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Balancing social and environmental sustainability:

A qualitative case study about the social impacts of the Payments for Ecosystem Services program on rural farmers in Costa Rica

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Abstract

Costa Rica has long been considered a leader in environmentally sustainable policy actions as the country aims to have 70% forest cover and much of their success has been attributed to the Payment for Environmental Services (PES) program. The program pays landowners to conserve their forests for the benefits nature provides, such as biodiversity, storing carbon, scenic beauty and fresh water regulation. Nearly one million hectares of forest have been a part of the PES program at some point in Costa Rica. Extensive research and results have been presented on the ecological impact of PES but the socio-economic impacts for the participants have been explored less. To understand the social sustainability of the program, a small qualitative case study was conducted interviewing five small-scale landholders in the Guacimal district of Costa Rica with PES experience. Their perspectives were compared to two reports presented on the United Nations Development Program website for Payments for Environmental Services. Theoretical concepts from critical sustainability studies were used to better understand the gathered material and explain my observations, and to connect it to the larger debate regarding sustainability. The results show that the landholders have a different relationship to their environment and perceive the social impacts of the program differently than the reports. I believe that the future of the PES program would benefit from incorporating the bottom up perspective of critical sustainability studies.

Keywords: Costa Rica, Guacimal, Monteverde, Environment, Payments for Environmental Services, Sustainability, Critical Sustainability

Preface

“You need to have your eyes set on the skies but your foot on the ground” (former director of FUNDECOR, phone interview, May 8 2020)

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List of abbreviations

PES: The Costa Rican Payments for Ecosystem Services program.

FONAFIFO: El Fondo Nacional de Financiamiento Forestal/National Forestry Financing Fund

FUNDECOR: Fundación Para El Desarrollo De La Cordillera Volcánica Central/The Foundation for the Development of the Central Volcanic Range

PES glossary

Ecosystem Services: “The PES scheme recognises four main services that ecosystems provide to people: 1. Carbon sequestration: the capture and long-term storage of atmospheric carbon dioxide, a greenhouse gas; 2. Hydrological services: protecting watersheds or ‘recharge’ areas, 3. Biodiversity conservation: protecting a wide variety of coexisting plant and animal species; 4. Preservation of scenic beauty” (Porrás et. al., 2013, p. 4).

Opportunity costs: “The income or benefits foregone by a landowner when choosing to participate in PES, such as revenue from growing crops. It is the difference in income between the most profitable land use (before PES) and forest conservation” (Porrás et. al., 2013, p. 6).

1. Introduction

The small Central American country Costa Rica has long been considered a leader in environmentally sustainable policy actions as the country aims to have 70% forest cover and made a pledge in 2007 to be carbon neutral (which means to have a net zero release of carbon dioxide in the atmosphere) by 2021 (Flagg, 2018 p. 1). In 2019, the country received the Champions of the Earth award, the United Nations highest environmental honor. Inger Andersen, Executive Director of the United Nations Environment Program applauded the country's National Decarbonization Plan by saying: "Costa Rica has been a pioneer in the protection of peace and nature and sets an example for the region and for the world" (UNEP, September 20 2019). In 1997, Costa Rica implemented a state-wide Payments for Environmental Services (PES) program which pays landowners to conserve their forests for the benefits nature provides, such as biodiversity, storing carbon, scenic beauty and fresh water regulation. Nearly one million hectares of forest have been a part of PES at some point in Costa Rica. The over 50 percent forest cover that Costa Rica enjoys today is largely attributed to this program (Barton, 29 November, 2013). Extensive research and results have been presented on the ecological aspects of PES but the socio-economic impacts for the participants have been explored less. This essay suggests that PES' social impact for the participants aren't as significant as the ecological impacts the country benefits from.

Although Costa Rica is praised for its environmental sustainability, it is a country facing growing social inequalities. An Organization for Economic Co-operation and Development (OECD) policy brief from 2016 shows that the country has high income inequality even by international standards. Income inequality has risen in recent years, compared to most Latin American countries where it has fallen (OECD, 2016). Therefore, the OECD recommends Costa Rica to step up its efforts in reducing poverty and inequality (OECD, 2017).

Following this introduction is a statement of purpose and a background section that will familiarize the reader further with Costa Rica's relationship to the environment, PES and inequality in the country. This with the intent to further contextualize the study. Thereafter, the theoretical framework, critical sustainability studies, and previous research is presented, followed by the methodological section and a presentation and analysis of the results. Finally, the essay is concluded with a summarizing discussion and suggestions for further research.

2. Statement of purpose and research questions

With the introduction considered, this essay will explore the Costa Rican state run program *Payments for Ecosystem Services* (PES) circa 25 years after its implementation in 1997. PES has been one of Costa Rica's main strategies in achieving environmental sustainability as the ecological impacts of this program are well established. Separate to the ecological discussion, I aim to explore the social impacts of the PES program in a country with growing inequalities.

There have been reviews in the past about PES (its implementation and results) where the program's shortfalls are included as well, which will be introduced further in the background and the previous research section of this essay. I want to explore what the situation looks like 25 years later. What are the *social* impacts of this development program promoted by the United Nations (UN)? I conducted a case study by interviewing five rural Costa Rican farmers that have experience with PES and I aim to understand how their lives have been impacted by this program. I specifically want to understand how the program has affected their personal lives and what opportunity it provides them with. Their experiences will be compared to two reports present on the United Nations Development Program (UNDP) website for *Payments for Environmental Services* (see. *Forest Trends, Katoomba Group and UNEP, 2008*; and *Porras, Barton, Chacón-Cascante and Miranda, 2013*). To further my understanding, my analysis will be helped by answering the following questions:

1. How is the social pillar of sustainability discussed in the '*PES manual for developing deals*' (2008) and '*Learning from 20 years of payments for ecosystem services in Costa Rica*' (2013)?
2. What have been PES's shortfalls and successes from the perspective of the interviewed farmers that are a part of this program? What changes would they like to see to the program?
3. How does the interpretation of the results in the two chosen reports (*Forest Trends et. al. 2008*; and *Porras et. al. 2013*) correspond with the interviewed farmer's experiences?

The results and analysis will additionally include the perspective of a former director of the Foundation for the Development of the Central Volcanic Range (FUNDECOR) and a current director at the National Forestry Financing Fund (FONAFIFO), as I had the opportunity to interview two persons that have been involved in the program for many years. Their valuable insight is useful because it explains the complexity of the PES structure and how social sustainability may find its place in it.

2.1 Scope of work/Limitations

PES deals have been implemented in multiple countries across the world, but Costa Rica is the only country that has included PES as a part of a national strategy towards sustainability. Because of the importance of the program, this analysis will be limited to the Costa Rican context. Therefore, Costa Rica's cultural, economic and political context must be taken into account as I do not aim to generalize my results to apply to all nations that have or are conducting a PES program. The case study is based on interviews with a limited amount of PES recipients and I understand that their experiences may not be generalized because of the contextual nature of their experiences. It is contextual in the sense that the five farmers I interviewed are from the same district in Costa Rica and are all acquaintances with each other. Limited generalizations and conclusions are able to be drawn because of the sample size being too small to make any meaningful statistical analysis. Nonetheless, limiting this thesis to a qualitative study presents its own opportunities and advantages as it produces rich data through detailed and complex accounts (Braun & Clarke, 2013, p. 4). It is of greater importance in this essay to *understand* the problems and opportunities the informants face. A larger generalizing analysis is intriguing, but it is unfortunately beyond the scope of the present paper, principally because of time and resource constraints. I had to make additional adjustments due to the COVID-19 pandemic and interviews were conducted over the phone. Although, I hope that the results and analysis of this essay will contribute to a larger discussion about development programs and sustainability.

