and international level should cooperate with local producers on the basis of long-term commitments. Furthermore, grouping small scale suppliers into associations and establishing further public-private partnerships will create a more balanced relationship between stakeholders and promote mutually beneficial actions and investments.

Peru is still not globally known as the leading producer of BioTrade products, although it has gained more and more international attention in the past few years. Besides, producers and suppliers of BioTrade products need to have a secured access to quality processing facilities, taking into account that small producers are not likely to be able to meet the high requirements of the certification process without external help. Additionally, information about possible branding mechanisms and value-added products needs to be spread to farmers, processor, and sellers.

Introduction

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Peru is known for its rich diversity in endemic crops and genetic resources, which can be found in the coastal desert, the Andean mountains and the Amazon basin. Biodiversity contributes significantly to the country's economy and helps reduce poverty and promote social inclusion (Andina, 2011). Through the production and commercialization of biodiversity-based products under the BioTrade model, the social, economic and environmental pillars of sustainability are effectively integrated into the Peruvian economy, representing an interesting example of the application of the green economy concept.

Almost 50 native products are successfully exported from Peru, with a steady annual growth of approximately 10 per cent during the last three years. However, the year 2012 has marked a shift in the development of the Peruvian BioTrade sector. Several factors caused exports to drop to US$ 250 million, almost 20 per cent less than the numbers reached in 2010 (SIICEX, 2013). The first cause was the high volatility of food prices (including for BioTrade products)[1]. Second, the economic downturn in Europe and the United States has driven down the international demand for natural products. Third, severe weather events in Peru, such as heavy rains, hurt crop yields. The falling exports were also related to a number of internal factors connected to barriers within the private sector that have restrained the performance and overall growth of BioTrade. Even though the Peruvian government supports BioTrade, low competitiveness has hindered Peru's ability to participate in the global bonanza of sustainably traded natural products. Additionally, BioTrade producers still rely on international aid for obtaining and maintaining sustainability tools such as certification. This dependency has prevented the sector from being economically self-sufficient, but self-sufficiency is a prerequisite for effectively using the BioTrade model as a pathway for transitioning Peru towards a green economy.

The Peruvian government, together with the private sector and the international donor community, is looking for effective and long-term solutions to restore the economic stability of BioTrade and to open international markets to allow businesses to reach their final clients worldwide. In this regard, certification of sustainability standards and value-added product development have been identified as promising strategies to scale up BioTrade and to harness the sector's sustainable trade potential. Based on UNEP's work on green economy and trade, the purpose of this study is to evaluate the potential of these two strategies to improve BioTrade in Peru. Subsequently, the study will identify implementation challenges and develop recommendations on how to overcome them.

1 A clear example of how the fall of commodity prices has affected the entire BioTrade sector is the case of the cochineal (*Dactylopius coccus*). Cochineal is used to obtain a natural deep red colorant and Peru is the main producer globally. Since 2010, prices have fallen from 171 USD/kg to 36 USD/kg.

As their specific research question, the authors explores how (i) certification of voluntary sustainability standards and (ii) value-added product development can be used as tools to harness the sustainable export opportunities provided by BioTrade. The objective of the study is to help increase the export potential of Peru's native biodiversity-based products (encompassing the 30 native biodiversity-based products mentioned in the official Government export statistics – SIICEX, 2013). BioTrade is understood as a trade model that can be applied to several of Peru's native biodiversity-based products, but the scope of the study has been widened in order to also include companies that currently export native biodiversity-based products under different models of voluntary sustainability standards.

The overall framework of the study builds on UNEP's recent publication "Green Economy and Trade Opportunities – Trends, Challenges and Opportunities" (UNEP, 2013), which identified sustainable trade opportunities arising from a green economy transition in six sectors. The report concludes that these sustainable trade opportunities can be harnessed through the implementation of a variety of green economy measures, such as sustainability certification.

The methodology of the current study is based on quantitative and qualitative research methods, including a review of the existing literature; an extensive multi-stakeholder consultation process with policy-makers, donors, entrepreneurs, producers and external specialists; and a quantitative analysis of the costs and benefits of certification.

The study looks forward to contribute to the implementation of the New BioTrade Strategy of Peru 2014-2021 through the insights it provides in ways to increase the export potential of Peruvian BioTrade products. The authors hope that the report will serve as a resource for policy-makers and companies to incentivize and improve the investment opportunities in Peru and to provide adequate tools for the further promotion of the BioTrade model.

© Crops for the Future

1 Peru's Trade Profile

Sustainable development, and improved access of green products to international markets, can have a strong positive effect on poverty reduction and environmental conservation. Peru's recent economic development is mostly based on exports, while the country possesses a wealth of biodiversity, making BioTrade an important potential pathway for further trade expansion.

However, since trade can only become an enabler of sustainable development if accompanied by adequate regulations, a careful assessment of the Peruvian trade background is needed. The following chapter provides an overview on Peru's current trade context, its economic, social and environmental implications and the institutional arrangements regulating trade.

1.1 Trade - An Engine for Growth and Socio-Economic Development in Peru

Peru is increasingly positioning itself as a new Latin American trade centre. Implementations of pro-market regulations by the government have fuelled trade growth in Peru, as have growing foreign investments. Peru is following a path of strong trade expansion that has been set out by an increasing number of trade treaties, including with the US and the EU.[2] In 2014, around 96 per cent of Peruvian exports were covered by preferential market access arrangements (SECO, 2013). However, due to the global economic and financial crisis, as well as the lower commodity prices, exports have declined to US$ 41 billion in 2013, which represents a 10.5 per cent decrease compared to 2012. Peru's main trading partners in 2013 were: China (US$ 7.3 billion), the US (US$ 7.3 billion), Switzerland (US$ 2.9 billion), Canada (US$ 2.6 billion) and Japan (US$ 2.2 billion).

In order to reduce the country's dependency on commodity exports with their volatile prices, Peru has made an effort to shift away from exporting primary products such as minerals and fishmeal. As part of this effort, Peru is now promoting the export of so-called non-traditional products.[3] In 2002, Peru exported US$ 550 million of non-traditional products to 99 markets. In 2012, this number increased to US$ 3.086 billion, reaching a total of 147 markets (MINCETUR Export Statistics).

Trade has also been vital for Peru's socio-economic development. Growing exports and their impact on Peru's GDP growth have contributed to 509,000 Peruvians emerging from poverty in 2012 (INEI, 2014). Per-capita income has grown from US$ 4,387 in 2009 to US $6,568 in 2012. In 2013, the export sector in Peru created almost 2 million jobs (1 million direct and 900.000 indirect jobs). Moreover, export companies have doubled from 4.771 to almost 8.000 during the last 20 years (APEX, 2014). However, Peru has not yet fully harnessed its sustainable trade potential.

1.2 Current Social and Environmental Implications of Trade

The incremental approach applied to Peru's conventional export has had negative environmental and social impacts over the past several years. Trade under conventional schemes, often carried out with a focus on short-term gains, has caused severe environmental degradation and biodiversity loss in the country. Extractive industries in Peru generate more than 70 per cent of the country's exports (SPDA, 2011), but have increased the energy intensity of production, waste generation, and water pollution.

Moreover, conventional trade practices have contributed to the rising number of socio-environmental conflicts in Peru. According to the Office of the Public Defender, more than 57 per cent of all conflicts reported in Peru in 2013 were socio-environmental. Some striking examples are the reported conflicts over

2 Peru has also recently signed FTAs with China, EFTA, Mexico, Chile, Singapore, Canada, Japan and South Korea. For more information about Peru's trade treaties, please visit: www.acuerdoscomerciales.gob.pe/.

3 Peru uses the distinction of traditional and non-traditional products. Traditional products include basic raw materials (especially minerals and agricultural commodities such as coffee, sugar, cotton, potatoes, corn, rice), whereas non-traditional products are those products that use raw material as input but have a greater value added than traditional products.

informal mining, illegal logging, overfishing and intense geographical expansion of land devoted to single crop monocultures (Box 1).

Box 1. From the Amazon Forest to the Illegal International Markets

• **Informal Mining**: Mining is the largest single contributor to Peruvian export revenue, yielding US$ 23 billion in 2013. Peru is a global mining superpower as the principal exporter of gold, lead, tin and zinc, and the number two exporter of copper and silver (2013) (SNMPE Databank). As the primary source of demand, trade is the central cause for the growing environmental pressure under the current BAU model. Informal mining, for example, causes extensive environmental degradation. It is estimated that 22% of Peruvian gold exports are illegal. 97% of gold mining in the Madre de Dios region, located in the Amazon forest, is illegal.

• **Illegal Logging**: Dense forests cover more than half of Peru's surface. Their preservation is considered critical for combating global warming and protecting species that are only found in the region. However, large quantities of illegally logged timber, including increasingly rare types like mahogany and Spanish cedar, are being traded illegally to major international markets. An astounding 715 ha of Peruvian forest is lost every day and as much as 80 per cent of Peru's logging exports is harvested illegally, bringing in profits of up to US$ 72 million a year (Dettmer, 2012). Besides illegal logging, another important practice causing deforestation is the so-called "slash-and-burn agriculture". This practice leads to irreversible soil erosion, soil nutrient loss, and biodiversity loss.

1.3 Peru's Sustainable Trade Opportunities

In spite of the negative impacts of trade mentioned above, there are also some clear examples where trade has become an enabler for sustainable development in Peru. In this regard, three very important sectors for the Peruvian export economy have been proven to contain a significant greening potential: forestry, tourism and agriculture. For example, the shift to organic agriculture and eco-tourism has not only provided lucrative economic opportunities for Peruvian producers and entrepreneurs, but also shows that synergies between economic activity and environmental preservation are possible. As Mrs Magaly Silva, Peru's Minister of Foreign Trade and Tourism, recently noted: *"If we don't take care of our biological megadiversity and if we do not make it profitable, we run the risk of losing it. Peru is a country with rich biodiversity, a condition which places it in a privileged position in international markets."* (Andina, 2013).

