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# **Enterprising Nature**

## **Peruvian Biotrade Program as a tool towards closing the biodiversity gap.**

**Brenda Lucía Butron Matta**

**(19070721)**

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**KING'S COLLEGE LONDON**  
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**DEPARTMENT OF GEOGRAPHY**

**MA DISSERTATION**

I, Brenda Lucía Butron Matta, hereby declare (a) that this Dissertation is my own original work and that all source material used is acknowledged therein; (b) that it has been specially prepared for a degree of King's College London; and (c) that it does not contain any material that has been or will be submitted to the Examiners of this or any other university, or any material that has been or will be submitted for any other examination.

**This dissertation is 7,753 words.**

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## **Abstract**

This research outlines how new forms of enterprising nature are developed in biodiversity-rich countries such as Peru, approaching specifically the Biotrade business model. It provides an overview of how the country measures its biodiversity gap and what actions are taken to counter it. The study then continues with a brief description and analysis of the legal, institutional, market, social and ecological aspects of the value chain of the Biotrade program on a macro level; to later explore whether this business model contributes to closing the country's biodiversity gap. Finally, it ends with an examination of the challenges and opportunities of the financial mechanisms that have been deployed to close the country's biodiversity gap and promote investment in natural capital.

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## List of abbreviations

ALOXI = Work for Taxes Alliance

AMUMA: Multilateral agreements on the environment

BIOFIN = Biodiversity Finance Initiative

BTFP = Biotrade Facilitation Program for Products and Services Derived from Biodiversity

CBD = Convention on Biological Diversity

CEO = Chief Executive Officer

CEPLAN = National Center of Strategic Planning

CFA = Chartered Financial Analyst

CI = Conservation International

CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora

CNULD: United Nations Convention to Combat Desertification

CONAM = Decree of the Directing Council

GDP = Gross Domestic Product

GOVI = Governmental institution

GPS = Global Position System

MDG: Millennium Development Goals

MEF = Ministry of Economy and Finance

MINAM = Ministry of Environment

MINAGRI = Ministry of Agriculture and Irrigation

MINCETUR = Ministry of Foreign Trade and Tourism

NBSAP = National Biodiversity Strategies and Action Plans

NGO = Non-Governmental Organisation

OXI = Work for taxes

PAGE = Partnership for a Green Economy

PNA = Protected Natural Areas

PNCP = National Competitiveness and Productivity Plan

PPP = Private-Public Partnerships

PRODUCE = Ministry of Production

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P&C = Principles and Criteria  
PNBP = Peruvian National Biotrade Program  
RAMSAR = Convention Relating to Wetlands of International Importance  
RQ = Research Questions  
SD = Sustainable development  
SDG = Sustainable Development Goal  
SELA = Latin American Economic System  
SME = Small and Medium Enterprise  
SPDA = Peruvian Society for Environmental Law  
UN = United Nations  
UNCTAD = United Nations Conference on Trade and Development  
UNDP = United Nations Development Program  
UNEP = United Nations Environment Program  
UNP = United Nations Program

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## 1. INTRODUCTION

Nature provides us daily with freshwater, light, food, landscapes and many others. Although the supply of these services may imply a cost, it is undeniable that they are all necessary to maintain our mental and physical welfare. However, to what extent are humans aware of what being provided with these services means? Most importantly, how much of this money returns to nature? The overexploitation of ecosystem resources has led us to the current environmental crisis. Nonetheless, there is increasing awareness about the loss of biodiversity, and it is thought to be as catastrophic as climate change (The Guardian, 2019).

The discourse on biodiversity conservation has changed over the last decades. There has been a shift in resources, from being 'off-limits' to being available for 'responsible use' (Fortuna et al., 2014). This perspective fostered approaches such as Enterprising Nature, Biodiversity Finance and Green Economy, which align to bring us balance and peace in the modern world demands between man and with nature (PAGE, 2017). Several governments have been drawn to these models because they can invigorate strategic economic sectors by greening their production processes and seizing business opportunities by implementing a sustainable value chain (UNEP, 2012). Likewise, on the supply side, consumers become more environmentally conscious; therefore, companies that trade eco-friendly products and demonstrate respect for the environment are also prone to have competitive advantage.

Although there are different ways of monetising nature, an initiative widely promoted by global institutions is Biotrade, where biodiversity plays the leading role. It is argued that the responsible trade of natural products allows to sustain biological diversity (Jimenez et al., 2017). In addition, one of its many benefits is the contribution to alleviating poverty (PAGE, 2015). This dynamic trade area holds a high potential for many biodiversity-rich developing countries such as Peru. However, there are also concerns about whether the demands of sustainable

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products and the greening of the economy would make the challenges of climate change more onerous.

Peru has 84 of the world's 104 climate zones and is amongst the top 10 countries that account for the world's most exceptional biodiversity of plant and animal species (MINAGRI, 2018). For this reason, it was one of the first countries to participate in the implementation of the joint Biotrade Facilitation Program for Products and Services Derived from Biodiversity (BTFFP) with the United Nations Conference on Trade and Development (UNCTAD) to develop trade in biodiversity products at the World Summit on Sustainable Development (ITFM, 2002).

Biotrade focuses on the collection, production, transformation and commercialisation of goods and services that derive from native biodiversity (UNCTAD, 2006). In most cases, biodiversity goods and services are found within virgin ecosystems and Protected Natural Areas (PNA). These ecosystems can absorb and prevent up to two-thirds of the greenhouse gases that are emitted each year (Biodiversidadla, 2012). Nevertheless, some activities generate an alteration in the ecosystem, which produces a decrease in carbon absorption within it. Some of these include peasant agriculture, ecotourism, aquaculture and non-timber forest production. For this reason, it is believed that while Green Economy Models may buy us some time as we approach the critical point where the Earth will no longer support human consumption and waste levels, the end result will remain the same (Serrano and Martin, 2011). Otherwise stated, green developmentalism focuses on responsible investments with the environment, but economic growth is still embedded without consideration to the limited resources of the planet (Khor, 2010; Martínez-Alier et al., 2010).

This thesis aims to explore international efforts to tackle biodiversity loss and embrace social equity in Peru by addressing new forms of enterprising nature and new market forces that connect with Sustainable Development (SD), which is one of the most widely accepted frameworks for mitigating climate change. In this manner,

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this dissertation will explore how the country's biodiversity gap is approached and how the Peruvian National Biotrade Program (PNBP) contributes to closing it, fulfilling the Biotrade triple objective. As such, the following research questions will be examined (RQ):

**RQ1:** What actions have been taken to identify and close the biodiversity gap in Peru?

**RQ2:** In competitive, institutional, and social terms, how has the government developed its strategy in relation to the PNBP?

**RQ3:** What mechanisms have been developed to promote natural capital and the financing of biodiversity in Peru?

The research bases its analysis on the most relevant international literature about Enterprising Nature and Biotrade, on an extensive source of secondary information about the Peruvian Biotrade Initiative, and, finally, on data gathered from interviews that were conducted by the researcher with key stakeholders. This data will be more detailed through sections two and three.

Finally, sections four and five analyse, discuss, and conclude the main empirical findings that address the RQs mentioned above, interweaving with the previously presented literature in section two. This dissertation attempts to be useful for policymakers both for the ministries with greater involvement in the PNBP and for the additional stakeholders involved. Likewise, it is suggested to prioritise financial resources in collecting accurate biological data as a way to develop effective policies and laws for biodiversity conservation. This research underlines the importance of the private sector to improve the opportunity for additional investments in natural capital within the country.