2.2 Relevance and academic contribution

Understanding the social impacts from PES in Costa Rica could be beneficial because of its potential to contribute with qualitative knowledge. This can showcase the possibilities and limitations of development initiatives promoted by the UN. The study will investigate PES within the concept of sustainability that lies on the three pillars of social, economic and ecological sustainability. In order for PES to be considered truly sustainable it should fulfill these three requirements. This essay will specifically focus on the social sustainability of PES because this area has been studied less. It is therefore of interest for Global Studies as an interdisciplinary academic field to study the challenge of achieving sustainability through development initiatives as this can increase the collective understanding of the issue. Because of the UN's claim that PES realizes Sustainable Development Goal 1: No poverty; Goal 3: Good health and well-being; Goal 5: Gender equality; Goal 6: Clean water and sanitation; Goal 13: Climate action; Goal 14: Life below water; and Goal 15: Life on land (UNDP, n.d.), I find it highly relevant to study the impacts of this program. There seems to be a lack of qualitative studies of PES as most accounts and information available regard larger quantitative measurements, like hectares of forest recovered. The PES recipients personal experiences are not as well-known as the ecological changes that have resulted from the program. Therefore, a more personal qualitative study can provide important novel insight and lessons for Costa Rica and other nations in the international community that can potentially benefit from a PES program.

3. Background and Contextualizing the study

3.1 Costa Rica and the environment

Latin American environmental issues are often thought of in the context of the Amazon rainforest, but damage from deforestation has reached all parts of Central and South America and is one of the main environmental challenges governments face (Green & Branford, 2013, p. 139). Commercial agriculture has been the main cause of deforestation in Latin America. It's responsible for 70% of the deforestation between 2000-2010 (Food and Agriculture Organization A, n.d.).

According to the Food and Agricultural Organization of the United Nations, between 2000-2005 the region was annually losing about 4.7 million hectares, which accounted for 65% of global losses (Food and Agriculture Organization B, n.d.). 40 % of all land in Central America suffers from some kind of erosion partly due to over intensive agriculture (Green & Branford, 2013, p. 146). However, Costa Rica's environmental history has been somewhat of an anomaly in the region. Costa Rica lost 2.5 million hectares of forest between 1940 and 1980, peaking at about 60,000 hectares per year in the 1970's (Gómez & Obando, 2004, p. 150) but due to serious reforms and structural changes, forests covered 54% of the country's surface in 2016 (Food and Agriculture Organization A, n.d.).

Julia Flagg shows in her case study (2018) that there are several events in Costa Rica's history that represent "a step in a causal chain" of an unusual political tradition which explains how the country became one of the leading environmentally sustainable nations in the world (Flagg, 2018, p. 2). In the 19th century, Costa Rica went against the trend of its neighbours in the region by distributing property to small landholders which delayed the development of severe inequalities. Furthermore in the same century, Costa Rica invested earlier in developing a commercial bank, a land registry, credit for farmers, systems of justice and free public education (Flagg, 2018, p. 3).

Significant events in more modern times include the abolition of the national army, which freed up funds that were in turn invested in education and environmental protection. Getting rid of the army also resulted in the country avoiding civil wars and dictatorships that affected neighbouring countries Nicaragua and Panama (Jones & Spadafora, 2017, p. 36). Additionally, environmental policy decisions such as the 1969 Forestry Law and establishment of the Payments for Environmental Services (PES) program in 1996 represent the most prominent examples of green development (Flagg, 2018, p. 1). The Forestry law established national parks and biological reserves as well as encouraging environmental education and wildlife protection. Reforestation was made tax-deductible as a way to decentivize deforestation (Flagg, 2018, p. 5) and the country's forests were seen as fostering conservation, tourism and research (Jones & Spadafora, 2017, p. 36). Yet significant deforestation still occurred as policies were symbolic in nature since the government lacked the infrastructure to enforce all these laws.

What's significant is that it set a precedent for environmental leadership because policies like the Forestry Law of 1969 were rare during these times. Finally, Costa Rica was awarded the Nobel Peace Prize in 1987 (Flagg, 2018, p. 1). This was especially significant because it resulted in a dramatic increase in tourism, as it sent a signal to the world that Costa Rica represented a country of stability and peace. Approximately 1 million foreign tourists visited conservation areas in 2015 with the spending estimated to have been equivalent to 2.5% of Costa Rica's GDP, USD 1.31 billion (Food and Agriculture Organization, 2018, p. 40).

In 2017, the Costa Rican government released the unique State of the Environment report which represents an indicator on the environment policies that have been implemented and to support sustainability (El Observatorio del Desarrollo, n.d.). Yet, the emissions that result from foreign tourists traveling are not taken into account in the discussion of the country reaching carbon neutrality (Flagg, 2018, p. 8). The increase in tourism has also led to environmental mismanagement, for example the development of resorts that have damaged and/or destroyed fragile mangrove swamps that act as a buffer against the wind and waves (Green & Branford, 2013, p. 139). I give this example to demonstrate that Costa Rica is not a perfect nation even though they are touted as environmental leaders in the international community and that there is a duality to the situation. The country contains four to five percent of the world's biodiversity in 0.035 % of the Earth's surface (Jones & Spadafora, 2017, p. 17). Costa Rica aims to be fossil fuel free by 2050 and it was the first country to sign a "national pact" for the United Nations Sustainable Development Goals in 2016 (Sustainable Development Goals, n.d.). With this history considered, Costa Rica has positioned itself as the most stable and democratic country in Central America and one of the most environmentally progressive countries in the world.

3.2 Costa Rica and inequality

Despite an improvement in overall macroeconomic performance in Costa Rica, income inequality has risen and is currently at its maximum historical value. An OECD study from 2017 shows that the main contributor to inequality in Costa Rica is labor income. Social programs do contribute to reduce inequality but the impact is very small due to the low payments.

The study found that increasing wages for low qualified workers in the private sector would have the biggest effect on reducing inequality (OECD, 6 March 2017, p. 3). Government cash transfer won't have a larger effect either because the payments are so small compared to a household's total income, even for the poorest (OECD, 6 March 2017, p. 20). The country's poverty rate was at 21.1% in 2019 (World Bank Group, April 2019). In 2017, Costa Rica spent 15% of its GDP on public social spending which is less than the OECD average of 21% (OECD, 18 October 2017). Therefore, the organization recommends a higher compliance with the minimum wage level and a simplification of its structure. There also needs to be a strategy to reduce participation in the informal economy among low-qualified workers, a problem facing much of Latin America (OECD, 6 March 2017, p. 24). The unemployment rate reached its highest point in October-December 2019 at 12.4%. Additionally, the COVID-19 crisis in 2020 led the economy into a recession, further increasing poverty and inequality (World Bank Group, April 2019). Reforms in the labor market should also be complimented by better anti-poverty policies (OECD, 18 October 2017).

3.3 Payments for Environmental Services

The United Nations Environmental Program (UNEP) defines Payments for Ecosystem Services (PES) as something that occurs when “a beneficiary or user of an ecosystem service makes a direct or indirect payment to the provider of that service. The idea is that whoever preserves or maintains an ecosystem service should be paid for doing so” (UNDP, n.d.). The program bases itself on the premise that the environment provides vital services to people and the planet by providing clean air, water, food and medicine, conserving biodiversity, protects against erosion and landslides and slows the effects of climate change. The role of forests is especially important to the hundreds of millions of people who live in rural environments (Food and Agriculture Organization, 2018, p. X & 91). The role of environmental services is specifically recognized in Sustainable Development Goal 15 (Food and Agriculture Organization, 2018, p. 57).