Peru gains momentum in sustainable markets. In 2013, Peru exported US$ 350 million of organic agriculture products (MINAGRI, 2013) and has received more than US$ 3 million from visitors to the Natural Protected Areas (AmericaEconomia, 2014). The exports of sustainably produced goods and services in Peru offer opportunities for further economic development, growth of investment, entrepreneurship, fair and equal distribution of resources and equitable benefit sharing, whilst at the same time benefitting the environment.

1.4 Institutional Arrangements of Peru's Trade-Environment Agenda

The cost of losing the country's natural capital due to unsustainable trade practices has been recognized by the government, which is now implementing an active trade-environment agenda, further described below.

At the international level, Peru has signed and implemented 12 Multilateral Environmental Agreement (MEAs),[4] with trade implications for the agriculture, forestry and fisheries sectors.[5] Aiming to use trade in order to leverage sustainability, Peru recently signed a trade programme with the EU, called the

4 The most important MEAs signed by Peru are: the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR), the Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Convention to Combat Desertification (CCD) and the Framework Convention on Climate Change (CCC).

5 For example, the FTA with APEC regulates specifically the protection of traditional knowledge and genetic resources; the FTA with the US has a direct effect on the regulatory level in issues like trade in timber and non-timber forest products; The FTA with China standardizes the Environmental Impact Assessments (EIAs) for all investments related to the environment.

Euro-Eco-Trade Project. This 3-year budget support programme articulates the efforts of the EU with different ministries (MINAM, MINCETUR and MEF), the government agency PromPeru and with regional governments, and has a total budget of € 13'000,000.[6] The goal of the programme is to enable producers of organic and ecological products (such as bananas, mangoes, grains and nuts) to harness trade opportunities arising from international demand. The programme aims at building capacity in the public and private sectors. It focuses on compliance with standards and the marketing of organic products to create sufficient demand (EU Delegation in Peru, 2012).

At the national level, the government has established a variety of regulatory frameworks and processes designed to facilitate the export of sustainable goods. The principal government authorities involved in this process include the Ministry of Foreign Trade and Tourism (MINCETUR), the Ministry of Environment (MINAM) and Peru's Export and Tourism Promotion Board (PromPeru).[7] The collaboration is based on the development of inter-institutional synergies; MINCETUR and PromPeru are responsible for establishing and improving sustainable trade practices and MINAM for greening the trade sector.[8] The following table provides a detailed overview of these institutional arrangements (Table 1).

Table 1. Peruvian Government Programmes and Frameworks (MINCETUR, PROMPERU, MINAM) Related to the Trade-environment Agenda[9]

MINCETUR Role: collection and analysis of information and practices	**The Foreign Trade Single Window** (Ventanilla Unica de Comercio Exterior, VUCE) is an integrated trade system that allows exporters and importers involved in trade, international transport and telecommunications to obtain various permits, certifications and licenses electronically. For more information, click here: www.vuce.gob.pe
PROMPERU Role: promotion of Peru's sustainable products on international markets	**The Department for Sustainable Trade** is a newly formed division of PromPeru that is responsible for BioTrade, organic trade and fair trade. **The Exporters Route** (*Ruta Exportadora*) seeks to strengthen and consolidate the competitiveness of Peruvian SMEs, in order to enable them to bring their products and services to major world markets. The programme consists of a series of courses and services aiming to improve the entrepreneurial skills of participants and to maximize their foreign trade potential. For more information, click here; www.siicex.gob.pe/siicex/portal5es.asp?_page_=791.00000 **Exports seminars** are held each month with the objective of offering comprehensive information about export-related services. Main audiences are exporters, start-up export companies and producers. For more information, click here: www.siicex.gob.pe/siicex/portal5ES.asp?_page_=388.38700#anclafecha **The System for Foreign Trade Data (SIICEX)** is an online platform, which provides a single enquiry point for general information about Peruvian foreign trade, for organizations, businesses, importers, exporters, government, students and the general public. For more information, click here: www.siicex.gob.pe **PeruTradeNow** is a service that helps businesses and producers from abroad to identify potential business partners in Peru. For more information, click here: www.perutradenow.com/en/home. The website also contains a catalogue of the most exported agriculture and other biodiversity-based products, which can be found here: www.siicex.gob.pe/siicex/resources/sectoresproductivos/Catalogo%20Agro.pdf

/…

6 For more information, please click here: www.minam.gob.pe/ordenamientoterritorial/proyectos/apoyo-de-la-union-europea-a-la-politica-de-promocion-de-las-exportaciones-peruanas-de-productos-ecologicos-euro-eco-trade.

7 As a division of MINCETUR, PROMPERU is in charge of the promotion of Peruvian products and services in international markets.

8 Although some of the activities listed are concerned with general international trade, the sustainability component is present in the majority of them.

9 SNIP is a governmental administrative system for public investment projects (PIP) at the national, regional and local level. The Ministry of Economy and Finance (MEF), through its General Directorate of Investment Policy, is the governing body of the SNIPs. The PIPs are designed according to criteria that ensure sustainability and social profitability, and based on sectorial policies and plans.

Table 1. Peruvian Government Programmes and Frameworks (MINCETUR, PROMPERU, MINAM) Related to the Trade-environment Agenda (continued)

MINAM Role: development of strategies and action plans	The project **Mainstreaming Green Public Investment Projects** (PIPs) is an orientation tool for the formulation of environmental PIPs in Peru. It forms part of the Peruvian National System for Public Investment (*Sistema Nacional de Inversión Pública-SNIP*[9]). The instrument defines the fundamental aspects that have to be taken into consideration in the formulation of PIPs related to natural resources. In order to be approved, the initiatives have to demonstrate their profitability, for example by demonstrating the economic benefits of protecting engaged species. **Guidelines for the formulation and implementation of environmental compensation standards and for environmental impact assessments (EIAs):** The regulation aims to promote interagency cooperation on the creation of common environmental standards, policies, and for conducting environmental impact assessments. It is part of the National System of Environmental Impact Assessment (Sistema de Evaluación del Impacto Ambiental – SEIA). The guidelines will serve as an additional tool for conservation and joint investment projects. **Ecosystem Values Assessment & Accounting (EVA) Project:** EVA is being implemented with the ultimate goal of incorporating the value of nature into decision-making process. One of its main goals is to pilot the development of Ecosystem Accounts – measurements of flows of ecosystem benefits into the national economy, which requires the analysis, mapping and monetary valuation of the ecosystem services in a way that is consistent with national accounting. The methodology is applied in a pilot project in the province of San Martín. **The Biodiversity and businesses partnership initiative** is an initiative pioneered by MINAM which is still in its initial stage. Its objective is to launch a platform that will serve as a source of interaction and information for the private sector on the sustainable business potential and the sustainable use of biodiversity and ecosystems.

1.5 Conclusions

Peru's share in the world's exports is growing.[10] The Peruvian government prioritizes export diversification and focuses on non-traditional agriculture products. Moreover, Peru seeks to position itself not only as a global supplier of agriculture products but also as a hub for sustainably produced and commercialized goods and services, generating partnerships along the entire value chain.

Successful synergies between MINAM, MINCETUR and PROMPERU have facilitated the exchange of knowledge, the development of green growth strategies and the establishment of key policy instruments. Although the abovementioned collaboration has proven to be successful in various ways, Peru still faces challenges and obstacles, such as the remaining areas where large parts of the population live in extreme poverty, the isolation of most of the rural areas, and the ongoing environmental degradation. Additionally, specific obstacles for the partnership also include the difficult communication between institutions, and limited research and development (R&D) (Posada, 2013).

Taking this trade framework into account, Peru has an enormous potential to implement and shape a sustainable trade model, of which BioTrade will be one of the key elements. This subsector is more closely discussed in the following chapter.

10 Peru ranks number 59 in the list of countries by exports, based on the WTO International Trade statistics. Available at: http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=S&Country=P

2 Peru's BioTrade Context

One of the strategies adopted in Peru to promote the export of sustainable products is BioTrade, defined by the Peruvian Government as "activities of collection/production, transformation, and commercialization of goods and services derived from native biodiversity (species and ecosystems), under criteria of environmental, social and economic sustainability" (MINAM, 2013). This chapter will take a closer look at this potential by describing Peru's BioTrade initiative, presenting the export potential of native products, discussing the BioTrade value chain and assessing current drivers of BioTrade in Peru.

2.1 The BioTrade Initiative

The framework of BioTrade was established by UNCTAD's BioTrade Initiative in 1996. It identified seven principles which can be applied in different contexts (Figure 12). The aim of applying these principles is to conserve biodiversity through its sustainable use. Under the BioTrade model, benefits generated by the use of biodiversity are shared equitably throughout the entire supply chain, while at the same time, negative environmental impacts associated with the use of biodiversity are reduced or eliminated. For a highly biodiverse country like Peru, the initiative represents an opportunity to commercialize and export biodiversity-based / native products in a more efficient and sustainable way while generating additional revenue to benefit the producers.

Box 2. BioTrade Principles

1. Conservation of biodiversity;
2. Sustainable use of biodiversity;
3. Equitable sharing of benefits derived from the use of biodiversity;
4. Socio-economic sustainability (management, production and markets);
5. Compliance with national and international legislation and agreements;
6. Respect for the rights of actors involved in Biotrade activities; and
7. Clarity about land tenure, use and access to natural resources and knowledge.

Source: UNCTAD. BioTrade principles & criteria. Available at: www.biotrade.org/aboutGLOSS.asp

The BioTrade initiative includes any business entity that is involved in bio-businesses developed under the principles and criteria (P&C) of BioTrade. However, it should be mentioned that there are numerous initiatives that work with native biodiversity in a sustainable manner, but only those initiatives that are verified can be called BioTrade. This has been also the guiding principle of this study, in which companies are referred to as BioTrade or biodiversity-based respectively.