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## **2. LITERATURE REVIEW**

### **2.1 The loss of biodiversity that led to ‘Biodiversity Finance’**

Biological diversity is one of the greatest gifts to humanity since it provides us with oxygen, food, medicines, psychological welfare, and countless other benefits (Farnham, 2007). Biodiversity goes beyond a simple enumeration of species as it encompasses interactions between all non-human organisms. Considering this complicated and complex dynamic known as ‘the glue of biodiversity’ (Fortuna et al., 2014), the task of representing and measuring biodiversity becomes immensely challenging. The contemporary understanding of biodiversity lacks the inclusion of the entangled web of life to transform its dynamism into thoughtful ecosystem services (Dempsey, 2016).

Seventy percent of biodiversity is concentrated in ten countries worldwide, which together account for less than ten percent of the global surface. Among this list is Peru, considered the fourth country in the world with the greatest biological diversity in ecosystems, species, and genetic resources (OCDE, 2018).

International awareness of biodiversity conservation was acknowledged in the late 1980s, notably following the publication of the Brundtland report. Although it indeed pointed out loss of biodiversity, it failed to adequately present the bounded limit of these natural resources. As such, the use of biological information is positioned as one of the drivers of ‘green economic growth’, falling into the paradox that ‘selling and mainstreaming nature to save it’ is needed (See Chandra and Idrisova, 2011; Dempsey and Suarez, 2016).

Under this discourse, mathematical formulas are applied to calculate the value of biological diversity worldwide. These discrete quantitative measures have formed a species-area relationship that directs the current focus of attention, predisposes preventive efforts, and persuades which area deserves to be conserved and which

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does not (Dempsey, 2016). As a result, a culture of precautionary conservation has been enacted, either for homo sapiens preservation or for the accumulation of capitalist value. Several studies indicate that preventing environmental degradation would be less expensive than remedying it (Ornes, 2019). Furthermore, by not being able to distinguish which are the necessary and surplus species within an ecosystem, nor which species could generate a market benefit, it is more efficient to opt for conservation as a whole. To talk about an effective preservation of biodiversity, the biodiversity targets set by the Aichi Convention on Biological Diversity must be met, and these will only be achieved through efficient monitoring that allows an adequate track of progress towards these objectives (Collen et al, 2013).

In a neoliberal setting, granting financial values to nature has been encouraged in order to counter biodiversity halt. Therefore, biodiversity finance is defined as the practice of raising and managing capital from natural resources and ecosystem services, using economic incentives to support the sustainable management of biodiversity (Dempsey, 2016). Conservation financing instruments and solutions seek to leverage investment in natural capital effectively so as to achieve nature welfare in the long-term. The CFA (Chartered Financial Analyst) considers that these quantifiable solutions are essential to reach a broad audience, implement conservation policies and adequately manage nature. Without the correct usage of the conservation finance 'toolkit', nature preservation will not be able to compete with the relentless expansion of unsustainable economic activities. This argument, although it promotes the involvement of a more significant number of actors, also shows that audiences that previously did not reveal any interest in preservation itself, now turn their gaze to it in view of the economic incentives, which could translate into how economic profit remains the prevailing motivation (McAfee, 1999). The relationship between biodiversity and human society still raises several questions from an anthropocentric view (Srivastava and Vellend, 2005), though Mikkelsen et al. (2007) argued that an ecocentric view of this relationship is yet to be analysed.

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Several governments have refocused their National Biodiversity Strategies and Action Plans (NBSAP) based on the well-acknowledged funding gap between money required to protect biodiversity and the availability of state funding (Pirard, 2012). In this matter, The Biodiversity Finance Initiative (BIOFIN), sponsored by the United Nations Development Program (UNDP), estimated that the biodiversity gap in Peru would amount to PEN 440 million.

## **2.2 Enterprising Nature towards Sustainable Development Goals**

As seen in the previous section, an intrinsic link is inevitably forged between biodiversity conservation, enterprising nature and SD. Four out of the seventeen Sustainable Development Goals (SDGs) advocated by the United Nations focus on environment preservation. Experts in the field indicate that achieving a satisfactory implementation of SGD 14 (life below water) and SGD 15 (life above water) requires redirecting the investment decisions of CEOs, investors, pension fund managers and other financial stakeholders towards halting biodiversity loss and conserving natural resources (Riva, 2020). Under this strategy, humanity will avoid what scientists predict as the sixth mass extinction of life on Earth (Riva, 2020). For many ecologists, the shift in the approach towards monetising biodiversity in hopes to save it clearly represents a disconnection between society and nature (Dempsey, 2016), since it has become essential to speak in economic terms to acknowledge its importance.

Different initiatives revolve around the promotion of sustainable business practices, important alliances such as the European Union Business & Biodiversity Platform; standards certifiers such as the Forest Management Certification and Climate Bonds Initiative's Land Conservation and Restoration Standards; and several Public-Private Partnerships (PPP) that help stimulate innovation and create sustainable markets. Yet, authors who conceive capitalism from a Marxist perspective, such as Shiva (1991) and Bernstein (2001), argue that the global reconfiguration of biodiversity is only the result of an uneasy alignment between global biopolitical and ethical interests and concerns, questioning the idea of achieving fair environmental

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and social outcomes from this neoliberal-approach. Despite the criticism regarding environment neoliberalisation, it is essential to acknowledge that these emerging green markets are built based on social and governmental demands (Kroeger and Casey, 2007).

Thus, enterprising nature introduces challenges at every step: from scientific and methodological debates on how to tether ecological data to economic value, to hierarchisations and reclassifications that guides governance processes showing an evident human dominance over non-human species (See Lohmann, 2009). The core of this new era of 'enterprising nature' is that, despite being embedded in capitalist social relations, the links designed to conserve biodiversity do not necessarily revolve around the singular pursuit of wealth accumulation, but rather that human communities can fend for themselves under political, financial and social capital (Dempsey, 2016).

### **2.3 Greening the capitalist system**

The theoretical framework of enterprising nature was translated into a pragmatic economic model called Green Economy. Several definitions about this concept have been deployed by powerful institutions such as the World Bank, United Nations, Latin American Economic System (SELA), and others. Kathleen McAfee (1999) describes the set of all these approaches as 'Green developmentalism'. This new approach is forged because the traditional growth path has led humanity to a global economic, energy and climate crisis (UNEP, 2012), mainly due to its embedded short-term vision. Therefore, Green Developmentalism seeks to complete the traditional capitalist approach that has focused primarily on the accumulation of wealth and investment in human and physical capital (Solow, 1956), incorporating natural capital into the equation. Steven Bernstein (2001) explained it as the commitment to liberal environmentalism; a compromise forged at the 1992 Rio Earth Summit that makes economic growth, environmental concerns, and the market economy fully compatible.

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Despite this shift in the economic discourse, several academics suggest that there are some obstacles in the development of a green economy. Firstly, the problem of inequality must be addressed and not reproduce a north-south trade pattern. Ethics occupies a central place here (Fairlie, 2013). Secondly, Hallegatte et al. (2012) raises environmental policies that generate costs in the short term that can create a trade-off with economic growth and hinder its advance. Furthermore, the underlying problems that undermine conservation initiatives, especially in developing countries, lie in the various structural problems that have not yet been resolved as well as in the limited scope of several disciplines such as science, coordination, administration, legislation (Chandra and Idrisova, 2011). These barriers challenge the on-ground implementation of green programs.

Peru maintains an open economy and has signed numerous trade agreements with the countries and associations to which it exports its products (OECD, 2018). In addition, the country has participated in several international environmental conventions and forums. In 2013, Peru joined the Partnership for a Green Economy (PAGE), which is sponsored by the United Nations Environment Programme (UNEP) and other stakeholders. Although there are considerable efforts to boost the economy and care for the environment, the environmental cost still amounts to 4% of the GDP and compensations for environmental impacts are still insufficient (Giugale et al., 2006).