The idea is that landowners who participate in this program receive payments from those people who benefit from the environmental services. An example is that highland landowners who conserve the forest and rivers should be compensated by those who use that water (Porras, 2012). Another example would be that a person who puts gas in their car pays a tax to those who conserve forests through PES to compensate for the car's pollution because of trees' carbon capture capabilities. The intention is to lessen the divide between the rural and the urbanized. A 1997 *Nature* magazine article estimated the annual value of global ecological benefits to be a minimum of \$33 trillion, which was about twice the gross global product at the time (Costanza, d'Arge, de Groot, et. al., 1997). In 2014, the authors of the 1997 article re-assessed the value based on 2011 data and updated the estimate to be between \$125–145 trillion a year (Costanza, Groot, Sutton, et. al., 2014). Different PES models have been tested in countries like Brazil, Ecuador, France, the United States and most notably, Costa Rica.

After the Forestry Law of 1969 the government of Costa Rica attempted different solutions to encourage reforestation that weren't viable in the longer term. FUNDECOR developed ideas which “advocated a market-oriented approach based on valuation of the economic contribution of Costa Rica's forests”. FUNDECOR had previously run an independent pilot program in 1992 to make payments for environmental services to a group of farmers (CPI, April 14, 2016).

In 1996, the government introduced its fourth national forestry law and Costa Rica's PES program, *Pagos por Servicios Ambientales* was founded (Flagg, 2018, p. 5). The law allows four different kinds of ecosystem services to be eligible for payment; water protection, carbon sequestration, scenic beauty, and biodiversity (Allen, 2018, p. 246). FONAFIFO and the National System of Conservation Areas (SINAC) were tasked to oversee the program (Flagg, 2018, p. 5). FONAFIFO's mission is to “Contribute to sustainable development through financing to those who provide services environmentally from an integrative and innovative public management perspective” (FONAFIFO A, n.d.). The main internal stakeholders are the Costa Rican Ministry of the Environment, the National Forestry Commission, FUNDECOR, SINAC, FONAFIFO and the Tropical Science Center, a scientific and environmental organization (CPI, April 14, 2016). Independently contracted forestry technical facilitators oversee program implementation and act as a third party role between FONAFIFO and those who participate in the program (Allen, 2018, p. 246).

\$318 million has been invested in forest related PES projects between 1996 and 2015 (Food and Agriculture Organization A, (n.d.)), which far exceeds the investment of any other country into PES. In the first 10 years, Costa Rica invested 0.43% of its annual budget into the program (Flagg, 2018, p. 6). 64% of the investments came from taxes on fossil fuels and 22% from World Bank loans. There is also the option to obtain a 'green' debit card which would allocate 10% of the bank commission to FONAFIFO (Porras, 2012). However, the budget has not been sufficient to meet the growing demand. FONAFIFO says that they met this problem by successfully generating alternative sources of financing from private companies (FONAFIFO B, n.d.).

As of 2016, 5.4 million trees have been planted by farmers, 437 000 hectares of biological corridors has been created and the program has supported conservation efforts in indigenous territories (Food and Agriculture Organization A, (n.d.)). Approximately 9605 contracts were distributed from the period 2010-2019 (FONAFIFO C, n.d.). According to FONAFIFO, the program has had a positive impact on contributing to rural development and to national strategies to fight poverty (FONAFIFO B, n.d.). Costa Rica is often portrayed as a PES success story and used as a model for other countries to learn from (Flagg, 2018, p. 6).

4. Theoretical framework and previous research

This chapter will present the theoretical framework as well as provide a review of earlier research on Payments for Environmental Services and social sustainability. The starting point of this study is empirical research. Theoretical concepts from critical sustainability studies will be used to better understand the gathered material and explain my observations, and to connect it to the larger debate regarding sustainability. The topic of this study is relevant to critical sustainability because it shows that processes such as these are socio-ecologically complex, inherently political, and that resources and risks tend to be asymmetrically distributed among different actors.

PES was created within the context of sustainability, which will also act as the discursive background and the empirical reality that I will study. I view sustainability as a hegemonic discourse in the Costa Rican and global context of today's socio-political world. Sustainability is a broad discipline that acknowledges the long-term balance that is necessary between people and natural resources. Sustainable development means to not undermine the continuity of humankind.

A central primary effort to discuss the issue was in 1987, when the global community developed a common understanding of the term in the Brundtland Report (Povitkina, 2018, p. 17). The well-known definition of sustainable development is “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987).

More specifically related to the purpose of this essay, which is to study the social impacts of PES, I will define the term based off of the Western Australia Council of Social Service definition of social sustainability which is:

“Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and livable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life” (ADEC Innovations, n.d.).

4.1 Critical sustainability studies

Critical sustainability studies aim to underscore the importance of engaging with socio-environmental relations and critically view the political economies that shape these (Rose & Cachelin, 2018, p. 518). Critical scholars Jeff Rose and Adrienne Chachelin (2018) question if sustainability has already lost its meaning and value because of its frequent use. Sustainability terms can often be shallow and ambiguous which in turn may perpetuate unsustainable efforts (Rose & Cachelin, 2018, p. 519). Sustainability has already become one of the most cited terms in policy programs (Greenberg, December 2013), but critical sustainability scholars show that the traditional three pillars of sustainability; environmental, economic and social, are often in conflict with each other. Environmental sustainability is often prioritized over necessary economic and social change (Rose & Cachelin, 2018, p. 521). Rose and Cachelin argue that the hegemonic sustainability discourse strengthens neoliberalism in the sense that it shifts the focus from government to citizen and/or consumer. Traditional sustainability aims to change or tweak existing systems whilst critical sustainabilities aim to offer alternatives to the existing systems. They emphasize that critical sustainabilities “are direct responses to the very unsustainability (environmental, ecological, political, economic, social, and other) of existing systems.”

Something is always being sustained in any societal system and from the critical perspective, it is always more productive to question what is being sustained and why. To question who benefits from the sustainment of the status quo (Rose & Cachelin, 2018, p. 519-520).

Felipe Ferreira (2017) argues that critical sustainability studies must be aware of power relations and identify power inequalities and their implications. Furthermore, critical sustainability studies must focus on “the sociocultural identities and experiences of those who have been (most) oppressed” and by acknowledging that “positive socio-cultural transformation comes from the bottom up.” It is worth mentioning that the Brundtland Report emphasizes that priority should be given to the essential needs of the poorest people in the world. Efforts of environmentalism and sustainability often fail to include those most marginalized in the neoliberal political economy. There is value to critical sustainability studies in the context of the Anthropocene because it can lead to better practices that are much needed. The Anthropocene being the epoch in Earth’s history where humans began to impact the Earth’s climate and ecosystems (National Geographic Society, 7 June, 2019). “Critical sustainability is sustainability as if class, politics, and class politics matter”. It recognizes the historical preconditions that have resulted in these class politics (Rose & Cachelin, 2018, p. 520-522).

David Harvey (1996) argues that all ecological projects are socio-political projects and vice versa (p. 174). Critical sustainability is not a single model, but rather one that is plural, local and context-dependent. It recognizes the interconnection of ecological limits and social justice and opposes the commodification of nature. This will provide for an interesting discussion about the monetization of nature that the PES program is based on. The point is to incorporate concepts and practices of communities in order to connect the social, the economic and the environmental (Rose & Cachelin, 2018, p. 520-521). In a truly sustainable society, social and economic needs are connected and balanced with the limits set by ecosystems and environments (Ferreira, 2017).