In Peru, the BioTrade initiative was adopted with the creation of the National Programme for the Promotion of BioTrade (PNPB) in 2004. This programme institutionalizes Peruvian BioTrade, in cooperation with MINAM (responsible for developing strategies and action plans), MINCETUR (in charge of the collection and analysis of information and practices) and PromPeru (trade promotion). In 2007, the first BioTrade National Strategy was created, aiming to steadily improve the competitiveness of selected value chains and to market high value-added BioTrade products. In this regard, agricultural products have become key value chains for the application of the BioTrade model.

The Peruvian government has fully adopted UNCTAD's BioTrade concept adapting just certain tools in general. In this sense, in 2013, the PNPB has adapted UNCTAD's P&C and included certain local regulations into the "verification compliance matrix", in order to identify local companies that meet the established parameters and to support their activities. Currently, this matrix is based on the experience of Perubiodiverso and Andean Biotrade projects.

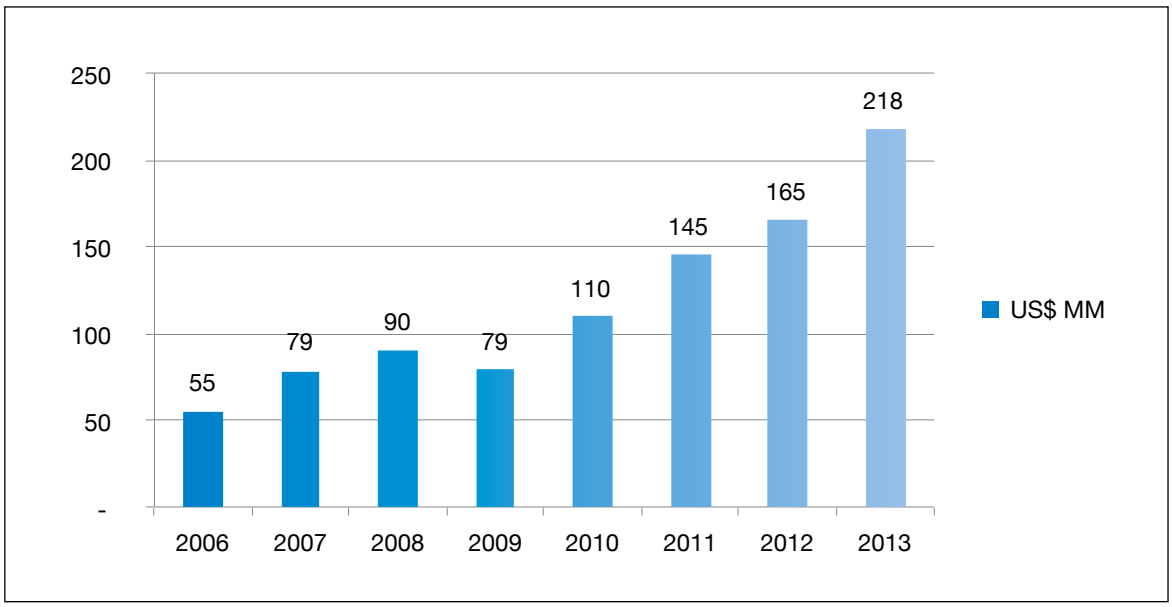
2.2 Peru's Biodiversity-Based Products Basket

Overall, the supply of native products from Peru can be divided into two categories: industrial ingredients and food. Among the important industrial ingredients are products like tara (*Caesalpinia spinosa*) and cochineal (*Dactylopius coccus*). In many cases, these supply chains show deficiencies in sustainability, traceability and benefit distribution, due to the fact that raw materials are supplied via middlemen. Moreover, since these ingredients are mostly used by industries, sustainable practices are not required, which undermines the application of the BioTrade principles.

An increasingly important product in the food category is quinoa. Quinoa production has grown exponentially over the past few years, in Peru and the region. In the past few years, FOB prices doubled due to product shortage, presenting an opportunity to increase sales.

Other important value chains in the BioTrade food category are Brazil nuts (*Bertholletia excelsa)*, Peruvian corn (*Zea mays)* and maca (*Lepidium meyenii)*. The export volume of Brazil nuts has not varied much, from 3 171 tonnes in 2006 to 4 378 tonnes in 2013, but the annual FOB values have undergone great fluctuations due to rises in FOB prices. The export market and prices for Peruvian corn have remained stable over the past few years. The case of maca is remarkable due to its sustained volume growth rate without great variations in prices, from 413 tonnes in 2006 to 1 731 tonnes in 2013 (more details in Annex I). In summary, as Figure 1 shows, the supply of native products exported from Peru has increased steadily.

Figure 1. Total Exports of Considered Peruvian Native Biodiversity-based Products (million USD), FOB, 2006-2013, Excluding Cochineal[11]

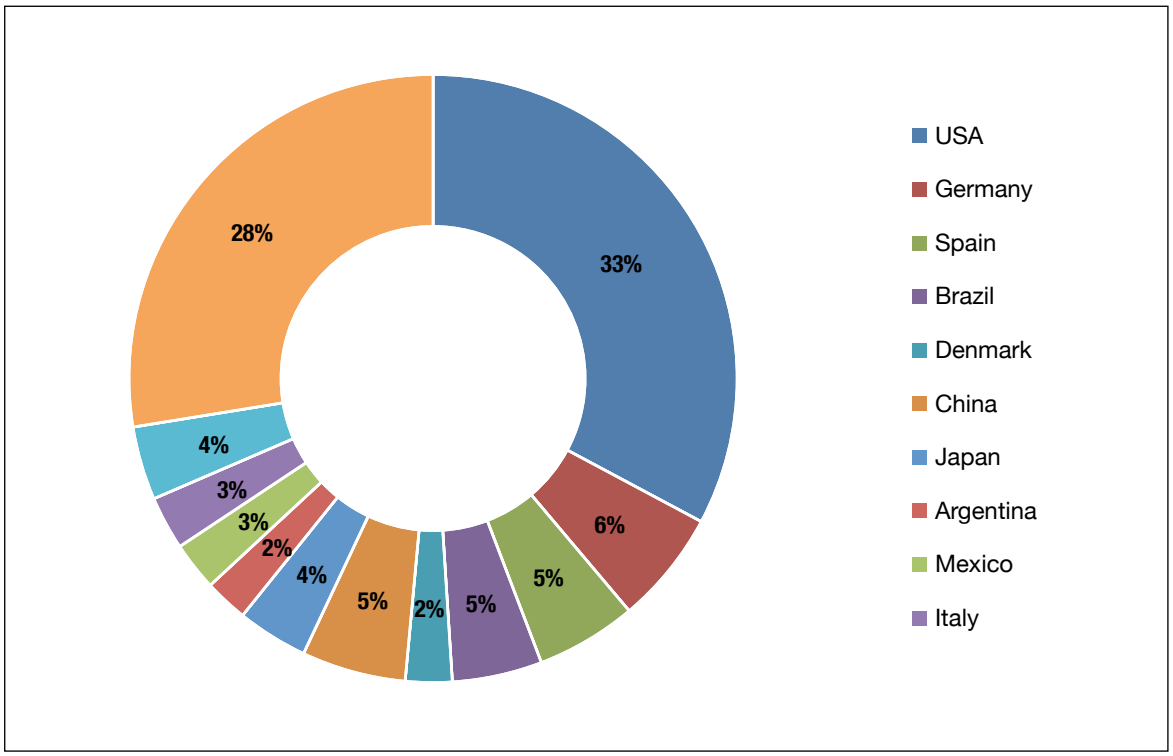


Source: SIICEX (2013). BioTrade exports statistics. Available at: www.siicex.gob.pe/siicex/portal5ES.asp?_page_=480.47900.

11 Cochineal (*Sternorrhyncha*) has suffered a 73% decrease in value FOB exports between 2011 and 2013 due to a discrediting campaign in the USA, and due to the European crisis. These two factors have reduced the market for natural dyes. As this is one of the products that contributes the most to the export figures of the BioTrade sector in Peru, its volatility distorts the behaviour of the rest of the sector. Hence, it has not been taken into account in the compilation of the export performance trend of Peruvian BioTrade products over the past few years.

According to PromPeru, the main exports markets that receive these native products are the United States and Germany. The American continent represented 51 per cent (US$ 138 million), Europe 29 per cent, (US$ 78 million), Asia 14 per cent (US$ 37 million) and the rest 7 per cent (U$ 19 million) during 2013 (Figure 2 - Ratio of countries of final destination for the exports of native biodiversity-based products from Peru in 2013).

Figure 2. Ratio of Countries of Final Destination for the Exports of Native Biodiversity-based Products from Peru in 2013



Source: SIICEX. (2013). BioTrade statistics. Available at: www.siicex.gob.pe/siicex/portal5ES.asp?_page_=480.47900. Graphic prepared by the author.

Applying BioTrade principles to native products has become a popular strategy to secure export markets. However, challenges in applying the principles remain, due to certain characteristics of the BioTrade supply chain.