### **2.3.1 Biotrade, the leading tool within Bioeconomy**

Bioeconomy emerged from the economic model of Green Economy as the model that focused on biodiversity conservation. It was coined during the initial discussions of the Convention on Biological Diversity (CBD) in the early 1990s, under the promise that it could be the solution to the problems of poverty and underdevelopment in the Global South. This approach introduced the discourse that wealthy nations that benefit from biological resources are also able to invest in their conservation (McNeely et al., 1990). Therefore, the biosphere adopts a vital role in

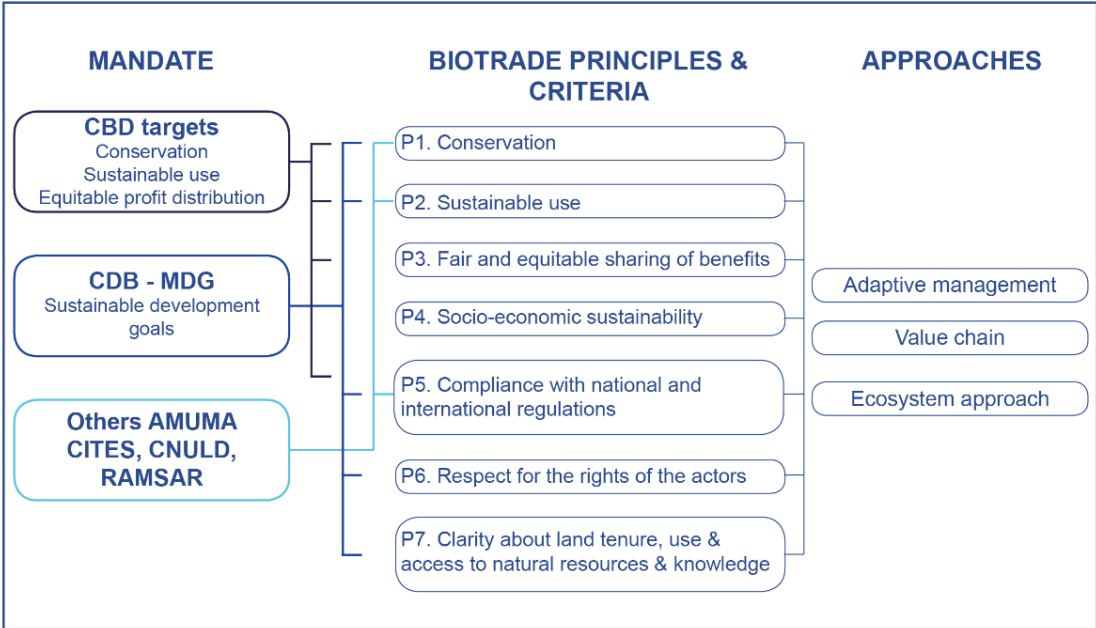


protecting the advance of predominantly economic growth-centred development patterns (Dempsey, 2016).

One of the most promising activities in bioeconomy is Biotrade, since it ensures that the entire value chain of goods and services related to biological biodiversity has responsible traceability (UNCTAD, 2007). This sustainable business model is regulated by seven Principles and Criteria (P&C) for its enforcement. It handles three approaches and responds to various international mandates (Alvarez et al., 2015), as detailed in Table 1. Biotrade is introduced as the antidote to fulfil the triple objective of embracing social equity, preserving the environment, and generating benefits for investors. However, although the Biotrade proposal sounds very encouraging, it is still uncertain whether this ‘new’ wealth is indeed being properly accumulated (Grain et al., 2012).

Table 1

**Context and relationship of the 7 Biotrade Principles and Criteria within the framework of multilateral agreements**



Source: Alvarez et al., 2015

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The main economic activities that derive from Biotrade are ecotourism, the pharmaceutical and cosmetic industry, aquaculture and agriculture, the one in higher demand (Fairlie, 2013). The relationship between climate change and agriculture is of complex nature and has three crucial aspects: first, agriculture is a relevant generator of greenhouse gases and therefore contributes to global warming. Second, agriculture is negatively affected by climate change through variations in temperature and increased variability in rainfall, which result in increased flood frequency and droughts that lead to significant losses and the need for adaptation strategies to these new conditions. Finally, the objective of agriculture in Bioeconomy is not only food production as it also implies production for other purposes such as biofuels and other industrial uses (Fairlie, 2013).

Peru implemented the National Biotrade Program (PNBP) in 2004, where the stakeholders involved coordinated the national strategy and action plan. Although all economic activities are tactically encouraged, the development of Biotrade in Peru relies heavily on agriculture. According to the figures, 65% of national agriculture comes from biological diversity resources, which represents a significant amount in net exports (Brack and Mendiola, 2000).

### **3. METHODOLOGY**

#### **3.1 Research approach**

This research endeavours to explore international efforts to address biodiversity loss and, at the same time, fulfil social and economic development, focusing on the utilisation of the Biotrade business model. The data needs to be productive and meaningful; therefore, the data collection method will be qualitative. Primary and secondary sources were utilised to collect information: semi-structured interviews with key stakeholders, cooperation fund reports as well as political and government sources. This combination was considered optimal to carry out this research due to

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the enriching detail expected in order to accurately answer to the Ros (Rubin and Rubin, 2012).

In the initial stage, secondary information related to PNBP was reviewed to contextualise the foundations of the program, to assess which results were achieved so far and to understand the recommended strategy for the following years. This first scoping also contributed to identifying all stakeholders involved, since some documents indicated the specific representatives within each institution along with their contact information.

### **3.2 Sample selection**

Several institutions and organisations contribute to greening the economy and promoting the investment of natural capital in Peru. However, since not all of them could be contacted, a small and purposeful sampling was carried out to select the crucial representatives of the institutions that were identified in the initial phase of the research (Hay, 2005). They were contacted using technological tools, such as email or LinkedIn.

Two of the five ministries of the PNBP Commission (Gil, 2012), Ministry of Environment (MINAM) and Ministry of Foreign Trade (MINCETUR), were contacted. These ministries provide political support and technical guidance and are responsible for the regulation of Biotrade activities within Peruvian territory. Likewise, prestigious ministerial institutions such as Agroldeas and PromPerú were targeted for information on implementation and enforcement issues. Support organisations such as Conservation International (CI), PROFONANPE, and Peruvian Society for Environmental Law (SPDA) were included in the sampling as well. These NGOs are benchmarks in the conservation of Peruvian biodiversity due to the arduous and significant work they have been doing for many years. Finally, interviews were held with advocates of green economy in the country such as PAGE and BIOFIN – both

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programs that are sponsored by the United Nations (UN) – as a way to analyse SD initiatives from a macro-perspective.

Every effort was made to contact key officials within the most representative institutions; however, the data was inevitably driven only by those who agreed to be interviewed. Unfortunately, no member from the private sector was contacted, which is the usual practice in the triangulation method to certify the validity of the analysis (Baxter et al., 1997). This lack of response may be due to the uncertain circumstances surrounding the COVID-19 pandemic at the time of this investigation. Nevertheless, second-hand sources were used to cover this gap.

As a final result, consistent messages were obtained among the participants, so it is inferred that the sample selection was adequate.

### **3.3 Interview design and conduct**

The interviews were semi-structured in order to allow a flexible and natural interaction for both the interviewer and the interviewee. By sticking to a rigid questionnaire, those involved in the interview potentially miss the opportunity to co-construct responses (Rapley, 2001). Furthermore, since not all the interviewees belonged to the same sector, it was essential to adapt some questions to the context of any given representative. The interviews were conducted in Spanish using technological tools such as Google Meets and Microsoft Teams. The face-to-face approach was unfeasible due to safety regulations established by the COVID-19 outbreak. Most of the interviews were recorded with the consent of the interviewees to ease the transcript work. Although contacting the interviewees online and recording the interviews could normally interfere with the accuracy of the responses, this was the best methodology that could be deployed within the difficult context of the ongoing pandemic and it allowed to obtain details with greater accuracy.