4.1.1 The role of social sustainability

Ferreira (2017) maintains that social sustainability is the least developed of the three pillars of sustainability and it is often discussed in relation to economic and/or ecological sustainability. He has two explanations for this:

1. “The sustainability agenda was conceived by international committees and NGO networks, think tanks, and governmental structures, which makes it a top-down approach and, consequently, less likely to recognize and address themes such as structural poverty, equity, and justice.
2. Social sustainability is made subservient to economics and the environment, it fails to examine the socio-political circumstances and elements that are needed to sustain a community of people”

The critical sustainability framework takes all three pillars into consideration and can provide a nuanced approach to studying and overcoming unsustainability. It offers an alternative to the hegemonic sustainability discourse. The aim is to promote a plural, localized and context-dependent approach to the sustainability agenda that will result in a positive socio-cultural transformation.

4.2 Previous research

In relation to the Payments for Environmental Services program, there is academia on the history, background and quantitative achievements of the program (see for example Forest Trends, Katoomba Group & UNEP, 2008; and Porras et. al., 2013). These studies lay the foundation for both the background and the general aim of this study. Additionally, there is critical research regarding PES which will be presented below to further contextualize the dynamics of PES in Costa Rica. This section will also act as a theoretical framework, as perspectives from the included critical scholars will be used in the analysis.

4.2.1 On PES

UNEP's '*PES manual for developing deals*' (2008) is one of the documents that will be used to compare with the interviewees personal experiences.. The publication includes three sections. The first section presents Ecosystem Services, emerging markets and payments. The second section regards Pro-Poor PES: the opportunities, risks, ideal conditions and considerations of when to pay for expertise. Finally, a third section presents a step-by-step approach to developing PES deals. This primary source served as a foundation for this essay as it encompasses 60 pages of the PES basics. Additionally, Ina Porras, David N. Barton, Adriana Chacón-Cascante and Miriam Miranda's research paper '*Learning from 20 years of payments for ecosystem services in Costa Rica*' (2013) accounts for the history of PES in Costa Rica and its successes as well as shortfalls. The report recognizes the difficulty of managing a multi-objective program and provides recommendations on how PES could be improved. These two research materials are found on UNDP's website regarding 'Sustainable Development Goal Financing Solutions' under the sub-heading 'Payments for Environmental Services'. Because the UN promotes these documents as a strategy to achieve the SDG's, I believe that they may not be as critical to the program and concept as research papers originating from critical scholars. These sources will give insight on question 1 and 3 regarding the reports interpretation of the result of PES and how much discussion is given to the social sustainability of the program. These materials are necessary for the comparison to the recipients experiences.

Karen Allen and Steve Padgett-Vásquez (2017) studied in their essay the paradigm of sustainable development goals and PES in the same region where I conducted my case study, Monteverde, Costa Rica. They show that the SDGs aim to improve socio-economic conditions as well as sustain environmental well-being. Although in traditional sustainability studies, socio-economic conditions are often reduced to income and environmental well-being is attributed to forest cover. They maintain that it isn't clear that implementing policies that combine forest cover with economic growth will actually increase the well-being of the targeted populations (Allen & Padgett Vásquez, 2017, p. 212). Their results showed that a positive attitude towards PES from farmers was connected to a positive association with conservation and income. Their data also revealed that many of those who were a part of the program conserved forest on their lands prior to joining PES.

The sentiment was that if land was already being conserved, being able to receive payments for this action is good (Allen & Padgett Vásquez, 2017, p. 216). There have been potential indicators of success in the program but there may be hidden costs that won't make the program fully sustainable in the long term (Allen & Padgett Vásquez, 2017, p. 220).

In *Why Exchange Values are Not Environmental Values: Explaining the Problem with Neoliberal Conservation* (2018), Karen Allen asserts that market-based conservation efforts like environmental services (PES) minimize ecological systems to tradable commodities (Allen, 2018, p. 244). As a critical scholar, she examines the irony of market solutions to issues like environmental deterioration which are due to market failure. Neoliberal conservation projects fail to see the diversity of social values that aren't capitalistic. Speaking to Costa Rican farmers, Allen found that many had a deep-rooted ancestral connection to their land and a desire for conservation. PES was referred to as "the selling of oxygen", it is viewed as a business deal rather than a conservation program (Allen, 2018, p. 250-251). She argues that it is dangerous to influence behaviour through economic incentives (Allen, 2018, p. 246) and reduce the environment to a monetary value. This can result in people rethinking their relationship to nature, which can be highly problematic for the long term because of market fluctuation. "What happens when the money runs out?". If a forest is reduced to monetary value, it will be much easier to destroy it once the payments stop (Allen, 2018, p. 251-253). In contrast, the FAO calls on policy makers to "attach greater economic value to forests and encourage conservation of ecosystems through sustainable forest management and payment for environmental services" in the organization's 2018 State of the Forest report (Food and Agriculture Organization B, n.d.).

4.2.2 On social sustainability

Kevin Murphy's text '*The social pillar of sustainable development: a literature review and framework for policy analysis*' (2012) will assist me in my analysis of the social impacts of PES for the recipients and how the UN interprets the results, as he shows that the social dimension of sustainability has not been given as much attention as the other two pillars. As a critical scholar, he means to show that the selection of social sustainability measures demonstrate power because influential groups are more likely to have their priorities addressed and included. Indicators to measure sustainable development are therefore more political than scientific.

Murphy argues that clearer links need to be established between the social and environmental pillar in order to strengthen the argument that the three pillars of sustainability are tightly interlinked (Murphy, 2012, p. 15). This is a useful framework for when analyzing how organizations view the social pillar and to which capacity the environmental aspects of sustainability have been linked to social sustainability (Murphy, 2012, p. 26).

This kind of theoretical framework will allow me to study and analyze PES and the recipients experiences within the context of traditional sustainability. Critical sustainability studies will guide me in how I interpret the interviews and in my analysis. I will primarily focus on social sustainability as this is something that isn't discussed much in the existing literature regarding PES. Having critical sustainability studies as a theoretical foundation will allow me to research PES through this critical thought and also further the discussion in what lessons may be learned from the qualitative information that I gather.

5. Methodology and method

5.1 Methodology

The methodological standpoint of this essay is interpretative as I aim to understand the phenomenon from the individual's perspective (Scotland, p. 12, 2012) and place this in the cultural, political and historical context of Costa Rica. I want to understand PES from the participants perspective. James Scotland (2012) states that "knowledge has the trait of being culturally derived and historically situated" (Scotland, 2012, p. 12). Knowledge originating from the farmers of this region may vary from the knowledge that is produced in the reports exemplified in this essay. The interpretative methodological prerequisites of this study is to conduct a case study to understand phenomena through the perspective of the individual, pay attention to the historical and cultural context and compare this to formal policy documents.

5.2 Method

This essay applied a qualitative method of research in order to fulfill the purpose of the study. The strength of a qualitative study is that it doesn't seek a single answer or a single truth, but it is about *meaning* (Braun & Clarke, 2013, p. 38). The qualitative nature of this essay will provide personal accounts and insight that can be a complement to the quantitative data that is already available on the subject. I, as the researcher, attempt to capture and depict the reality as it is experienced by the people who are in it (Merriam & Nilsson, 1994, p. 178). Granted, the reality that I have studied is analyzed through my own interpretation and experience and it is therefore important to assess it as such (Merriam & Nilsson, 1994, p. 177).

I conducted a qualitative text analysis of UNEP's primer (2008) and Porras et. al. (2013) in order to answer the question regarding their interpretation of the results of PES. This analytical method will allow me to distinguish the essential parts of the texts and see the context in which it belongs. I am systematizing the texts in order to clarify the structures of thoughts in the reports. I did this by carefully reading the texts multiple times so I could distinguish the parts of the texts relevant to this study. The essential arguments found were summarized on a separate document in order to better organize the results. I also adopted an open approach where the answers to my questions were determined by what I found in the chosen texts (Esaiasson et. al., p. 210 & 217, 2017).