2.3 Structure of the BioTrade Value Chain

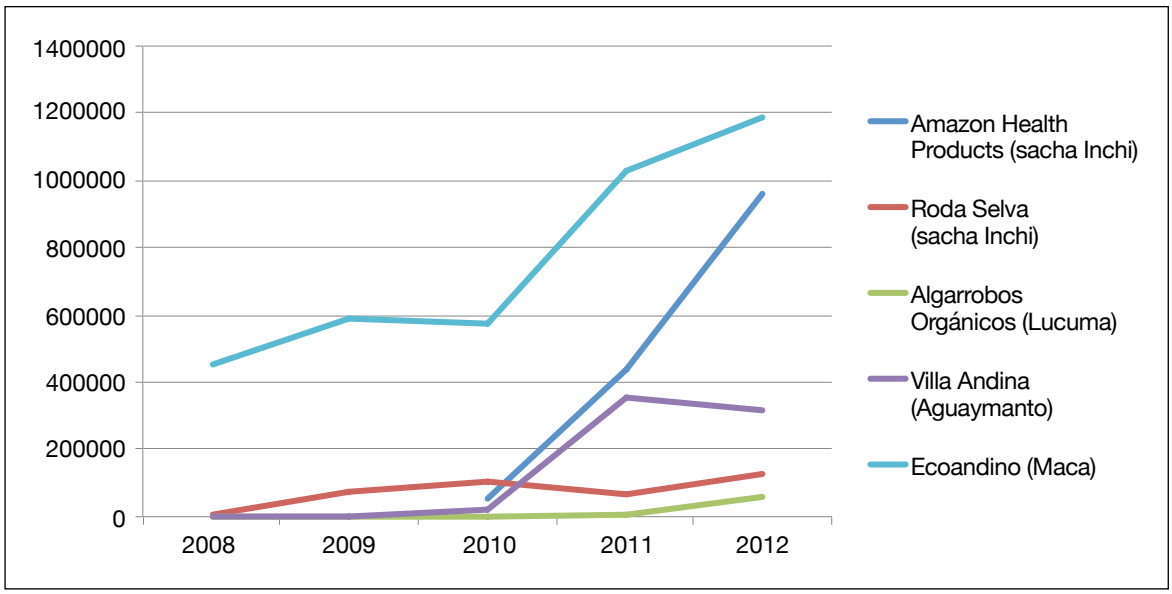
According to PromPeru, the steady growth of BioTrade over the past few years has been mainly to the result of the interventions of international development cooperation projects. These projects foster the implementation of environmental and social sustainability practices by companies dealing with native products. Only a few companies actually become members of the Union for Ethical Biotrade (UEBT), an organization that verifies the progressive implementation of the BioTrade principles and criteria. Most companies handling native products under the BioTrade model follow also some other voluntary sustainability standards, especially organic.

Biodiversity-based companies can mostly be characterized as micro and small enterprises.[12] However, there are also some medium and large companies that mainly sell products in bulk (such as quinoa, tara or maca, among others). Companies working with native products under the BioTrade or other sustainable models have been increasing in number, size and sales. The following graph shows an example of the sale

12 Micro companies have a gross income of less than US$ 100,000. Small Companies have a gross income of less than US$ 1,000,000.

trend of five different BioTrade companies (with four main native biodiversity-based products), which have been working on implementing sustainability practices over the past three years. These BioTrade companies are supported as such by projects like Perubiodiverso or Andean BioTrade (see Figure 3 - Evolution of the sales of five BioTrade companies).

Figure 3. Evolution of the Sales of Five BioTrade Companies



Source: Biocomercio Peru. Available at : biocomercioperu.pe/category/informacion-comercial/productos-priorizados. Prepared by the author.

Most native products exported from Peru show a low added value. Products are harvested in the field and then transported to processing plants where they are dried, powdered, and then exported in bulk to other countries. Importing companies from abroad use these products as ingredients for their production process or repack them for the final consumer.

The importers' profiles can be divided into two types: packers-retailers and importers-distributors.

Packer-retailer companies are abundant in number, mostly small businesses in the United States and Europe. Usually, they buy products directly from processors in situ, then pack and sell them as "superfoods" for direct consumption. Among the most notable buyers are: Sun Foods Co. (United States), Navitas Natural Co. (United States), Planet Bio Co. (Slovenia), Supernutrients Co. (Great Britain), and Essential Living Foods Co. (United States).[13]

Importer-distributor companies (a smaller group of mostly large companies with a significant portfolio of "superfoods") source native products to supply industrial buyers (pastry, manufacturing and retail). Products purchased by these industrial buyers generally show a substantial increase in demand and higher sales volumes (as in the cases of quinoa and maca). Some of the main companies within this group are Specialty Commodities Co. (United States), Andean Naturals Co. (United States), Multiple Organics Co. (United States), Ubelhor Co. (Germany)[14] (ITC, 2013).

This supply chain structure of micro-size and small enterprises in Peru (harvesting native products on the one hand) and abundant importers abroad (processing and selling products with a large profit margin, on the other) could pose a challenge to the fundamental principles of BioTrade.

13 For more information regarding these buyers, please click here: www.sunfoods.com; www.navitasnaturals.com; www.planetbio.si; www.supernutrients.co.uk; www.essentiallivingfoods.com.

14 For more information, click here: www.specialtycommodities.com; www.andeannaturals.com, www.multipleorganics.com; www.organic-germany.com.

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2.4 Current BioTrade Drivers

Several factors favour the development of BioTrade in Peru, and various actors contribute to the sector's promotion and export. Some of the most relevant are:

2.4.1 Increased demand for sustainable products

The international market for sustainable products has grown substantially over the last couple of years. Many consumers prefer certified sustainable products, which they believe offer advantages for their health and the environment. According to the biodiversity barometer prepared by the Union for Ethical BioTrade (UEBT, 2013), 68 per cent of the consumers interviewed in France, Germany, the United Kingdom, the United States, Brazil and China say that they pay careful attention to the natural ingredients in a product. 81 per cent of consumers state that supplying practices have more credibility if they are verified externally. These countries are among the main target markets for Peruvian BioTrade products. Peru can position its BioTrade products strategically in international markets through the implementation of voluntary sustainability standards such as fair trade and organic.

At a domestic level, the market for sustainable products is still in its infancy, but has been growing over the past few years. At present, there are several initiatives to promote sustainable products in domestic markets. On weekends, four organic fairs are organized in different districts of Lima and some other regions of the country, where consumers can purchase products with sustainability labels. Moreover, specific areas in the main Peruvian supermarkets (Plaza Vea, Wong and Vivanda, among others) have been promoting and selling ecological and organic products.

2.4.2 Support of international development cooperation

International development cooperation plays an important role in Peru's BioTrade sector. Two major cooperation projects have been carried out to support business initiatives in the implementation of sustainability practices: the Perubiodiverso Project and the Andean Biotrade Project.

The Perubiodiverso Project, with a budget of approximately US$ 4.8 million (2010-2013), aimed to increase the sales of companies and producers that comply with the BioTrade's principles. Meanwhile, the Andean BioTrade Project[15], with a budget of US$ 1.9 million (2011-2014), sought to contribute to the conservation and sustainable use of the Andean region biodiversity, in order to strengthen BioTrade at the local, domestic and regional level. Some of the most important results of both interventions in each of the sustainability components are shown in Table 2.

15 For more information, please click here: biocomercioperu.pe/proyectos/proyectobiocomercioandino/

Table 2. Main Results / Progress of the Perubiodiverso and the Andean Biotrade Projects

Project	Result/progress		
	Economic	**Social**	**Environmental**
Perubiodiverso phase II	- Support to the PeruNatura pavilion at the Expoalimentaria fair. - Creation of the Surquillo organic fair. - Validation of a food safety management programme for natural products. - Support for the development of technical standards of good practice for sacha inchi.	- Innovations aimed at the improvement in organization competitiveness: promotion of improvements in processes and new products- Formalization of relationships through contracts with cost analysis.	- 331 hectares with organic certification. - 2,500 hectares with management plans. - Training programmes.
Andean Biotrade	- In-cosmetics (US$ 297,500 sales), Natural Products Expo West (US$ 87,500), Biofach 2013 (US$ 502,500). - 90% of the companies have business plans in place.	- Support to 21 value chains in order to include benefit-sharing practices. - Approximately 2000 associated producers.	- Companies are implementing sustainability certifications.

Source: Perubiodiverso Project. (2010). Peru Biodiverso. *and* Andean Biotrade Project. *Available at: biocomercioperu.pe/proyectos/proyectobiocomercioandino/*

2.4.3 Government support and trade promotion

In order to facilitate the promotion of native products under the BioTrade P&C, the Peruvian government and the international development cooperation community have developed various mechanisms to support BioTrade companies. For instance, they have institutionalized the presence of exporting companies at important trade shows. Continuity in the attendance is a decisive factor, on which importers base their choice for a supplying company. According to PromPeru, around 60 per cent of the estimated reported sales are successfully closed at trade shows. Some of the subsidized trade shows are PeruNatura, Biofach and Expowest. This has not only led to important results for the economic performance of Peruvian BioTrade companies, but also shows interesting projected sales numbers (TTable 3 - Important trade promotion platforms for BioTrade companies*).

Table 3. Important Trade Promotion Platforms for BioTrade Companies*

Trade Fair	Place	2012			2013		
		Number of Peruvian Companies	**Number of companies engaged in BioTrade***	**USD Estimated**	**Number of Peruvian companies**	**Number of companies engaged in BioTrade***	**USD Estimated**
Natural Products Expo West	Los Angeles, United States	8	5	6,500,000	10	8	8,677,500
Biofach	Nuremberg, Germany	17	7	14,500,000	19	11	15'500,000
Perú Natura	Lima, Peru	30	17	14,850,000	39	25	26.800,000

** Number of companies participating in the project Perubiodiverso and Andean Biotrade, which have been evaluated regarding their compliance with the P&C of Biotrade.*
Source: PromPeru. 2014. Trade reports based on surveys of participation. Available at: www.siicex.gob.pe.

In 2013-2014, the Andean BioTrade project supported a group of 36 companies participating in trade shows of interest and other promotional activities. These activities are essential for the economic sustainability of BioTrade companies.

2.4.4 New programmes and frameworks for biotrade

During the last three years, public and international efforts to promote the concept of BioTrade and its application in Peru have been crucial. As a result, new programmes and frameworks have emerged that support and recognize BioTrade as an important sustainable trade model. According to MINAM, some of the most important new programmes related to the development of biodiversity-based products: the Programme for Sustainable Economic Development and Strategic Management of Natural Resources (PRODERN), the Apurimac Project, the Biodiversity Regional Program in CAN Member Countries (BioCAN) and the Group of Research and Innovation in BioTrade (GIIB) (Table 4 - Programmes and frameworks linked to BioTrade inPeru). The involvement of new actors through PNPB represents an important opportunity to strengthen the needs for BioTrade in a coordinated way. Companies comply with the BioTrade concept mostly by following Principles 1 and 2, namely, conservation and sustainable use of biodiversity.