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The interviewer tried to mitigate the bias by prior contextualisation of the interview where it was stated that the objective was to explore without criticising or evaluating how activities unfold within the field of research. However, it is recognised that an interview is never a neutral tool (Cloke et al., 2004).

### **3.4 Data interpretation**

The data was collected by the same researcher, which alleviated the coding and transcription process. The interview data was segmented and filtered into recurring topics that came to light in each interview. This research aims to present the data as impartially and objectively as possible, considering that subjective variables could be involved. The data can be interpreted in different ways (Cronon, 1992); therefore, a small bias of the researcher is acknowledged based on her profile as a Peruvian geographer. Nevertheless, the research design of this thesis relies upon different sources and a structure that prevents any unconscious bias.

## **4. RESULTS AND ANALYSIS**

During the last two decades, global conservation efforts have been framed within two macrotrends: the promotion of SD and the rise of neoliberalism (Wilshusen, 2014). These two domains of theory and action have been merged in what McAfee (1999) calls 'Green Developmentalism'. To help understand how new forms of enterprising nature are deployed in biodiversity-rich countries such as Peru, this study endeavours to answer the RQs set at the introduction in order to deepen the understanding of the country's biodiversity gap and how the PNBP cooperates to close it, meeting the Biotrade triple objective. This analysis uses empirical data detailed in section three of this document. The answers of the interviewees will be referenced with the codes described in Table 2.

Table 2

**Interview coding**

#	REPRESENTATIVE	ORGANISATION
1	Ministry of Environment (MINAM)	GOVI01
2	Ministry of Foreign Trade and Tourism (MINCETUR)	GOVI02
3	Agroldeas	GOVI03
4	PromPerú	GOVI04
5	Conservation International	NGO01
6	Peruvian Society for Environmental Law (SPDA)	NGO02
7	PROFONANPE	NGO03
8	Partnership for a Green Economy (PAGE)	UNP01
9	Biodiversity Finance Initiative (BIOFIN)	UNP02

**4.1 RQ1: Actions carried to identify and close the biodiversity gap in Peru**

One of the central problems described by Fortuna et al. (2014) is the immensely intricate task of measuring the ‘glue of biodiversity’ due to the complex dynamics it represents. Therefore, to address RQ1 it is important to examine what are the key opportunities and challenges when measuring the country’s biodiversity gap and the actions taken from it. The analysis of this point at the beginning is crucial as a way to contextualise the deployment of the RQ2 and RQ3 later.

**4.1.1 Biodiversity measurement for policy and investment strategy**

As the literature underlines, the impacts of anthropogenic activities over modern times have caused accelerating pressures towards the loss of biodiversity and ecosystems (Mace et al., 2005; Pereira et al., 2010; Dawson et al., 2011). International efforts have focused on developing mechanisms to counter this

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situation; however, the scientific community is hampered by the lack of data on biological systems, especially on information related to long-term trends. These information barriers challenge the development of effective policies and laws that could reduce and reverse the loss of biodiversity (Collen et al., 2013). Peru is not unfamiliar with this reality. Many national and sectoral environmental policies have been enforced based on rough estimates and there is no historical documentation (GOVI01, NGO02, UNP01). As stated in the GOVI01 interview, the main reason for this lack of documentation is due to the rugged geography of the country, which makes accessibility to certain areas particularly difficult. A possible solution to this problem would be a significant investment in technological devices and tracking equipment such as GPS, remote-triggered camera traps and others that may contribute to generating new preservation indicators (Kinnaird and O'Brien, 2013). However, this implies a significant financial constraint (GOVI01).

Another issue closely related to this is data consolidation. In Peru, each ministry performs as an 'ambassador' of a sector/product (e.g. the Ministry of Production (PRODUCE) oversees fisheries and industry division; the Ministry of Agriculture (MINAGRI) oversees crops and seeds division and so on). This segregation challenges the collection of environmental information of each sector within the same repository. Interviewee GOVI01 pointed out that the closest instrument for data consolidation is the CBD National Report that is published every two years. This report gathers indicators of all the institutions that have an impact on biodiversity. Yet, there was a strong sense from the governmental institutions that this report does not quite effectively translate all the efforts put into place (GOVI02, GOVI04), which shows that neither the monitoring nor the assessment of biodiversity conservation is firmly embedded within the national context (Collen et al., 2013). This point can be supported by the fact that biodiversity information is excluded from the country's national accounts. Interviewee UNP02 explained that one possible reason for this is that incorporating such information would cause a drop in GDP of one or two percentage points and thus it is not in the government's interest to show these figures. However, the same interviewee emphasised that it is necessary to

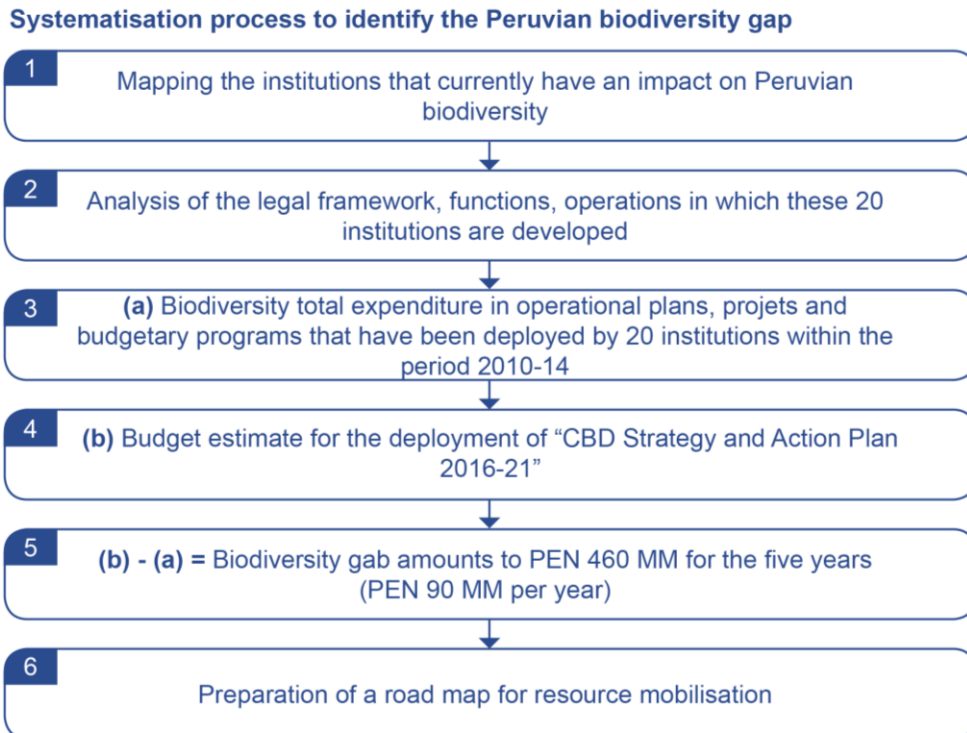
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incorporate this information as the country is an active CBD participant and it would also simplify data collection for the creation of public policies. This evidence strengthens the idea of Hallegatte et al. (2012), who highlighted that environmental approaches could produce a trade-off with economic growth, discouraging its execution.

At the same time, the limitations in data is a significant hindrance to biodiversity investment (Buschke 2015). BIOFIN developed a systematisation of green actions to estimate the country's biodiversity gap. This process is described in detail in Table 3. As interviewee UNP02 describes, data collection was an immensely complicated task to carry out due to the scattered data sources at a national level. Interestingly, in the same interview there was mention of how 'neither Peru nor the region have any similar studies about the biodiversity gap, not from the public nor the private sector, to help us establish unbiased comparisons or examples', which shows that the efforts to close the biodiversity gap remain poorly understood empirically (Horisch, 2015). Interest in this matter prevails only at an acknowledgement level (Pirard, 2012). Nevertheless, this systematisation of information contributes to gathering quantitative data on biodiversity and identifying it at a national, regional and sectoral level, where investment reinforcement is needed.