Finally, I will continue with a comparative analysis of the information I gather from my interviews and the conclusions I draw from studying the chosen reports. The results from my study and this comparison will be analyzed through the perspective of critical sustainability studies and I will use the concepts and theories presented as a tool to critically analyze PES and the social impacts of these deals. The complete frameworks and methods presented will allow me to answer all of the questions asked in this thesis.

5.2.1 The interviews

I carried out semi-structured interviews with small scale recipients of PES in the Guacimal district of the Monteverde region in Costa Rica. In early spring 2020, I did the 'Sendero Pacífico' hike in the Monteverde region. One of the guides was a local farmer who has experience with PES. We exchanged information as I said I would contact him in the near future to conduct a proper interview, since this was before I had done any preparation. An interview guide was prepared ahead of the interview to ensure some sort of structure, but also allow space for open conversation (Hallin & Helin, 2018, p. 89). The initial aim was to conduct semi-structured interviews in person, but unfortunately due to the COVID-19 pandemic I had to do the interviews over the phone instead. The interviews were therefore carried out from my apartment in the capital San Jose during the month of May 2020. Spanish is the main language in Costa Rica, and because I only consider myself moderately fluent, I had the help of my roommate and native Spanish speaker Oriana Hubner during all interviews to ensure that I understood all that was said and was able to respond appropriately. Each interviewee was asked to suggest other key stakeholders for interviews; and thus, a snowball sample was created (Hallin & Helin, 2018, p. 34). I ended up interviewing five farmers and the conversations lasted between 45 minutes to an hour, which I deemed sufficient and viable for the timeframe of this study. The interviews were conducted in Spanish and the full transcripts and translations of the interview data is included in the appendix (see appendix 1-6). For the sake of the informants' anonymity, I will give each farmer a pseudonym. Even though the informants gave their consent to participate in this study, I consider it important to conceal personal information because they all critiqued the program in some manner. All personal information has been covered in the transcripts and translations. I'm exercising caution because I wouldn't want this report to negatively impact their personal lives.

After I had spoken to the five farmers, I was able to interview a former director of FUNDECOR and the current director of the PES program at FONAFIFO. This was of value because I could lift the viewpoint of the farmers and receive perspectives from those who actually manage PES. Their perspectives will also be included in the analysis. I have also chosen to keep their full names private in this essay and the full transcripts are included in the appendix (see appendix 7-9).

The answers the interviewees provided gave insight to the shortfalls and successes of PES and if it is a program that moves closer to fulfilling the three pillar concept of sustainability. I processed the qualitative material by mapping out certain terms and concepts from the interviews in order to see patterns between them. It was a thematic strategy as it allowed me to identify central themes and sub-themes. As I read through the transcripts, I highlighted central words and phrases and summarized them on a separate document in a thematic order. This made it much easier to compare the answers of the interviewees and relate them to each other. I was able to discover the general patterns because of the way I structured the material. I went through the results many times, in order to make sure that the interviewees don't lose their individuality in this process (Hallin & Helin, 2018, p. 75-77).

5.3 Ethical considerations

I understand the implication of my choice of method, as I know that it is contextual and qualitative data is difficult to generalize. There are several factors that I took into account when producing a study like this. One being the effect that I, as the interviewer, have on the interviewee. I have to make sure that I don't, consciously and subconsciously, affect the answers of the subject in question. My pre-understanding of the situation should not affect the outcome and answers given (Esaiasson et. al., 2017. p. 235). I made sure to present myself appropriately, make the purpose of the study clear to the informant and ask for their consent to record the interview. To promote a comfortable interview environment, I found it important to contact the interviewee ahead of time to schedule the interview at the most appropriate time for the informant. It is also important to note that when a case study is presented, it can easily be interpreted as a whole story, when to the contrary, these issues only represent a single aspect of the life of the farmers (Merriam & Nilsson, 1994, p. 47).

6. Results and analysis

This section will present the research results and analyze it in relation to the theoretical framework of critical sustainabilities. It is structured in a way that each subheading attempts to answer a research question and is followed by an analysis. I choose to integrate the results and the analysis, to limit the distance between the material and my interpretation. This section will include many quotes in order to let the informants' own words be shared.

6.1 How is the social pillar of sustainability discussed in the '*PES manual for developing deals*' (2008) and '*Learning from 20 years of payments for ecosystem services in Costa Rica*' (2013)?

6.1.1 According to the '*PES manual for developing deals*' (2008)

In UNEP's '*PES manual for developing deals*' (2008) produced by Forest Trends and the Katoomba Group, much less importance is given to the social sustainability of PES than the environmental and economic aspects of the programs. Even the name of the primer indicates the emphasis on PES being a business *deal*, rather than a sustainability program. It states that "payments for ecosystem services are not designed to reduce poverty. Rather, PES primarily offers economic incentives to foster more efficient and sustainable use of ecosystem services" (p. 10). This differs from UNDP claiming that PES is related to SDG 1: no poverty and shows that the environmental SDG's are more strongly related to the program.

Although the report indicates that there are opportunities to design PES for low-income people to earn money through direct payments, it won't provide all the financial resources needed for a family or community (p. 11). It is argued that in the long-term, communities (the social) will benefit from PES deals indirectly through the improvement of ecosystem services. This is not a very strong argument since research (based on the Costa Rica context) shows that most contracts are located on land with low deforestation probability. A study from 2000 to 2005 found that less than 0.4% of land under a PES contract would have been deforested if there were no payments. Mainly because of other conservation laws and the increase in ecotourism that brings value to the forests (Porrás et.al., 2013, p. 35).

Regarding the long-term effects of the program that are presented in the primer, there are no social effects mentioned but solely environmental consequences, for example an increase in ecosystem resilience (Forest et. al., 2008, p. 11).

There is a great emphasis placed on the economics of putting together a PES deal in the primer. The authors state that the potential supply for ecosystem services can outstrip market demand, resulting in low prices. The price of a carbon (CO₂) credit is exemplified as it varies if it's sold on the US market or the European Union market depending on compliance with the Kyoto Protocol (Forest et. al., 2008, p. 31). Basically, the price of these ecosystem services boils down to supply and demand, dictated by the market. The seller/farmer has no bargaining power regarding the price of a CO₂ credit. The social sustainability of the price which is essentially a direct payment to the seller is not taken into consideration. The primer emphasizes that contracts should be designed to be fair to avoid exploitation, but it is ultimately a business transaction. Joining PES also becomes an issue of individual/family economics because of the cost of PES assessment, start-up and transaction cost that is placed on the seller of the services. This excludes many land-owners who may not have the start-up funds.

6.1.2. According to 'Learning from 20 years of payments for ecosystem services in Costa Rica' (2013)

Porras et. al. (2013) continue this discussion by suggesting that because there is such a high volume of applications to join PES in Costa Rica, it would be acceptable for participants to accept a lower direct payment. Especially those with lower opportunity costs and/or those who own land with lower risk of deforestation. Lowering the payments in those situations would free up funds to raise the competitiveness in areas where opportunity costs and that risk of deforestation are higher. The argument is that if the competitiveness of PES is increased, it would allow for better targeting of areas with high environmental services (p. 60).

Porras et. al. (2013) acknowledge that "there have been few efforts to account for all impacts on people beyond the direct financial benefits of those participating directly" (p. 2). Therefore, this report makes an effort to go into more detail on the impacts on people.

The authors argue that the socio-economic benefits are especially important in indigenous and rural communities, where PES is a principal source of income (p. 10). Since the beginning of PES in Costa Rica, the amount of contracts going to indigenous communities has exponentially grown (from 3 to 26 percent of the budget between 1997 and 2012) (p. 2). A stable income through PES diversifies the sellers livelihood opportunities (p. 44). The report conveys a strong optimism regarding the impact of the direct payments. An additional social incentive to join the program is that the seller benefits from a property tax exemption (p. 20).