Table 4. Programmes and Frameworks Linked to BioTrade in Peru

Stakeholders	Role
Sustainable land use – Apurimac Project[16]	Aimed at improving land, water and biodiversity use in the Peruvian Apurimac region.
Biodiversity Programme of the Andean Community – BioCAN[17]	Aimed at improving technical conditions and management for the development of regional economies, based on the sustainable use of biodiversity with respect for traditional knowledge.
Programme for Sustainable Economic Development and Strategic Management of Natural Resources (PRODERN, 2014)	Aimed at capacity-building for the conservation and sustainable use of biological diversity in the Peruvian Andes ecosystem (provinces of Apurimac, Ayacucho, Huancavelica, Junín and Pasco).

2.5 Conclusions

BioTrade in Peru has grown and consolidated itself over the past three years. The private sector is getting stronger thanks to the government support through PNPB. It has expanded its product supply, due to growing national and international demand for sustainable products. However, according to the interviewed actors, urgent support and continuing work to raise awareness and spread the BioTrade concept is needed in order to fully harness sustainable trade opportunities. In this regard, the following analysis will explore the implementation of different market-based instruments which can be used to further the implementation of the BioTrade model as a sustainable trade strategy.

16 For more information, please click here: www.minam.gob.pe/mst/
17 For more information, please click here: biocan.comunidadandina.org/biocan/

3 Methodology

Two strategies – sustainability certification and value-added product development – have been identified as promising tools to upscale the performance of BioTrade in Peru. These two strategies are the focus of the following analysis.

The analysis is based on qualitative and quantitative research methods, after an initial desk research. General screening exercises have been undertaken in order to identify key elements that impact the state of the BioTrade industry at a global and local level from an export perspective. After this screening exercise, a scoping of the main challenges and barriers has been performed related to (i) voluntary market-based sustainability certification and (ii) value-added production.

This paper presents an analysis of costs and benefits adhering to international voluntary sustainability standards for (i) quinoa and (ii) maca. In order to gather substantial primary information, a multi-stakeholder approach based on interviews was used. Experts have been selected among public, non-profit and business institutions. Open questions have been divided by areas of interest and 21 specialists in each area have been interviewed, mostly during the first stage of the research process.[18]

The following chapter presents the potential of certification of sustainability standards as a sustainable trade strategy. The chapter thereafter analyses value-added product development as a strategy to further BioTrade.

18 For the entire list of interviewed stakeholders see Annex II.

4 Harnessing Sustainable Trade Opportunities in BioTrade: Certification

Certification of biodiversity-based products is a tool to further the implementation of BioTrade principles, increase their dissemination and to harness the social, economic and environmental benefits from BioTrade. However, Peruvian companies are still not making full use of the BioTrade export potential. In order to analyse certification as a tool to implement the BioTrade framework, this chapter examines the link between BioTrade and certification, analysing its costs and benefits and identifying challenges in its application.

4.1 BioTrade and Certification

Voluntary private market-based standards and certification have been on the market for more than three decades. These standards promote fair and sustainable trade directed to a wide range of consumer goods and services. Voluntary sustainability standards have several market and export-related functions: they can modify production practices and product quality, and provide consumers with information regarding the characteristics of the products and the circumstances under which they were produced. Biodiversity protection, for example, is enshrined in the requirements of most voluntary market standards, making certification a relevant tool for BioTrade.

In Peru, a variety of voluntary sustainability standards are applied to the production and commercialization of BioTrade products in order to respond to market demand, depending on the niche segmentation. Organic, fair trade (FLO), fair wild, RAS and FSC standards often coincide with the set proposed by UNCTAD BioTrade P&C. The abovementioned standards are also considered a useful tool to promote the BioTrade model and to provide Peruvian native biodiversity-based products with better access to international markets.

Sustainability standards and certifications have already changed mainstream markets. The average annual growth rate of standard-compliant production across all commodity sectors in 2012 was 41 per cent, significantly outpacing the annual average growth of 2 per cent in the corresponding conventional markets (IISD, 2014). The global market for natural products grew more than 9 per cent to US$ 137 billion in 2012. By comparison, the growth of the conventional grocery market has been under 4 per cent for the past few years (Next Forecast, 2014). The foremost example of this trend is the organic market, the most popular type of certification among producers of native products in Peru.

Peru is taking great advantage of these global trends. In 2013, Peru exported US$ 350 million of organic products including native products, such as quinoa (US$ 80 million) and maca (US$ 14 million) (SIICEX Databank).

Experience has shown that integrating environmental and social issues in the production process is beneficial to the commercial and export viability of Peruvian biodiversity-based products. According to interviews performed for this study, the most visible export incentive of voluntary market-based standards and certifications for Peruvian BioTrade businesses is the predictability of future revenue, guaranteed prices and secure contracts. Moreover, when companies and producers reflect on sustainability issues, it leads them to positive reorganization of working processes, greater resource efficiency and rising competitiveness.

Overall, certification can be a valuable tool to disseminate BioTrade P&C. The BioTrade model facilitates the process of obtaining certification (organic and/or FLO) but companies could also obtain certification before considering to work according to the BioTrade model. So far, the certification that is most commonly used among Peruvian BioTrade companies is the organic certification, which corresponds to the demands of clients and customers worldwide.

4.2 Making the Case for Certification

The current section presents a case study that assesses the impacts from the adoption and implementation of the organic sustainability standard for Peruvian native biodiversity-based products from an exporter's (farmer´s and SME's) perspective. This will allow us to clearly understand the challenges and opportunities for the further development of the BioTrade model, to design effective strategies to stimulate investments, and to increase the returns for local communities. As quantitative data on the national level are often lacking, especially for selected environmental indicators, some data has been replaced by qualitative data obtained through interviews.

As BioTrade in itself is not a standard, organic certification has been chosen as a representative certification of the BioTrade model, since (i) organic standards include some of the seven BioTrade principles; (ii) organic standards are the most commonly applied by the BioTrade companies; and (iii) the organic standard is the highest in demand internationally.

The presented case study focuses specifically on two value chains: quinoa and maca. This case study will show the potential profitability of investing in organic production and signalling this commitment to final consumers.

More specifically, the purpose of this case study is to analyse and evaluate the data of some key economic, social and environmental indicators[19] within two scenarios, for the two abovementioned value chains: (1) before, and (2) after the adoption of the organic sustainability standard. The specific objective (or research question) of the case study is to assess whether obtaining a certification, and complying with sustainability standards, generates positive economic returns for producers and other economic actors. Of particular interest is also the assessment whether certification may lead to increased exports or volumes of trade, by increasing the competitiveness of local producers.

The criteria used to select these specific two value chains of quinoa and maca as a base for the current analysis were:

- **Data availability:** unless otherwise reported, the numerical data is based on the following sources of information:
  - costs of seeds and fertilizers: Fertilizante Ecocampo company[20] through the Ministry of Agriculture.
  - current market prices provided by the interviewed companies that supply the components.
  - labour costs: current price per hour paid to farmers in Peru.
  - certifications costs: the BCS OEKO GUARANTEE certificatory agency has provided the data on certification costs.[21]
- **High exports:** both products are among the 5 most exported Peruvian native biodiversity-based products, with approximately US$ 95 million in exports in 2013 (SIICEX, 2013)
- **Vast market potential:** based on interviews with national and international sector experts, there is a high level of market potential for organic certified quinoa and maca;
- **Extensive local know-how:** experience based on a long tradition;
- **Prioritization by the National BioTrade Commission**: both crops have been prioritized products under the BioTrade model.

Based on the findings of the case study, this paper derives specific recommendations for Peruvian BioTrade producers and companies interested in sustainability certification. The case study can give farmers a better understanding of the tangible results in terms of sales profits and income. The case study includes data showing the real added benefits of quinoa and maca production and commercialization under the organic scheme (Table 5) with different pricing scenarios (Table 6). In particular, three main analytical components

19 Due to the lack of national data related to the environmental costs of organic production of native biodiversity-based products, the section has calculated only the potential avoided costs of waste water treatment based on international statistics provided by Andrea Bassi from KnowlEdge (KE).
20 EcoCampo. Available at: www.ecocampo.com.pe/empresa.html.
21 Alva, M. E., personal communication, 12.02.2013.

are described that can be used to better appreciate the multiple advantages of sustainable production and trade. These include estimates of:

a) **Investment:** the allocation of financial resources for the uptake of sustainability certification and for compliance with the conditions;

b) **Added benefits:** the benefits derived from voluntary market-based sustainability certification;

c) **Avoided costs:** the costs that were avoided as result of the successful implementation of certification.

Table 5 - Case study indicators presents different elements of the analytical components that should be considered when analyzing the costs and benefits of certification. Two perspectives can be taken, the societal perspective and the perspective of a single farmer. Since the implementation of certification is a decision made by a single farmer, the following case study focuses on a farmer's and SME's perspective, analysing the costs and benefits of the production of maca and quinoa on a 1 ha field. Therefore, the following table shows in bold the elements that the case study uses in its quantitative analysis.

Table 5. Case Study Indicators

Area of assessment	Capital investment	Certification costs
Investment	• **Cost of fertilizer per hectare: organic fertilizers cost US$ 150 more per hectare than chemical ones.** • **Cost per seed for organic/conventional quinoa and maca seeds are similar.** • Organic land is more difficult to prepare for planting, as most of the land is unused (virgin) and needs additional preparation work. Estimated additional cost per hectare: US$ 300. • Unused land costs approximately US$ 1 000-US$ 1 500 per ha less than land used for organic certification.	• **Certification costs (US$/year): US$ 200-250 per ha.** • **Specialists (per consultation): US$ 2000-3000 per ha.**

Area of assessment	Economic benefits	Social benefits	Environmental benefits
Added benefits	**Premium market price (US$/ton):** • **US$ 6,000 for organic quinoa, compared to US$ 5,000 for conventional quinoa (difference of US$ 1,000 per ton)** • **Organic maca sells for US$ 8,500 per ton, compared to US$ 6,900 for conventional maca (difference of US$ 1,600 per ton).**	Sustainable income for poor farming households: • 5-10% higher income of organic producers (see full calculation below)	Restoration of the surrounding environment: • Organic crops are less harmful to the environment; • Less soil deterioration; • Land quality and value is better in the long term.