Table 3



Source: Biodiversity Finance Initiative, 2015

#### 4.1.2 Ministries of Environment and Finance, the winning Alliance

Although Peru is one of the Latin American pioneers in the deployment of green initiatives, many of these did not attain the expected success due to the lack of budget support (GOVI02, UNP01). This is likely to happen seeing as if these initiatives do not hold political weight, there will be no investment of resources in this regard (NGO02, UNP01, UNP02). However, most respondents agreed that since the creation of MINAM in 2008, the involvement of various economic sectors in environmental matters has increased significantly. This led to the inclusion of the objective 'Environmental sustainability in the operation of economic activities' as a central pillar within the National Competitiveness and Productivity Plan 2019-2030 (PNCP), which was prepared by the National Centre for Strategic Planning (CEPLAN). This significant step helped in that, as Solow (1956) emphasises, the Ministry of Economy and Finance (MEF) not only prioritises infrastructure projects

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(such as schools, medical posts, bridges and others) which can be made tangible in the short term, but also environmental projects.

Furthermore, as described in the previous section, identifying the country's biodiversity gap using the BIOFIN systematisation has enabled the creation of a green project portfolio, which can optimally redirect the resources granted by the MEF towards on-the-ground actions, environmental campaigning, training, and public education, as well as research and monitoring (Jepson and Ladle, 2010). This optimisation of resources could also be accompanied by the creation of green funds and attractive incentives to engage with the private sector, encouraging PPP (UNP02).

Despite the fact that these milestones have strengthened the synergy between the MEF and MINAM in favour of promoting natural capital and closing the country's biodiversity gap, it has been proven that it is necessary to speak in economic terms to give priority and acknowledge the importance of natural resources, which symbolises a clear disconnection between society and nature (Dempsey, 2016). In summary, while measuring biodiversity can improve the political-economic strategy, it can also be a double-edged sword. Nonetheless, it promotes advocacy for its conservation (Chandra and Idrisova, 2011; Dempsey and Suarez, 2016); and, according to Lohmann (2009), it shows that governance processes are guided by a control chain dominated by human species, which creates a clear hierarchy of power over non-human species.

#### **4.2 RQ2: Development of the government strategy within the PNBP in competitive, institutional, and social terms**

The literature review described that the Biotrade initiative lies at the care of biodiversity. The PNBP was created in 2004, given the importance of promoting the commercialisation of products that derive from native biodiversity within a framework of social equity and economic profitability (MINCETUR, 2016). Although this program

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has obtained some satisfactory results so far since its creation, it has also faced considerable challenges: the lack of an accurate biological database and the economic neglect of the public sector (described in the previous section); coupled with other structural problems that will be detailed below.

#### **4.2.1 Legal, Regulatory and Institutional Framework**

Environmental regulations within the country encompass the Biotrade business model. (GOVI01, GOVI02, UNP01). The PNBP was created by Decree of the Directing Council of CONAM (Council before MINAM) No. 21-2004-CONAM/CD. Six years after this occurrence, the National Commission for the Promotion of Biotrade was created to formalise and centralise the work that each ministry carries out in Biotrade matters. This is a multi-sectorial Commission that involves fourteen institutions (eight public institutions, three business associations and two universities) (Gil, 2012). Interestingly, while multiple actors seem likely to be involved in the Commission, there was a broad consensus among the governmental institutions that MINCETUR and MINAM were the most instrumental in driving the PNBP.

Currently, the Commission is led by MINCETUR with its strategy of positioning native products in international markets. As interviewee UNP02 singled out, it is essential to 'hook up' the product with the market; otherwise, the investment returns are not perceived. This strategic approach towards export-oriented agriculture is highly criticised by Shiva (1991) and Fairlie (2013). They argue that the ruling parties and elites are the ones who accumulate the profits of these products, which reproduces the inherent north-south development pattern of inequality. As such, interviewee GOVI02 recognised the need for change in the leadership and, thus, in the strategy.

Beyond this, there were overwhelming concerns about the plethora of concepts that revolve around Green Developmentalism (environmentally friendly businesses, green businesses, ecological businesses and Biotrade, among others). This was

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identified as a deficiency by some interviewees because other institutions outside the Commission carry out parallel initiatives that do not belong in the strategy. Therefore, many actions overlap and efforts are duplicated. In contrast, interviewee UNP01 was more optimistic about this scenario, highlighting that ‘although thinking about mapping all efforts is an ambitious task that must be carried out, we should focus on adding, instead of dividing’.

In summary, meeting the CBD requirements implies several underlying challenges. Yet, these structural problems – as described by Chandra and Isidrova (2011) in the literature – could complicate achieving adequate biodiversity governance and hinder the sum of efforts made to close the biodiversity gap.

#### **4.2.2 Exports and improvements to the economy: the market rules**

As explained, the Commission's strategy is to promote native products within the export basket. The strategy has shown good economic returns, meeting one of the conceptual pillars of the Biotrade initiative (UNCTAD, 2007). Table 4 shows some of these figures and the main export countries.

Table 4

**Biotrade export figures: List of 10 main international markets**

#	COUNTRY	2014	2015	2016	2017	2018	Part.% 2018
1	United States	156 500 230	127 453 942	115 278 001	100 641 830	92 719 751	19.3%
2	South Korea	2 679 305	3 816 561	5 464 626	40 316 936	70 102 795	14.6%
3	Netherlands	51 633 018	50 731 390	57 898 684	47 704 086	46 831 478	9.7%
4	China	24 119 370	17 411 344	18 205 411	22 231 886	26 935 097	5.6%
5	Brazil	21 720 686	21 985 635	28 892 268	25 638 649	26 155 165	5.4%
6	Germany	24 584 282	23 970 760	20 021 875	17 658 118	19 356 173	4.0%
7	Denmark	12 407 555	16 818 895	24 620 962	20 019 144	17 547 671	3.7%
8	Spain	8 757 669	9 729 647	15 564 603	18 604 292	17 439 244	3.6%
9	United Kingdom	17 058 178	17 292 647	16 946 774	15 300 828	13 806 653	2.9%
10	Canada	25 671 349	18 098 378	11 807 391	12 899 540	13 729 558	2.9%
TOTAL		476 198 744	437 357 109	455 248 423	459 921 215	480 475 597	100 %

Source: SIICEX, 2020

Again, this list of countries adds weight to the idea of Shiva and Fairlie that a north-south development pattern would be replicating. Furthermore, it is argued by Kroeger and Casey (2007) that emerging green markets are built based on social and governmental demands. In the case of Peru, this has caused some collateral problems within the country. As interviewee NGO03 mentioned, growing exports have brought an ‘agro-diversity’ loss. Producers sow what is most in demand in the international market. For example, white quinoa is more in demand than its red and black varieties, and so these last two kinds are hardly harvested. Likewise, the food quality of farming families has also been affected because, since the product is better paid abroad, the producer chooses to sell it instead of using it for individual consumption, which results in feeding their families with non-nutritious foods (NGO03). It is essential to be mindful of these motivations when considering the decision-making process around the export strategy. These colossal problems epitomise that market forces can quickly overshadow social and environmental components, which contradicts the purposes of enterprising nature.