They acknowledge the difficulty of balancing a social agenda in an environmental program, because there will naturally have to be some give and take regarding costs and benefits. Increasing social sustainability will lead to higher costs and less environmental benefits, specifically working with poorer landowners because of the properties being smaller and more fragmented. The authors state that “win-win scenarios for equity, economic efficiency and environmental effectiveness are rare” (Porrás et. al, 2013, p. 38). The strategy to include poor landholders has been to target areas with a low social development indicator, but this hasn’t been particularly effective because contracts in these areas more than often go to large landholders, those who aren’t the poorest (Porrás et. al, 2013, p. 9).

6.1.3 A critical response

From a critical perspective, it is clear that the information above verifies Rose & Cachelin (2018) point of the three pillars of sustainability being in conflict with each other. That is why Murphy (2012) argues that there needs to be a greater effort to tightly interlink the three (p. 15). There is a power dynamic in play that doesn’t benefit the seller/farmer of the environmental services. The PES model was designed with the intention to pursue the political goal of increasing forest cover in the country. The expectation was that this would have positive consequences that could benefit the whole country. From the government's perspective, a positive consequence would be the increase in tourism the country has seen, which accounted for 2.5 percent of Costa Rica’s GDP in 2015 (Food and Agriculture Organization, 2018, p. 40). A country’s GDP gives an overall picture of the state of the economy and is considered an important indicator of the health of the economy. Although considered a positive development, an increase in the GDP hasn’t substantially improved the quality of life of small-landholders who make the big decision of entering into a PES deal.

Rather, the informants of this study feel like they have been forgotten by the government. Murphy shows that social sustainability measures are more political than scientific because influential groups are more likely to have their needs addressed. There isn't a priority in the program of the lives and experiences of those stakeholders who are most oppressed, which critical sustainability advocates for. Instead, the priority is increasing the amount of forest cover in the most efficient manner to demonstrate quantitative results.

The main social impacts that were observed were those about the increase in income through direct payments and the higher quality of ecosystem services that communities can enjoy. Critical scholars emphasize that sustainable socio-cultural transformation comes from the bottom up and Harvey's (1996) sentiment that all ecological projects are socio-political projects and vice versa is missing from these reports. The fact that Porras et. al. (2013) suggest lowering the payments to increase competitiveness of gaining contracts indicates that the farmers best interest and social sustainability aren't of priority. Recognizing the issue of inequality in the country, efforts to advance sustainability like PES have not always prioritized the needs of specific landholders that may require distinctive and targeted approaches to sustainability.

6.2 What have been PES's shortfalls and successes from the perspective of the interviewed farmers that are a part of this program? What changes would they like to see to the program?

The five in-depth interviews provided useful insight into the shortfalls and successes of the program for the landholders. The first part of this chapter briefly presents the informants and the following section is divided into three parts which represent the three major themes I gathered from all the interviews. The chapter is concluded with the informants' suggestions for the future of the program.

6.2.1 Introducing the informants

The Guacimal district is a rural area primarily made up of small farms where landowners partake in cattle and subsistence agriculture. The tourist presence is very small compared to the very popular Cloud Forest reserve in neighboring Monteverde. Below is a table summarizing the informants' basic PES information.

Name	Age	Total number of ha owned	Ha in PES	Years under contract
Daniel	54	72	n/a	n/a
Guillermo	42	49	20	8
Diego	68	30	15	4
Pedro	72	170	25 + 30	3
Roberto	39	33	14	2 months

Daniel has lived in Veracruz, Guacimal, all his life and owns 72 hectares of land with his brother. He was the farmer I met on the 'Sendero Pacifico' hike that later connected me to others in his community with PES experience, so he's the only informant that I was able to meet. His land has been in the family for 32 years and it is mostly used as pasture for cattle and parts of it for agriculture. Areas of the property are on a great incline and Daniel and his brother have been working to regenerate the forest in those parts for about 25 years.

Guillermo lives in Santa Rosa, Guacimal and makes his livelihood mostly from livestock but also tropical agriculture like lemons, beans, corn and bananas. He loves working with agriculture and also makes an effort to leave trees on his agricultural property instead of clearing it completely.

Diego comes from a family of farmers but is solely dedicated to livestock now on his 15 hectare property. Previously, he harvested coffee and other things on a small scale.

Pedro has farms in San Antonio and Santa Rosa of 170 hectares. He previously owned 200 hectares in total but had to sell some land due to his financial situation. He dedicates his time to growing beans, onion, corn and a plant called ñampí. At the time of the interview he was getting his onions ready for the Monteverde and Santa Elena farmers market that occurs every Friday. He usually brings beans, honey, bananas and chan seeds to sell.

Roberto only recently joined PES two months previous to the interview and dedicates his 19 hectares of property not in the program to cattle and growing basic grains.

I want to recognize that I'm aware that all the informants from this essay are male landholders. Land is traditionally registered under male ownership in Costa Rica, but PES has made an effort to give female landholders contracts. The proportion of contracts given to women-headed properties increased from 16 to 23 percent between 1997 to 2012 (Porrás, et. al., 2013, p. 63). Having only male interviewees is a result of the snowball sample method because I didn't actively search out women-headed properties.

6.2.2 “All my life I have cared for conservation” (Guillermo, phone interview, April 20 2020)

Generally there is satisfaction and happiness with the PES program because the farmers share a similar objective of wanting to conserve their environment. All farmers expressed a great love for conservation and nature. Roberto for example explained that he joined the program because it helps protect the forest and animals. Guillermo finds it to be a great advantage that he can be a part of a biological corridor and benefit from some tax exemptions. He also described the difficulty of having livestock, which is destructive for the environment and having to balance that with conservation. PES helps him better achieve that balance.

Guillermo: “So what I have tried to do is to compensate what I've destroyed with reforestation, with some conservation. I work with fallow agriculture and with agroforestry, that is, in a different part that is not the conservation area. I am leaving more trees, where the cattle don't go and I work with beans in that forested area. Many say to me: but how do you work with beans if there are trees? Because for most farmers it is not correct because

they say there should be no trees, however I have done so and I have produced a good product” (Guillermo, phone interview, April 20 2020).

Diego has a strong conservation philosophy and knew the importance of taking care of the environment from a young age:

“... It is an area that is worth protecting because my dad, when I was 4 years old, acquired that property and for many years we always took care of it. We have always taken care of that area and protected it and we have never received an environmental payment for it, never. However, once a mining company tried to do some explorations and I was older and knew what environmental destruction was, where a machine was going to destroy the mountains and I objected, I did not agree and, thanks to God, the protected area was not destroyed” (Diego, phone interview, April 16 2020).

Pedro expressed gratefulness for all the vegetation Costa Rica has, and that he has seen a difference in the amount of trees. Guillermo has also seen an increase in animal life in the area which he attributes as a positive consequence of the program. This is how he responded when asked if he views the PES program as positive:

“Yes, of course I do, because, be that as it may, this is a refuge, it is a benefit not only for me but for many people; That there are still conservation areas and you have animals, of course this is positive. Everything is disappearing, species are dying faster and faster so conservation areas are a refuge for birds and any other animals.” (Guillermo, phone interview, April 20 2020)

Although a negative consequence for the community is that there has been an increase in cattle and sheep taken by jaguars. Guillermo explained that a neighbor of his lost 22 sheep to jaguars two years ago. Daniel was the only farmer I interviewed that didn't actually have a PES contract, but he has been trying to join and hasn't yet met the requirements because he still needs an engineer to draw an updated property plan. He started regenerating parts of his property over 20 years ago and wants this land to be a part of the contract. Allen and Padgett Vásquez (2017) results showed that a positive attitude towards PES was connected to a positive association with conservation.