Area of assessment	Economic costs and benefits	Social costs and benefits	Environmental costs and benefits
Costs and benefits	• Reduced crop losses and disease outbreak; • Improved traceability; • Higher price of agricultural inputs*.	• Reduced income loss from improved working conditions: less labour accidents; • Farmers who are not exposed to hazardous pesticides and chemical components suffer from less chronic illnesses.	• Costs of waste water treatment for farmers (US$ 47,5 versus US$ 96,1), leading to savings of US$ 48,6 per hectare.[22]

* 1 hectare of organic crops cost US$ 357.00 more due to the incremental cost of organic components, such as fertilizers, which are twice as expensive.

22 Ke-Srl, International prices for organic and conventional water treatment: The cost of water treatment in organic agriculture is $0.22. The average cost of water treatment in conventional agriculture is $0.46. Calculated for 1 ha.

The following section represents different sales/growth scenarios for 1 ha organic and conventional quinoa and maca. In the price scenarios, the following has been assumed:

- Scenarios with current price fluctuations: 20 per cent above or below;
- Change only in price but *not* in yields;
- FOB prices from March 2013 have been used. Prices paid to farmers are in general 20-30 per cent lower than the FOB prices.
- 20 per cent of the 5,000 kilograms that each hectare of maca produces is lost during the process of transforming maca into dry powder.
- Sales and costs are calculated per hectare of maca and quinoa;
- For the total output, numbers of the same crops (quinoa and maca) from the Central Andean region of Huancayo were used for our calculations.[23] The table below presents the real variation for the two crops after analysing the revenue and cost components in terms of sales, cost per hectare and profit, while using different price scenarios that reflect the potential variations that have affected these crops, between January 2013 and March 2014 (Table 6 - Revenue and cost analysis per hectare of organic/conventional quinoa / maca6). The price range for organic quinoa is US$ 5.00-6.50 FOB/kg (2013-2014); the price range for conventional quinoa is US$ 4.00-5.50 FOB/kg (2013-2014).

Table 6. Revenue and Cost Analysis per Hectare of Organic/Conventional Quinoa / Maca

Exchange Rate Assumption (S./$)	2.80

Price now	Price of organic QUINOA	Price of conven-tional QUINOA	Kg/ha	US$ Sales per Ha			Cost per Ha		Profit		Variation US$	in % terms (more profit)
	6.00	5.00	3000									
Variation				Organic	Conventional	Difference	Organic	Conventional	Organic	Conventional		
-20%	4.80	4.00		14,400.00	12,000.00	2,400.00	3,204	1,918	11,196.43	10,082.14	1,114.29	10%
-10%	5.40	4.50		16,200.00	13,500.00	2,700.00	3,204	1,918	12,996.43	11,582.14	1,114.29	11%
0%	6.00	5.00		18,000.00	15,000.00	3,000.00	3,204	1,918	14,796.43	13,082.14	1,714.29	12%
10%	6.60	5.50		19,800.00	16,500.00	3,300.00	3,204	1,918	16,596.43	14,582.14	2,014.29	12%
20%	7.20	6.00		21,600.00	18,000.00	3,600.00	3,204	1,918	18,396.43	16,082.14	2,314.29	13%

Price now	Price of organic MACA	Price of conven-tional MACA	Kg/ha	US$ Sales per Ha			Cost per Ha		Profit		Variation US$	in % terms (more profit)
	8.50	6.90	4000									
Variation				Organic	Conventional	Difference	Organic	Conventional	Organic	Conventional		
-20%	6.80	5.52		27,200.00	22,080.00	5,120.00	3,504	2,173	23,696.43	19,906.79	3 ,789.64	16%
-10%	7.65	6.21		30,600.00	24,840.00	5,760.00	3,504	2,173	27,096.43	22,666.79	4,429.64	16%
0%	8.50	6.90		34,000.00	27,600.00	6,400.00	3,504	2,173	30,496.43	25,426.79	5,069.64	17%
10%	9.35	7.59		37,400.00	30,360.00	7,040.00	3,504	2,173	33,896.43	28,186.79	5,709.64	17%
20%	10.20	8.28		40,800.00	33,120.00	7,680.00	3,504	2,173	37,296.43	30,946.79	6,349.64	17%

Source: Prices provided by the company "Incorporación Internacional Mayra".

23 Prices provided by the company Incorporación Internacional Mayra.

As shown, price variations have a major impact on the profit of the crops but the variation percentage remains stable among both crops (10-13 per cent more profits for quinoa, while the additional profit for maca is between 16 and 17 per cent). The cost per hectare remains stable over time. Agricultural inputs, such as fertilizers and seeds, might have higher price volatility. The main costs deriving from organic agriculture are fertilizers, the additional labour costs, the required expertise and the costs of certification. While these factors lead to higher costs, much of this can be offset by the higher selling prices.

In conclusion, according to the presented data, obtaining organic certification generates positive economic returns for companies and producers working under the BioTrade model for the two selected products. This income can be invested in new planting technologies and irrigation systems, among other investments.

Organic quinoa, for example, can help to double the net income of growers in real dollar terms, while organic maca can increase farmers' incomes with up to 50 per cent, based on a 10 per cent price increase of organic and conventional quinoa. One hectare of organic quinoa yields US$ 18,000 versus US$ 15,000, and it costs approximately US$ 1,200-1,300 more per hectare when planted organically. This will lead to an improvement in the wellbeing of participants and eventually poverty reduction.

Some of the added benefits (such as higher income, job creation and better margins) can be measured in real terms, but others (such as reduced soil degradation, better preservation of the natural habitat, and cheaper water waste treatment) are more difficult to measure and quantify. However, considering the data, it seems that the net result in this equation is highly positive.

Organic growers have a better opportunity to sell their crops at a premium price in a less competitive market than conventional growers, since the international demand is strong and supply is likely to remain limited over the next two to three years. International demand is already higher than supply in Peru, and BioTrade exporters are often unable to find enough organic certified native crops. A number of factors were mentioned to cause this limited production of certified native crops. First, farmers stated that expertise about organic farming methods is lacking. Second, additional investments are required, and third, farmers are not convinced of the real "net" benefits in terms of profits.

In order to better understand why farmers do not harness the trade opportunities arising from the transition to organic production, the following chapter looks at the challenges of certification.

4.3 Challenges for Certification in Peru

Complying with private voluntary sustainability standards requires substantial capital, time and skills. The challenges to obtain and maintain a certification are minor for companies that only source the product, as they know the value of certified products in export markets. Farmers and / or harvesters face more important challenges, even if they are grouped in associations and cooperatives.

In spite of the profitability in the long run, the decision to shift to more sustainable trade practices is often based on short-term price signals. There are some notorious examples, such as cochineal in the region of Arequipa, aguaymanto (also known as Peruvian groundcherry) in the region of Cajamarca, and maca in the region of Junín, where the dramatic rise in prices has converted these native wild species in monoculture crops.

The following section discusses the three most cited export challenges surrounding the application of voluntary sustainability standards and certification in Peru.

A1. Lack of knowledge about sustainability standards in the case of NTFPs:

> *"…Brazil nut is a non-timber forest product (NTFP) and by being "natural", a lot of people who grow Brazil nut trees think that there is no need for the product to be certified. However, they tend to forget that the lack of pesticides represents only 25 per cent of the organic philosophy and the rest of the environmental and social components are also extremely important. If you want to be successful as a harvester or exporter you have to integrate also those values in your production and commercialization processes."*
>
> Gaston Vizcarra, CEO Candela Peru

The statement above illustrates a very common myth within companies dealing with wild harvested/ collected products in Peru. They often consider products to be organic for the mere fact of being collected from a wild forest. Yet, selling those products only as wild forest products is not very helpful for communities and the environment. On the contrary, it could be rather harmful since there are a lot of NTFP collected without proper forest management and planning.

A2. Lack of appropriate financial facilitating mechanisms for small-scale producers:

> *"I think that organic standards do not take into consideration the real conditions of the small businesses. They have been developed for mostly large companies that manage monoculture crops and large plantations. The problem is that traders obtain their products from many farmers who have small lots with many different crops. For example, I work with sacha inchi, which is in the same market as flax (Linum usitatissimum). Flax is a monoculture and one producer could have up to 200 ha. I have 200 producers, each one with 1 ha, but certification prices are the same for both of us, or even cheaper for them since they can negotiate a tariff of scale with the certificator."*
>
> Wally Winder, CEO Amazon Health Products

The UEBT[24] verification system is based on the evaluation of companies' compliance with the Ethical BioTrade Standard. The verification cost is US$ 500, which in reality includes only the cost of the certification inspector's 1-day visit for auditing the company's management system at the plant. The cost of the certification does not depend on the size of the producer's land or the number of products, which causes problems for small producers. If we consider an association of 50 members, the required investment for obtaining and maintaining certification is approximately US$ 40 000.[25]

This challenge is closely related to another obstacle often mentioned by SMEs: the financing mechanisms in the agricultural sector. Various state and private banks in Peru provide financial help for SMEs, but credits are mostly awarded to monoculture commodity agriculture products (including certified ones). Additionally, credits to a company are granted only if they have a financial proof of a minimum of 2 years of operations, which makes it difficult to enter the market.

Furthermore, in most cases, the certification of farmers is at the expense of the buyer. This releases the pressure from the farmer to obtain certification, but leads to a situation in which one single buyer holds the exclusivity to buy all the production. In this one-buyer scenario, farmers have limited price-setting power and lose their independence. Therefore, it should be explored how farmers can obtain certification for themselves.

Worldwide, a variety of private social investments funds sponsor similar production and export activities.[26] Unfortunately, the majority of SMEs, especially in Peru's countryside, are not aware of those possibilities.