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### 4.2.3 SMEs and Biotrade

The literature review described that companies which demonstrate respect for the environment are prone to be more competitive than others. In this matter, MINCETUR developed an internal matrix to classify companies as Biotrade-compliant. This tool follows the seven P&C, seeks to oversee the entire value chain and assesses the export-producer relationship (GOVI04, NGO03). There are currently 87 Small and Medium-size Enterprises (SMEs) that belong to this framework (MINCETUR, 2016). The strategic actions deployed by the commission have ensured that most of these companies practice insightful traceability in their value chain, showing joint work initiative with their producers, especially to give them technical training regarding crops (Gil, 2012). To reward these good practices, PROMPERU (MINCETUR affiliated institution) has developed some commercial incentives such as participation in international fairs for companies that meet these Biotrade criteria.







Nonetheless, Gil (2012) points out that the primary motivation for entrepreneurs to adopt sustainable conservation practices is more for commercial purposes than out of conservationist conviction. This idea is reinforced in the interview NGO03: 'Many SMEs only seek to be verified to participate in international fairs.' This scenario empirically demonstrates that, although enterprising nature has managed to engage more audiences, many of them did not have any real interest in the conservation itself; it is due to the economic incentive that they turn their gaze towards it, which could be interpreted as that economic profit remains the prevailing motivation (McAfee, 1999).

Equally important is the relevance of international certificates in the verification of P&C. As Table 5 explains, the acquisition of the specified certificates is automatically related to the compliance of one or more P&C. All of the interviewees agreed that the main motivation of farmers to get certified is the rise of their product prices in the international market. Nonetheless, for biodiversity advocates, this still seems as an

opportunity since the terms and conditions of these certificates are measures that help mitigate the environmental problems related to agriculture described by Fairlie (2013) in the literature review in section two. Beyond this, certification desertion is worthy of further exploration as well. The interview with GOVI03 revealed that certification is withdrawn in case of bad practice. Furthermore, price fluctuations in the international market can cause farmers' initial investments to not be covered. This evidence supports the idea that enterprising nature, though it supports the conservation of biodiversity, is hampered by the embedded capitalist principle of short-term returns (Dempsey, 2016).

Table 5

Comparative table of main certifications with the 7 Biotrade P&C

Biotrade Principles 	UEBT 	Fair Wild 	RAS 	FSC 	Organics 	Fair Trade 
	Cultivation and recollection	Recollection	Cultivation	Recollection (products from forest)	Cultivation and recollection	Twelve different foodstuffs
1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓
3	✓	✓				✓
4	✓	✓	✓	✓		✓
5	✓	✓	✓	✓	✓	
6	✓	✓	✓	✓		✓
7	✓	✓	✓	✓	✓	

Source: PeruBiodiverso Project, 2013

About this subject, interviewee GOVI02 stated a critical reflection: 'the main reward for entrepreneurs should be that a forest continues providing them with resources. Unfortunately, many of them are not attached to this philosophy of managing the resources sustainably.'

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#### **4.2.4 Impact of Biotrade on native communities**

In the literature, Shiva (1991) and Bernstein (2001) questioned the idea of achieving fair environmental and social outcomes from the neoliberal approach. There are several points exposed by the interviewees that endorsed what these authors stated. First, the interviews revealed that including community members in forest conservation has turned out to be one of the most effective strategies to halt deforestation (NGO01, NGO02). However, all the interviewees emphasised that the main motivation for community members is likely to be economic retribution. Secondly, while there are several economic indicators that build strategy planning, social indicators are limited (GOVI02, GOVI03). Another thought highlighted by the participants is that the extensive knowledge that aboriginal groups possess due to their long interaction with nature (Brack, 2004), appears to be considered inaccurately in the Research & Development of native products. Finally, native communities often ask for ways to voice their concerns, since most of the time they do not participate in the decision-making process (NGO01).

All this empirical evidence really questions the encouraging proposal of Biotrade, since it does not necessarily guarantee that the distribution of this 'new' wealth is indeed properly distributed (Harvey, 2003; Grain et al., 2012).

#### **4.3 RQ3: Development of mechanisms to promote natural capital and the financing of biodiversity within Peru**

In the final part of section four, a description of the different financing sources that contribute to closing the biodiversity gap will be provided. The problems caused by financial constraints to all scales of biodiversity conservation are a threat acknowledged by many authors (Collen et al., 2013). As analysed in RQ1, it is vitally important to have biological information to make strategic political decisions and mobilise resources, but this information also contributes to attracting other sources of financing, which is essential in closing the gap (Riva, 2020). The opportunities



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and weaknesses found in the different efforts that add up to accomplishing this goal will be detailed below.

#### **4.3.1 Donor support**

The Peruvian political framework promotes the investment from international cooperation for a greater mobilisation of resources regarding biodiversity conservation. Over the last twenty years, numerous projects have been sponsored by these cooperating sources. Only in the Biotrade framework, six valuable projects have taken place (See Table 6). These projects contribute to the enhancement of several aspects: training, implementation and promotion of Biotrade business initiatives. However, there is a severe continuity problem in the country when there are no committed resources from cooperating sources. Since most are SMEs, dependence on capital sponsorships is significant. Interviewee GOVI02 indicates that project desertion amounted to approximately 70%. This is a rough estimate since there is no measurement of the impacts of projects sponsored by cooperatives. This withdrawal has slowed down the efforts that had been achieved so far.

Table 6

## Biotrade related projects sponsored by International Cooperation

#	PROJECT	YEAR	INTERNATIONAL COOPERATIVE PARTNERSHIP	PROJECT OBJETIVE
1	Biocomercio Andino	2010 - 14	Global Environment Facility (GEF), Development Bank Latin America (CAF) & United Nations Environmental Program (UNEP)	To facilitate the financing of business initiatives, which are based on the sustainable use of biodiversity, and support activities for the development of markets, to contribute to the conservation of the environment in the Andean Region.
2	PeruBiodiverso I&II	(I) 2007 - 10 (II) 2010 - 13	Swiss Economic Cooperation and Development (SECO) & German Technical Cooperation Projects (GTZ)	To improve the quality of life for the rural population through sustainable use of biodiversity. To promote prioritised products such as sacha inchi, maca, camu-camu, tara, maca, and yacón. Furthermore, to increase the revenue of companies and producers adhering to the BioTrade framework, therefore, preserving biodiversity through sustainable use.
3	Sustainable Economic Development Program and Strategic Management of Natural Resources (PRODERN)	2012 - To date	CTB- Belgian Technical Cooperation	To reduce the poverty level of men and women in specific regions such as Ayacucho, Apurímac, Huancavelica, Junín, and Pasco, preserving and sustainably utilising natural resources and biological diversity, and taking into account the needs of the future generations.
4	BioCAN Programme	2010 - 13	Ministry for Foreign Affairs of Finland	To facilitate diverse information management processes through the implementation of a series of services that allow the socialisation of biological wealth and management in the Peruvian Amazon.
5	Capacity Building Task Force on Trade, Environment and Development (CBTF)	2010 - 12	German Technical Cooperation Projects (GTZ)	To fortify BioTrade-related skills in Peru along with Namibia and Nepal. A set of national and international, interconnected and mutually supportive endeavours were carried out, involving national institutions, government, NGOs, the private sector, and local businesses. The project also boosted south-south cooperation between participating countries (Nepal-Namibia-Peru) by sharing valuable lessons learned. This allowed the replication of successful models for seizing opportunities and overcoming difficulties in BioTrade.
6	Biotrade Facilitation Programme (BTFP)	2003 - 04	United Nations Conference on Trade and Development (UNCTAD) & International Trade Center (ITC)	Promote the creation and consolidation of native biodiversity businesses in Peru, as an incentive for its conservation. The latter applying environmental, social, and economical sustainability criteria that align with the objectives of the National Biodiversity Strategy and the Convention on Biological Diversity (NDB & CBD). The PNBP aims to contribute to the economic development of rural areas in the country through an adequate management of their biodiversity and by capturing the market demand for these products.