Their data also revealed that many of those who were a part of the program conserved forest on their lands prior to joining PES (Allen & Padgett Vásquez, 2017, p. 216). The informants of this essay have a deeprooted connection to their environment similar to those in Allen & Padgett's article.

All informants heard about and joined PES through a third party group, the so called forestry technical facilitators. The meetings organized by this group added to a sense of community because the farmers came together and were able to hear about how other people's farms are doing. They feel that throughout the PES process they have been treated well and have trust in the institutions. Ultimately, they are grateful for the PES program because it is better than what they received before, no payments. The greatest success is an increase in biodiversity and trees as well as a small extra income. Here's how Pedro describes Costa Rica's changed relationship to environmental conservation:

“In Costa Rica, thanks to God, every day the trees multiply naturally because people have become more educated on this subject. For example, when I was young people burned forests for agriculture, nowadays that doesn't happen anymore. Whoever does it is a drifter who does not know what he is doing, who does not think or because he hunts animals. But thanks to God nature has multiplied” (Pedro, phone interview, April 17 2020).

The informants share a common sentiment of wanting to maintain a long-term balance between people and natural resources, the definition of sustainability. They don't view PES as an opportunity to commodify nature but instead view it as a way to ensure its conservation and receive an extra payment for it. Three out of the five informants were already conserving significant parts of their property before they had known about the program. They find great joy in seeing more trees and an increase of wildlife in their community because they know the importance of respecting the natural world. A good example is Diego not allowing a mining company to pay him to do explorations because he would rather protect the environment. I couldn't interpret a neoliberal conservation attitude because nature seems invaluable to the interviewees.

6.2.3 “For one who is struggling, it (the payment) is little help” (Diego, phone interview, April 16 2020)

Less positively, all the farmers emphasized that the payments from FONAFIFO are too small. Here’s how Diego describes it:

“The environmental system with FONAFIFO seems good to me, what happens is that I feel that the payment is very little, very little [...] as a farmer, as a small livestock entrepreneur, I receive very little help from the government or institutions and you have to fight a lot but there is no profit, it is a lot of work... So I feel that it is not a good system” (Diego, phone interview, April 16 2020).

It is unfortunate because the process to gain a contract is described as moderately difficult and expensive for their neighbours who want to join but can’t afford the start-up costs. Roberto says that there are many in the community that are in the process of trying to join. Daniel says that the community hasn’t been much affected by the program yet. He thinks that “the sum will not be much income, but we have never received anything for that part of the mountain so it’s something. And we have regenerated this land for about 25-26 years” (Daniel, phone interview, April 13 2020).

Diego believes that if FONAFIFO paid more and if the process of getting a contract was easier, fewer people would be cutting down trees in the area:

“ [...] if farmers would receive a little more respectable aid and with less difficult procedures to achieve it, fewer people would be interested in selling wood. The problem is that many farms, when they do not obtain the program, or when they do not have financial aid, look for other ways to generate income such as cutting down wood and selling it. That's the most concerning thing. [...] For example, I have some neighbors who would like to participate but they do not have the measured farm and to get the plans and the deeds is very expensive. However they are people who have protected these lands for 20, 30 or 40 years and they cannot receive the program payments because they do not have enough money, a million or two million colones, to measure it... So, if there was an institution that would somehow help them join or get those papers to be able to be part of the program, it would be a great guarantee” (Diego, phone interview, April 16 2020).

The independently contracted forestry technical facilitators charge a percentage of around 15 to 18 percent of the payments for their assistance. FONAFIFO does not interfere in this and all that is required to invest to be able to sign a contract for PES, are costs that are borne by the farmer. At the time of the interviews, I was told that the payments from FONAFIFO also depended on the price of the dollar which makes it more unstable instead of the farmers receiving a fixed value of the Costa Rican colón¹. Regardless, all farmers expressed gratefulness for the payments since it is better than nothing. Pedro said that he would like the payments to be higher but: “Well, since the money is more like a "gift", I think it is good because it is not money that the farmer generates by working, staying in the sun” (Pedro, phone interview, April 17 2020).

These testimonies support the OECD research on inequality stating that social programs do contribute to reduce inequality but the impact is very small due to the low payments. PES isn't designed to be a social program so the impact is therefore even smaller. Government cash transfer won't have a larger effect either because the payments are so small compared to a household's total income, even for the poorest (OECD, 6 March 2017, p. 20). A solution based on the study would be to increase their wages which would mean raising the price on the produce they sell (OECD, 6 March 2017, p. 3) but that is very difficult for a farmer living in a modern market economy because global competition makes subsistence farming and small-scale production economically unsustainable.

The informants wish the government did more for them because it is hard for them to compete in a modern market economy. I asked all farmers what their communities main struggles are and all of them responded with finances, whilst Diego added that they also really need better roads and communication routes. Critical sustainabilities would lift the informants' perspectives and argue that sustainability programs should be developed from their perspective, to be local and context dependent. This is the true difficulty of managing a statewide program where many people's needs and wants need to be managed and addressed.

¹ In response to this, the director of PES I interviewed commented that: “We have done payments in colones, after a period it was done in dollars at the exchange rate and now, again, in recent years the program is in colones” (Director of PES at FONAFIFO, phone interview, May 6 2020).

Environmental sustainability is often prioritized over necessary economic and social change (Rose & Cachelin, 2018, p. 521) and PES is an example of this. Pedro even saw the payments as an additional “gift” to the environmental conservation that a PES contract secures. He didn’t see his own economic and social change as a priority within the program even though he expressed a sentiment of feeling forgotten by the government. Harvey (1996) argued that all ecological projects are socio-political projects and the resource constraints of PES and FONAFIFO make this a complex issue. Additionally, The third party contractors take a percentage of money from the farmers who don’t have the knowledge, time and/or resources to provide the documentation themselves. This exposes the inequalities between different PES recipients. It’s much easier for a large-scale farmer to do what is required to gain a contract than a small-scale farmer that has to hire a contractor to assist them and be charged a percentage. It’s not as beneficial for the farmer to join if they need to hire this extra assistance that will take as large of a percentage as 18 percent. The informants told of other farmers who desire to join the program but can’t because of the start-up costs. Ultimately, the informants have to weigh the benefits of conserving parts of their land with receiving payments that contribute little to their social sustainability.

6.2.4 “The day that farmers do not exist, the world is going to fall” (Diego, phone interview, April 16 2020)

Another aspect of the PES program from the informants’ perspectives is that there is a fear of the lack of security. What will they do if their five or ten year contract isn’t approved for renewal? Daniel explained that he knows that people fear the scenario that their contract won’t be renewed and would be left with reforested land that would require great effort to make it productive again for agriculture. In contrast, Guillermo described the process of renewal as much simpler, that it will only require his signature and he’ll be approved again.

The informants' answers indicate a general feeling that there is a lack of policies that support the farmer and that they feel forgotten. They speak of an increase of farmers selling their land and moving to the city working informal jobs, causing great insecurity. The region has experienced large amounts of farm abandonment during the last three decades due to an increase of tourism around Santa Elena, Monteverde. Some have also migrated to the Central Valley, where the capital lies (Allen, 2017, p. 217). Pedro further describes the issue:

Pedro: “Farmers in Costa Rica have been forgotten, because what the government of 40 years is doing here, is not supporting the farmer. Because it is said that it is cheaper to buy from other countries, more than anything to those who have money, big entrepreneurs. So the small farmer has had to sell properties and they have gone to the city, where they have had to fight on the other hand, they go to the cities where there are drugs and well, I don't know...

Emma: It's tough.