24 The Union for Ethical BioTrade is a non-profit association that promotes "Sourcing with Respect" for ingredients that come from biodiversity. Registered in Geneva, with offices in Amsterdam and Sao Paulo, UEBT manages the Ethical BioTrade standard. Members of UEBT are companies working in cosmetics, food or pharmaceutics. UEBT is neither a certification scheme nor a certification body. Third party auditors periodically verify the commitments of UEBT members. Together with developing country actors, UNCTAD elaborated guiding principles and criteria for BioTrade, which currently form the basis of the Union's verification framework. Retrieved from: ethicalbiotrade.org.

25 Martinto, P., personal communication, 24.08.2014.

26 Both the Grassroots Business Fund (www.gbfund.org)and Root Capital (www.gbfund.org), for example, have offices in Peru and have successfully financed sustainability certifications for some limited numbers of native biodiversity-based businesses and producers.

A3. Lack of effective market linkages between small producers and international buyers/suppliers

> *"…I produce only 10 tonnes of organic quinoa and have only 5 ha of land. When I call a buyer outside Peru, he tells me that he buys only from producers that can assure him a minimum of 20t. But those 10 tonnes are my life and the income for the entire neighbourhood here. Where can I offer such a quantity? I don't think that I will be able to renew my certification next year…"*
>
> Jorge Sánchez, quinoa producer, Puno

Globally, there is a major mismatch of information between suppliers and buyers of natural products. Many Peruvian companies are unaware of sales channels for the smaller quantities they produce. Interestingly enough, the same is true for small international buyers worldwide. The question here is how to integrate these small and poor producers into the global value chain and connect them to international buyers and suppliers at their level. According to the certification agency Control Union (CU), approximately 10 per cent of the BioTrade businesses drop out of certification, but the percentage is higher among smaller producers, including small associations.[27] Small-scale producers run the risk of being excluded from high-value markets.

On the other hand, multinational companies finance and give preferential treatment to sophisticated products from developing countries under their Corporate Social Responsibility (CSR) policies. The growing number of companies that have made these commitments illustrates the critical role that the private sector plays in the overall market growth of certified products (IISD, 2014).

27 Bustamante, A., personal communication, 05.12.2013.

5 Harnessing Sustainable Trade Opportunities in BioTrade: Value-added Product Development

Peruvian BioTrade companies mainly supply raw materials and gain only a small fraction of the revenue that is generated in the supply chain. Equitable revenue is one of the biggest challenges for BioTrade companies. The following chapter therefore assesses the potential of the Peruvian BioTrade sector to expand into value-added product development.

5.1 The Current Status of Value-addition in the BioTrade Value Chain

Most of the Peruvian exports that are considered under the BioTrade model show a low added value. Native products are harvested in the fields, lightly processed (basic transformation techniques, such as drying, powdering, etc.) and exported in bulk form. Importing companies abroad use these products as ingredients, or repack them for the final consumer, ultimately earning the biggest profits in the chain. Table 7 - Average price of four biodiversity-based products at three of the main stages of the value chain shows the example of 4 certified organic products exported under the BioTrade model, and their prices at different stages in the value chain.

Table 7. Average Price of Four Biodiversity-based Products at Three of the Main Stages of the Value Chain[28]

Product[28]	Price of the raw material in Peru (USD/kg)	FOB, in the port in Peru (USD/kg)	Retail price at Amazon.com (USD/kg)
Quinoa grains	3.5	4.69	12.01
Maca powder	4.1	7.17	35.25
Dried aguaymanto	6.5	13.98	45.41
Lúcuma powder	5.7	12.03	40.61

Sources: Cost of Raw Materials: personal communication from P. Martinto; FOB price: Sunat.com; Retail price: Amazon.com. Prices considered for organic products. Prepared by the author.

The table indicates that there is no equitable profit sharing along the value chain. The entire basket of final products is elaborated by foreign brands. If Peruvian companies could develop value-added products, they would be able to achieve a better price for their products. Value-added product development is a promising strategy to scale up Peruvian BioTrade, but it requires financing and expertise.

5.2 The Value-added Potential of Peruvian Biodiversity-based Products

Many of Peru's native species are unique in their content of nutrients. Camu-camu *(Myrciaria dubia)* contains valuable antioxidants, and potent proteins and amino-acids can be found in sacha inchi *(Plukenetia volubilis)* and yacón *(Smallanthus sonchifolius),* among others. Based on its native biodiversity, Peru has a high potential to develop unique value-added products and establish its competitive advantage in the world market. The path towards world markets for these value-added products is, to an extent, already paved. Peruvian native products have become fashionable. Quinoa (*Chenopodium*) and maca (*Lepidium meyenii*) are now commonly found around the world, enabling other less well-known Peruvian native products, such as amaranth (*Amaranthus caudatus*), tarwi (*Lupinus mutabilis*) and lucuma (*Pouteria lucuma*), to have a better promotion and sales platform and gain market access.

28 Prices shown are for organic products.

While there are some positive examples on value-added product development from Peru (Figure 2), very few Peruvian BioTrade producers and manufacturers have been able to enjoy an appropriate fraction of revenues generated by BioTrade products along the value chain. Several challenges regarding the development of value-added products remain.

Box 3. Examples of Market Success with Value-added Products from the Native Biodiversity of Peru

Quinoa Line from Peru

Organic Sierra & Selva is a quinoa-exporting company, which applies various sustainability standards, and has developed a successful line of value-added products in Peru. Having invested in product presentation, it is on the verge of being launched internationally as a fully Peruvian product.

Source: Sierra y Selva Co. Available at: www.sierrayselva.com/quinuagourmet

5.3 Challenges for Value-added Product Development in Peru

Several reasons can be given for the limited value-added product development taking place in Peru. According to P. Martinto, CEO of Villa Andina Company, "*Peruvian BioTrade companies are still not ready to design, launch and sell value-added products under their company's own brand directly to retailers. The BioTrade sector is not ready to include more complex operations that involve a high level of expertise in branding, marketing, logistics, sales and financing. In Peru there is a lot of biodiversity but still very little BioTrade.*" Besides, Peruvian BioTrade companies have expressed their concern that launching a "*Made in Peru*" product line will create direct competition with their current international buyers. In the worst case, companies fear that this could lead to international buyers seeking other supplying partners.

Investments are slowly being directed towards innovation, technology and R&D, but products that are mature in the product cycle in terms of quality, design, marketing mix and sales channels, are still absent.

The barriers for launching more sophisticated product lines based on the Peruvian native biodiversity are numerous. The most commonly mentioned barriers can be divided roughly into the following external and internal categories:

- **External market barriers:** insufficient market information, inadequate transport infrastructure, ineffective market regulation and limited access to funding.
- **Internal market barriers:** product and supply system limitations.

A4. Deficient positioning of Peru as a world supplier for biodiversity-based products

> *"…there is a lack of identification of the Peruvian BioTrade products at international markets. The potential to identify, develop, promote, and market other very interesting ingredients from the Andean and Amazon regions still remains intact".*

Josef Brinckmann, ITC consultant

Peruvian ingredients are used in a variety of industries worldwide. However, people are normally not aware of their origin. The export of pure raw materials fails to relate the final product back to its source.

A5. Lack of consistent supply capacity

Compliance with quality and consistency demands for products and processes is another challenge for BioTrade companies, for the following three reasons:

1. Limited access to technical assistance, training and information;

2. Lack of loyalty and trust between producer's communities and companies.

The skills and knowledge constraints include the lack of R&D (UNEP, 2012), but also business management skills (e.g. for production planning), while quality and sanitary standards are increasingly difficult to meet. Linkages based on mutual respect and commitment between companies and producers is another area of concern.

A6. Lack of expertise to upgrade production methods and marketing processes

> *"If you want to make your company successful, you need to upgrade your production and marketing processes. As a small export company, I have to outsource my production and rely on external marketing agencies. Both of them are very expensive and do not meet the international requirements asked for by the market."*

Ivan Collado, CEO Inka Millenium

BioTrade companies often lack the required skills for packaging, presentation/marketing, and branding. There are interesting initiatives from Peruvian companies that found a unique niche and attracted enough resources to develop their business properly, but did not manage to directly reach the final consumer.

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6 General Conclusions

BioTrade can play a key role in Peru's shift towards a more sustainable economic model. The sector's full potential could be reached by developing more sophisticated products, expanding into new markets, introducing innovative technologies, and improving productivity. This would create new jobs, protect the environment and preserve the country's natural resources. Environmental degradation remains a critical issue in Peru. The country aims to further develop sustainable and green trade practices such as organic and BioTrade, in order to address aspects of sustainability like climate change, food security, poverty, employment, public and human health, natural resource use (especially land and water) and biodiversity.

The BioTrade model can combine increased exports with more environmentally friendly and sustainable production systems. However, the sector has not reached its full export potential. Financial and technical assistance is needed. The study assessed the potential of sustainability certification and value-added product development as tools to strengthen BioTrade in Peru. The study found that sustainability certifications and value-added product development could both increase the export potential of the Peruvian BioTrade sector, but capacity building and technical assistance is needed.

Before successfully implementing Voluntary Sustainability Standards in Peru, policy-makers face a number of challenges. These are mainly:

- lack of knowledge about sustainability standards in the case of NTFPs;
- lack of appropriate financial facilitating mechanisms for small-scale producers;
- lack of effective market linkages between small producers and international buyers/suppliers;
- deficient positioning of Peru as a world supplier for biodiversity-based products;
- lack of a consistent supply capacity;
- lack of expertise to upgrade production methods and marketing processes.

Based on an extensive background analysis of the sector, the study offers some concrete recommendations to the Peruvian BioTrade community. For more detailed recommendations, please see the Action Plan in Annex III.

In order to address the knowledge gaps among Peruvian producers, an introduction to sustainable trade practices should be provided. The lack of financial facilitating mechanisms can be addressed by firstly dispersing information about existing national and international financial facilitating mechanisms, secondly negotiating with private certification bodies on potential fee reductions for small-scale producers, and thirdly establishing a certification fund for small-scale producers. In order to prevent certified producers to drop out, Peruvian BioTrade producers and companies should be linked more closely to other small-scale international buyers and suppliers. On the one hand, multinational companies at regional and international level should cooperate with local producers on the basis of long-term commitments. On the other, grouping small-scale suppliers into associations and establishing further public-private partnerships will create a more balanced relationship between stakeholders and promote mutually beneficial actions and investments.