Source: UNEP, 2012; BioCAN, 2014; Biocomercio Andino, 2020; MINAM, 2020b; UNCTAD, 2020; UNEP & UNCTAD, nd

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Interestingly, most sources of cooperation come from wealthy nations, supporting what McNeely et al. (1990) argued that the apparent commitment of these nations is due to the fact that they also benefit from biological resources and so they are forced to invest in their conservation. Therefore, the biosphere holds the role of ensuring the advance of predominantly economic growth-centred development patterns (Dempsey, 2016).

### **4.3.2 State Intervention**

As explained in section 4.2, various ministries and institutions dedicate part of their regular budgets to promote green initiatives, including Biotrade. In addition to this, the Peruvian State has developed different mechanisms to boost resource mobilisation. These are explained in detail in Table 7. Despite the fact that all these efforts made by the public sector are notable, the country's structural problems continue delaying the efficient progress of these mechanisms. The first one is the formulation of government policies rather than State ones (UNP01). Changes in government, idiosyncrasies and new trends constantly shift the priorities, affecting long-term investment (Mechanism 2). BIOFIN identified through the systematisation that there are 650 projects ready for investment, but to what extent they are developed or not, depends on political will (UNP02). Likewise, most respondents mentioned that the consciousness and explanation of the MERESE guidelines (Mechanism 1) should be reinforced, since there is some evidence that this mechanism has created obstacles for the deployment of projects. Furthermore, interview responses also identified that projects sponsored by competitive funds (Mechanism 3) do not necessarily manage impact indicators that can measure if these projects are contributing to closing the biodiversity gap or not. Interviewee UNP02 underlined that 'including indicators of environmental sustainability is as important as including indicators of technical and business capacity.' Finally, the fourth mechanism of inclusion demonstrates the necessity of PPP which increases the private sector investment in natural capital. Conversely, the same interviewee indicated that almost all the money invested by this mechanism had been destined

to grey infrastructure and marginally to green infrastructure, reinforcing Solow's (1956) argument.

Table 7

**Financing mechanisms created by the public sector**

#	MECHANISM	OWNER	DESCRIPTION	ACHIEVEMENT
1	Remuneration Mechanisms for Ecosystem Services (MERESE)	Ministry of Environment (MINAM)	Tools that allow to generate, channel, and invest in actions aimed at the conservation, recovery, and sustainable use of ecosystems, as a source of ecosystem services, through voluntary agreements between taxpayers and payers.	PEN 30 MM invested in the implementation of Public Investment Projects (PIP) for the concept of ecosystem services.
2	INVIERTEPE	Ministry of Economy and Finance (MEF)	This tool intends to help sectors and regional governments to design public investment projects under a specific methodology to close gaps. It aims to order public investment in Peru by type.	Although the results cannot yet be measured, the investment in projects so far exceeds PEN 615 MM.
3	COMPETITIVE FUNDS	AGROIDEAS - Ministry of Agriculture and Irrigation (MINAGRI)	It promotes agricultural competitiveness through non-reimbursable co-financing of sustainable Business Plans and Agricultural Productive Reconversion Projects.	It co-finances 873 Business-Plans for the adoption of technology nationwide with an investment of more than PEN 323 MM.
		START-UP PERU - Ministry of Production (PRODUCE)	Initiative that includes seed capital and scaling competitions for innovative, dynamic, and high-impact ventures.	Over 400 enterprises have benefitted from it.
		INNOVATE PERU - Ministry of Production (PRODUCE)	It co-finances business innovation projects, productive development, entrepreneurship, and ecosystem institutions, through national competitions grouped into four portfolios: business innovation, productive development, entrepreneurship, ecosystem institutions.	In the last 12 years, around PEN 1 billion have been invested over 3,500 entrepreneurial projects.
4	Works for Taxes (OXI)	ProInversion - Ministry of Economy and Finance (MEF)	Private companies finance and execute public investment projects, charged to their third category income tax, by signing an agreement with a Public Entity, which previously determined that the execution of the project is a priority.	The total amount of investment in the period 2009-2020 amounts to almost PEN 5 billion.

Source: Agroideas, 2020; Innovate Perú, 2020; MEF, 2020; MINAM, 2020a; ProInversion, 2020; Start-up Perú, 2020

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These four mechanisms confirm that the Peruvian State has been making a distinguished job gathering efforts to achieve more significant resource mobilisation (Riva, 2020). However, this need of placing responsibility upon the private sector for solving problems related to the conservation of natural resources shows the apparent need for businesses to encroach on nature, a key characteristic of neoliberalism.

### **4.3.3 The private sector and its key role in closing the gap**

Although the state has encouraged investments in the private sector, it is this sector that must show a willingness to invest in conservation. As interviewee NGO01 indicated, 'the private sector is currently missing many investment opportunities.' In 2018, the Work for Taxes Alliance (ALOXI) was created, an association of 29 big Peruvian companies that seeks to promote infrastructure investment in Peru. BIOFIN has directly targeted this group with the green portfolio to encourage investment in natural capital, obtaining acceptance by 60% of the companies. This shows that there is an interest from the private sector; however, concrete actions must be taken (UNP02). Moreover, since the government has failed to improve financial inclusion within the country and the private sector has adapted a more executive role, private banking must simplify access to financing. As described above, the Biotrade-compliant majority are SMEs; therefore, the lack of capital constitutes a huge barrier when boosting their businesses.

It is endorsed again that this intimate relationship between government and business reveals the growing neoliberalisation of the environment, where central government seeks to transfer the responsibility of protecting nature to the private sector, who welcome the opportunity of exploring new financial sources (Dicken, 2011).

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## 5. DISCUSSION AND CONCLUSION

Today there is greater awareness about biodiversity conservation thanks to all fronts that address the problem of climate change. However, it is argued that neoliberalism 'has colonised' conservation theory and practice over the past decade (Wilshusen, 2014). The idea of 'selling and mainstreaming nature in order to save it' (Dempsey and Suarez, 2016) has been places in the minds of academics, conservationists and politicians as the only way to prevent current and future natural disasters. Enterprising nature then surges as a philosophy that, despite deriving from neoliberalism, does not have as its ultimate goal the accumulation of wealth. This research has brought to light several concerns around this idea.

This work has helped identify that the strategy of monetising and identifying the biodiversity gap could lead countries such as Peru to be more efficient in their mobilisation of resources and improve their policies and legislation in biodiversity matters. However, it has also shown that many of the 'new' audiences that are now interested in biodiversity do not necessarily have a persistent conservationist stance, but rather a capitalist vision of where to find new sources of business.

In the case of the Peruvian government, findings from this study have confirmed that the MEF's influence in the national strategy represents the necessity of speaking in economic terms to prioritise environmental issues, which reflects our disconnection from nature. Furthermore, this piece of work has also revealed that there is a clear tendency for this government to create financial mechanisms that encourage private sector investment in natural capital. This effectively means that what seems to be a common practice nowadays – transferring responsibility from the government to the private sector, especially in conservation matters – demonstrates novel forms of governmentality (Foucault 2008; Fletcher 2010). More importantly, it supports the paradox of neoliberalism –the private sector is now in charge of saving nature when it has been singled out as the main culprit for causing this situation (Rubino, 2000).

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Finally, this study has uncovered the lack of commitment in identifying biodiversity gaps, since no country, at least within the Andean region, has invested in studies to identify biodiversity gaps.

This research has also examined the Biotrade program contribution. On the one hand, it has been analysed that, in practice, meeting the triple objective is challenging. It is undeniable that the economic indicator overshadows the environmental and social component. Although the responses of the interviewees yielded an overall consensus that this initiative was necessary to introduce a responsible social and environmental approach in the mindset of the entrepreneurs, this does not mean that their final motivation remains economic. This conclusively indicates that business models created upon an enterprising nature era respond to social and governmental demands. As such, market failures cause social and environmental results to be far from fair. On the other hand, notwithstanding business models based on biodiversity have made significant economic contributions to the country, strengthening the viability of the environment-trade binomial, they have also, unfortunately, accentuated patterns of north-south inequality with an export-oriented vision. Ethics must play a central role here to tackle this approach (Fairlie, 2013).

Equally important is the fact that this work has also revealed that structural problems perform as a threat to the implementation of 'green programs' and initiatives within this framework, such as Biotrade. In the same way, they represent a significant barrier to data consolidation which contributes to the evidence that these green initiatives contribute to closing the biodiversity gap.

From a wider perspective, it is essential to acknowledge that in developing countries such as Peru, there are many other priorities such as improving health care, education, poverty, and others; thus, environment protection takes a back seat. Although some countries have made efforts to improve this situation, it would be erroneous to compare the progress in environmental matters with those of

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developed countries when there are still several underlying problems to solve, though evidence such as the inclusion of the environmental component in the PNCP is an excellent first step in addressing this issue.

In summary, this study has sought to demonstrate that although the era of enterprising nature arose to mitigate the significant impacts of climate change, the search for capital in a neoliberal setting undeniably implies a permanent chase of money (Harvey, 2011) and that, moreover, all the earth's resources are being commodified (Shiva, 1991). Nonetheless, understanding how the logic of capitalism entangles and transforms the logic of conservation, can, in fact, increase the possibility of fostering better decisions about biodiversity conservation (Gallo-Cajiao, 2018).

If enterprising nature is pursued, dilemmas about which indicators should prevail in biodiversity monitoring and who legitimately accumulates wealth appear to be fundamental questions that are still to be answered. Yet, a deeper reflection of this does not mean that this path is the one that must necessarily be taken. Instead of thinking about which is the optimal mechanism for humans to preserve the biosphere, it is crucial to refocus the approach towards an ecocentric vision (Mikkelsen et al., 2007).



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## Appendices

### Appendix A: Ethical approval

Research Ethics  
Office

Franklin Wilkins Building  
5.9 Waterloo Bridge Wing  
Waterloo Road  
London SE1 8NH  
Telephone 020 7849 4020/4070/4077  
reo@kcl.ac.uk



21/04/2020

Brenda Butron Matta

Dear Brenda

Peruvian Biotrade

Thank you for submitting your Minimal Risk Self-Registration Form. This letter acknowledges confirmation of your registration; your registration confirmation reference number is MRSTU-19/20-18561

**IMPORTANT CORONAVIRUS UPDATE:** In light of the COVID-19 pandemic, the College Research Ethics Committee has temporarily suspended all primary data collection involving face to face participant interactions, unless the data collection fall under one of the exemptions and fulfils the criteria outlined by CREC at the link below:

<https://internal.kcl.ac.uk/innovation/research/ethics/applications/COVID-19-Update-for-Researchers>

Ethical clearance for this project is granted. However, the clearance outlined in the attached letter is contingent on your adherence to the latest College measures when conducting your research. Please do not commence data collection until you have carefully reviewed the update and made any necessary project changes.

Ethical clearance is granted for a period of one year from today's date and you may now commence data collection. However, it is important that you have read through the information provided below before commencing data collection:

As the Minimal Risk Registration Process is based on self-registration, your form has not been reviewed by the College Research Ethics Committee. It is therefore your responsibility to ensure that your project adheres to the [Minimal Risk Guiding Principles](#) and the agreed protocol does not fall outside of the criteria for Minimal Risk Registration. Your project may be subject to audit by the College Research Ethics Committee and any instances in which the registration process is deemed to have been used inappropriately will be handled as a breach of good practice and investigated accordingly.

#### Record Keeping:

Please be sure to keep a record of your registration number and include it in any materials associated with this research. It is the responsibility of the researcher to ensure that any other permissions or approvals (i.e. R&D, gatekeepers, etc.) relevant to their research are in place, prior to conducting the research.

In addition, you are expected to keep records of your process of informed consent and the dates and relevant details of research covered by this application. For example, depending on the type of research that you are doing, you might keep:

- A record record of all data collected and all mechanisms of disseminated results.
- Documentation of your informed consent process. This may include written information sheets or in cases where it is not appropriate to provide written information, the verbal script, or introductory material provided at the start of an online survey.  
*Please note: For projects involving the use of an Information Sheet and Consent Form for recruitment purposes, please ensure that you use the KCL GDPR compliant [Information Sheet & Consent Form Templates](#)*
- Where appropriate, records of consent, e.g. copies of signed consent forms or emails where participants agree to be interviewed.

#### Audit:

You may be selected for an audit, to see how researchers are implementing this process. If audited, you and your Supervisor will be asked to attend a short meeting where you will be expected to explain how your research meets the eligibility criteria of the minimal risk process and how the project abides by the general principles of ethical research. In particular, you will be expected to provide a general summary of your review of the possible risks involved in your research, as well as to provide basic research records (as above in Record Keeping) and to describe the process by which participants agreed to participate in your research.

Remember that if you at any point have any questions about the ethical conduct of your research, or believe you may have gained the incorrect level of ethical clearance, please contact your supervisor or the Research Ethics Office.

We wish you every success with your project moving forward.  
With best wishes,

The Research Ethics Office

On behalf of the College Research Ethics Committee

## Appendix B: Data Protection

Research Governance Office

Franklin Wilkins Building  
4, 19 Waterloo Bridge Wing  
Waterloo Road  
London SE1 9NH  
Telephone (20) 7948 1233/3323  
rgo@kcl.ac.uk



30/04/2020

Brenda Butron Matta

Dear Brenda

**KDPR Registration Reference:** DPRF-19/20-14372

**Project Title:** Peruvian Biotrade

Thank you for submitting the above Research Data Protection Registration Form. This letter acknowledges confirmation of your registration; your registration confirmation reference number is detailed above.

Be sure to keep a record your registration number. A copy of this letter will automatically be stored in your KDPR account, but you may wish to keep a separate copy in your own records.

**Registration is valid for the data holding period you have indicated within the form.**

Please note it is the responsibility of the researcher to ensure that any other permissions or approvals (i.e. Research Ethics, R&D, gatekeepers, etc.) relevant to their research are in place, prior to data collection.

### **Modifications**

Should there be any changes to the conduct of your study or your study timelines which will impact on how you collect, manage or otherwise use your data, then you must submit a modification request in KDPR, indicating what has changed. Modification requests will be required in instances such as (this is not an exhaustive list):

- Change of storage repository
- Change to data retention period
- Change of data controller if that person should leave the College
- Change to the nature of the identifiers in the data you collect
- Change of anticipated start date of data collection

You will find the modification request form within the project you have created. You can access this by selected 'Create sub-form' in the left hand tiles on the screen and selecting 'Modification Request Form.'

### **Audit:**

As part of the College's responsibilities under the General Data Protection Regulation, it must ensure that data is collected, managed and otherwise used as outlined within the submitted registration forms. As such the College is required to audit this process. You may therefore be selected for a random audit, to see how researchers are implementing this process. If audited, you will be expected to provide evidence that you are collecting, managing or otherwise using your data as outlined within the form.

If you have any questions regarding your registration please email [rgo@kcl.ac.uk](mailto:rgo@kcl.ac.uk)

We wish you every success with your project.

With best wishes

KCL Research Governance Office

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## **Appendix C: Interview guidelines**

Interviews based around the following areas:

Role in [organisation].

- Thoughts on who has more participation in the conservation of Peruvian biodiversity and why.
- Explain the main challenges and opportunities that Peru has in biodiversity matter.
- Explain the main challenges and opportunities of the PNBP
- Explore possible incentives to conduct business based on Peruvian biodiversity.
- Thoughts on the evolution of the protection of Peruvian biodiversity over the last decade.

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