Peru is still not globally known as the leading producer of BioTrade products. Implementing new strategies to raise awareness about Peruvian BioTrade products will have a positive effect on the global demand for BioTrade raw products and ingredients. This demand has to be met by promoting means of sustainable production. Lastly, producers/suppliers of BioTrade products need to have a secured access to quality processing facilities, taking into account that small producers are not likely to be able to meet the high requirements of the certification process without external help. Additionally, information about possible branding mechanisms and value-added products has to be spread. This will enable suppliers to evaluate the monetary impact of a shift to sustainable BioTrade.

ANNEXES

Annex I. Annual Exports of Peruvian Native Biodiversity-based Products (FOB, US$) 2009-2013

Product	Scientific name	2009	2010	2011	2012	2013
Cochineal	*Dactylopius coccus*	43,068,276	208,708,784	212,594,013	85,359,300	55,781,727
Tara	*Caesalpinia spinosa*	25,373,503	43,084,648	42,266,721	57,221,816	48.616.027,56
Brazil nut	*Bertholletia excelsa*	11,605,006	15,042,964	27,506,999	22,338,519	28,561,755
Achiote	*Bioxa Orellana*	10,359,909	11,089,051	13,941,302	10,582,973	11,114,272
Peruvian corn	*Zea mays*	9,782,564	9,536,133	11,440,868	14,244,072	17.981.398,74
Quinoa	*Chenopodium quinoa*	7,619,645	13,552,562	25,700,924	34,165,002	80.009.937,03
Maca	*Lepidium meyenii*	4,978,309	6,155,516	8,594,071	10,667,375	14.004.415,63
Quihuicha	*Amaranthus caudatus*	1,914,906	1,863,469	2,395,629	806,707	825.492,39
Purple corn	*Zea mays*	1,688,277	1,877,456	1,495,189	1,480,953	2,121,372
Cat's Claw	*Uncaria tormentosa*	1,026,355	1,375,883	1,032,697	1,225,718	1,255,637
Sacha Inchi	*Plukenetia volubilis*	847,850	1,047,042	1,538,855	3,168,285	2.482.586,62
Camu Camu	*Myrciaria dubia*	663,457	596,810	914,951	1,166,487	1.776.071,90
Lúcuma	*Pouteria lúcuma*	546,938	629,971	913,338	1,455,836	2.861.431,78
Yacón	*Smallanthus sonchifolius*	351,098	633,193	1,094,938	1,423,459	1.147.480,92
Aguaymanto	*Physalis peruviana*	54,105	148,297	787,387	604,206	647.549,48
Other products	/	2,333,533	2,948,848	5,465,593	4,716,616	175,268,746
TOTAL		**122,213,730.64**	**122,213,731**	**318,290,626**	**357,683,475**	**250,627,325**

Source: SIICEX (2013). BioTrade eport statistics. Available at: www.siicex.gob.pe/siicex/portal5ES.asp?_page_=480.47900. Table prepared by the author.

Annex II. List of Interviewed Stakeholders

1. Government Organizations

Daniel Espinosa – MINCETUR

Eduardo Buse – MINCETUR

Roger Loyola – MINAM

Elizabeth Merino – MINAM

Vanesa Ingar – MINAM

Claudia Solano – PromPeru

Guadalupe Amesquita – PROMPERU

2. Private Companies

Gaston Vizcarra – CEO Candela Peru

Wallis Winder – CEO Amazon Health Products

Pedro Martinto – CEO Villa Andina

Juan Antonio Portugal – Villa Andina

Cesar Zorilla – CEO Organic Sierra & Selva

Travis Baumgardner – Sambazon.Co

Patrick Struebli – CEO Fair Trasa

Ivan Collado – CEO Inka Millenium,

Janet Elizabeth Caipo Alayo – Incorporación Mayra

Orihuela Camargo Mercedes – CEO Ecocampo SAC

3. Donor Organizations

Cynthia Garcia – Andean Biotrade

Joan Barrena – GIZ

Jaime Cardenas – GEF/CAF

Patrick Gallard – EU

Lesly Vera – SIPPO

Annex III. Proposal for a BioTrade Action Plan

Overall Objectives

The overall objective of the proposed BioTrade Action Plan (AP) is to build capacity in the national BioTrade sector in order to take advantage of the potential international trade opportunities.

More specifically, the AP (and its related activities) can be divided into two interventions:

- **Intervention 1:** providing capacity-building and technical assistance to encourage voluntary market-based sustainable standards (likely organic) under the BioTrade approach in one of the value chains prioritized by the government.
- **Intervention 2:** providing capacity-building and technical assistance for the development of the first value-added products for international markets.

Planned Activities

Intervention 1: Encourage sustainable certification

The objectives of the first intervention have been conceptualised as followed:

Challenge 1. Lack of knowledge about sustainability standards in the case of NTFPs

Recommendation 1: Increase the knowledge about organic and other standards methods and practices among harvesters and traders of native Non-timber Forest Products (NTFP); and seize the opportunity to increase the sustainability impact through the adoption of sustainability certification, especially in Peru's Amazon forest.

Actions:

- To identify and select a number of companies (approximately 10) working with a specific NTFP prioritized by the government, preferably from the Peruvian Amazon basin, which has a high potential impact to positively impact employment, income and nature conservation;
- To introduce the companies to sustainable trade practices under the BioTrade approach;
- To lead their efforts to obtain a sustainability certification (probably organic).

Actors in change: UNEP, NBC, international certification agencies with offices in Peru, MINAM, MINCETUR, IPPN and producer associations.

Challenge 2: Lack of appropriate financial facilitating mechanisms for small-scale producers

Recommendation 2: Spread the information about national and international financial facilitating mechanisms to BioTrade SMEs; collaborate with international private certification bodies and negotiate smaller fees for small-scale producers; establish a certification fund.

Actions:

- Identify concrete appropriate funding mechanisms for SMEs within public and private, bilateral and multilateral institutions at the national and international level;
- Summarize the findings and publish the information on the website of the Peruvian BioTrade initiative: biocomercioperu.pe/proyectos/proyectobiocomercioandino/;
- Elaborate, with the Peruvian Sanitary and Phytosanitary Agency (SENASA). a proposal to reduce certifications fees for small-scale BioTrade producers, which can subsequently be presented to international certification bodies.
- To create a fund for financing certification for associations and cooperatives.

Actors in change: UNEP, NBC, international certification agencies with offices in Peru, SENASA, PromPeru, MINAM, MINCETUR and IPPN.

Challenge 3: Lack of effective market linkages between small producers / companies and international buyers / suppliers

Recommendation 3: Link Peruvian BioTrade producers and companies to other small-scale international buyers / suppliers; identify multinational companies at the regional and international level and work towards long-term commitments from these actors to cooperate on mutually beneficial actions / investments; establish further public-private partnerships and group small-scale suppliers into associations.

Actions:

- Establish a virtual and actual database and a platform that can link the Peruvian BioTrade producers and companies to other small-scale international buyers / suppliers of natural products and ingredients in the food industry, and to provide information and matchmaking services;
- To analyse the Corporate Social Responsibility (CSR) policies of main multinational enterprises (MNEs), and identify potential partners within the CSR framework;
- Create a concrete proposal for collaboration in the context of "investment for development";
- Encourage MNEs to engage in linkages through appropriate PR strategies;
- Organize contact events for MNEs and SMEs.

Actors in charge: UNEP, NBC, MNEs, PromPeru, MINAM, MINCETUR, IPPN and ITC.

Intervention 2: A value-added product creation

The objectives for the second intervention have been conceptualised as followed:

Challenge 4: Deficient positioning of Peru as a world supplier of biodiversity-based products

Recommendation 4: Develop new or adapted policies and strategies to enhance the positioning of the country's natural products at the main destination export markets;

Actions:

- Appoint a well-recognized and experienced international advertising and promotion agency that can create an effective and goal-oriented advertising campaign aimed at positioning the country's native natural products at leading international markets;
- Incorporate the campaign outline into the current strategies and plans of the Peru Export and Tourism Promotion Board (PromPeru);
- Monitor and evaluate the results of the campaign in terms of export growth in the BioTrade sector.

Actors in charge: UNEP, NBC, international advertising and promotion agencies, Peruvian International Trade Offices abroad, IPPN, MINAM, MINCETUR and PromPeru.

Challenge 5: Lack of consistent supply capacity

Recommendation 5: Adjust the capability of companies and producers to respond adequately to the international demand for BioTrade ingredients and raw products matching this demand in an environmental-friendly manner.

Actions:

- Increase the quality of BioTrade production by providing access for producers and companies to tailor-made technical assistance, training and information on sustainable agriculture methods and practices;
- Increase the interactions between BioTrade producers and BioTrade companies by organizing workshops and dialogues.

Actors in charge: UNEP, NBC, MINAGRI, PRODUCE, Associations of BioTrade producers, IPPN, MINAM and MINCETUR.

Challenge 6: Lack of expertise to upgrade production methods and marketing processes

Recommendation 6: Establish a secured and adequate access to quality processing facilities; and provide information about branding mechanisms for value-added products.

Actions:

- Identify an already established and trustful Peruvian BioTrade company and support its efforts in the development of a value-added product;
- Strengthen the creation of synergies and linkages between the company and the international market;
- To stimulate the kick-up start of the first "Made in Peru" product at a selected market retail location under its brand.

Actors in charge: UNEP, NBC, IPPN, MINAM, MINCETUR, PromPeru, ITC, international companies and retailers.

Implementation and Sustainability

Each of the activities mentioned above should be elaborated in detail and presented to the NBC for a specific agency endorsement.

The primary requirements for the successful implementation of the action plan are:

- Inclusion of the project as part of the National Biotrade Strategy 2014-2021;
- Allocation of human and financial resources;
- Implementation of supporting policy and regulatory instruments;
- Close involvement of Government institutions and other relevant stakeholders;
- Continuous monitoring and evaluation.

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