Pedro: Yes, rather they become a burden for the State because they have to help them more, on the part of the State institutions and the farmers in Costa Rica, the truth is that they (the farmers) do not have support, they do not have government help” (Pedro, phone interview, April 17 2020).

Roberto emphasizes that it is difficult for small farmers to join the program because many don't have the kind of documentation required. There are also landholders in the district that still don't know much about PES. Others don't want to join because it isn't seen as productive because Guacimal isn't a touristy area, but the informants I spoke to see potential for a tourist presence.

Allen and Padgett Vásquez showed in their study that it isn't clear that implementing policies that combine forest cover with economic growth will actually increase the well-being of the targeted populations (Allen & Padgett Vásquez, 2017, p. 212). There have been potential indicators of success in the program but there may be hidden costs that won't make the program fully sustainable in the long term (Allen & Padgett Vásquez, 2017, p. 220). An example of a hidden cost in this case is what happens in the future if the PES seller isn't able to renew their contract.

Critical scholars would look at the position of a local farmer in the 21st century and how their lives have so drastically changed because of the world around them and how that must be taken into account. They are more fragile now than ever and their situation is a symptom of the unsustainable practices in place today. Pedro describes how farmers are not supported and move to the city working informal jobs, live in poverty and become a burden for the state. This indicates that outside of PES there is a lack of policies that support the farmer in order to prevent the informal job sector from increasing. There is a strong desire to avoid this outcome and receive assistance as a farmer.

Despite the complaints there is still strong trust and confidence in governmental agencies and institutions. They haven't given up on those that they feel ignored from. Allen (2017) describes that the farmers that he interviewed see themselves as "fighting against" farm abandonment. They reject the government policies that promote farmers leaving their self-relied farm work for a riskier lifestyle in tourism or other service industries (p. 217). This risk has become increasingly apparent today with the COVID-19 pandemic and the tourism sector being in crisis.

Critical sustainabilities "are direct responses to the very unsustainability (environmental, ecological, political, economic, social, and other) of existing systems" (Rose & Cachelin, 2018, p. 519-520). It exposes the unsustainability of this cycle. Something is always being sustained in any societal system and from the critical perspective, it is always more productive to question what is being sustained and why. It is more efficient and profitable for the government to allow the importation of cheaper products, but this harms the local farmers ability to compete in the global marketplace. When small-scale agriculture isn't economically viable for the farmers anymore, they have little choice left but to join the informal sector. By analyzing the power dynamic in play and the sustainment of the status quo, a critical sustainability can be applied. I believe that ultimately the governmental policies that overlook these issues won't be successful in the long term.

6.2.5 Suggestions for the future

All informants wished to see the program further develop towards a stronger social sustainability, but overall there is satisfaction with the ecological impacts of PES. Roberto would be very happy if others in his community joined the program as well, because he recognizes the importance of protecting their waters and reforesting their land. Daniel thinks that when farmers enter into a contract with PES, it should be continuous and not be up for reconsideration every 5 to 10 years. He suggested maybe going back every 5 years to renew the contract but with more security. More specifically, Guillermo expressed a desire to pursue what he called 'agroforestry'. To be able to sustainably plant non-invasive crops in the protected PES area, crops like vanilla or dragon fruit.

"I was saying to two of the FONAFIFO officials asking why they don't allow me to plant certain agriculture like dragon fruit or vanilla, which are species that adhere to trees, vanilla is an orchid and pitahaya is a cactus that does not harm trees. They replied that no, it was

not possible because I had to leave everything completely untouched, naturally. So that is the part that I cannot conceive because somehow the doors are closed to us, and it becomes a black or white situation; There is no way where you can get to a point of medium that benefits both parties” (Guillermo, phone interview, April 20 2020).

Guillermo believes that it is a type of agriculture that would benefit both parties because it helps nature but also human beings. It would be a good economic opportunity. Having a conservation area is good but as he describes it, “it leaves me with nothing” (Guillermo, phone interview, April 20 2020). Research shows that the commercial potential of the forest is far greater than that of pasture. In addition the forest can be farmed in a sustainable way, yielding rubber, brazil nuts, and many kinds of fruit (Green & Branford, 2013, p. 146).

Critical sustainabilities asserts that projects should be local and context dependent. Guillermo believes that a program like PES should be reformed and innovated so that practices such as agroforestry can benefit the farmer and provide them with more economic security. Especially regarding a lucrative crop like vanilla that can only be grown in certain climates in the world. It could possibly increase the long-term viability of the program, although it is obviously a great challenge to reform the program in this manner. Maybe full conservation isn't plausible on privately owned land (at least on a small scale) in the long term. As Guillermo said, it's too black and white. Guillermo has a deep respect for nature and conservation but he also feels that fully handing over a part of his property is a missed opportunity.

6.3 How does the interpretation of the results in the two chosen reports (Forest Trends et. al. 2008; and Porras et. al. 2013) correspond with the interviewed farmer's experiences?

This chapter will compare the answer of the two previous questions. First I would also like to present the results of my interviews with the FUNDECOR and FONAFIFO directors to add value to the discussion regarding different stakeholders perspectives on the program. Thereafter, a discussion regarding the similarities and differences in perspectives will follow.

6.3.1 Perspectives from FUNDECOR and FONAFIFO

The former FUNDECOR director worked with government and local landholders in trying to develop innovative financial mechanisms that try to provide an incentive and retributions for the environmental services that are generated by the forests ecosystems, which eventually became the PES program. He believes that Costa Rica's PES program is successful and well done but it is unfinished business. Programs evolve over time to become more effective and efficient and of course there are a lot of challenges there but it is part of the normal dynamic of trying to improve good instruments. He developed the concept of Costa Rica as the laboratory of the world, because the environmental agenda is one that the world is engaged in. Costa Rica is the place where you can trial things out, where you can create a green economy and hopefully the solutions can be deployed in Peru, in the Amazon, in the Congo basin etc. The cost of being the first is higher but the knowledge has value. He firmly believes that the real danger is when institutions stop innovating and stay in their comfort zone. Even though the program is over 25 years old it will never be finished in his opinion. Naturally there's a lot of resistance within the government because you always have to exercise caution around the logic behind using public resources. He describes the Catch-22 situation that the country finds itself in:

“... they go out and tell the story and get so much press internationally which makes it easy to think that everything is going great. There is truth to that, but it also relaxes you. Institutions tend to think that if we are doing better than the other countries, there is no need to go a step further, but that is a mistake” (Former FUNDECOR director, phone interview, May 8 2020).

PES fuels the propaganda of Costa Rica's environmental image and it falls into place with the eco-tourism dynamic. Since the government cares about its environmental international image, The former director says that there will be resistance to acknowledge that they need to change a program that they have bragged so much about. He argues that Costa Rica will need to face reality soon which is that a big problem for the continuity of the program is the country's pledge to become carbon neutral because most PES resources come from fuel taxes. Because the demand for PES contracts is surpassing the supply, he emphasized the necessity of identifying and developing new instruments to channel other resources for funding.

The former director continues by describing how PES started to become a *social program* and says that the program has been of enormous social value, but it's a program of environmental services retribution and should be stressed as it. He argues that new sources of income for FONAFIFO could move the program forward and make it more efficient so that the direct payments aren't just viewed as a governmental subsidy. Certain applications are prioritized over others (due to various factors such as location and property size), which leaves some landholders behind that aren't able to apply. He doesn't attribute it to be anyone's fault, it's just the complexity of the system. That is why he stresses the importance of continuously innovating the program and getting out of the comfort zone. The program itself fulfills a social purpose, but it cannot be a prisoner to that social purpose.

The director of the PES program at FONAFIFO, also addressed the issue of financing. He explained that their main challenge is to achieve financial sustainability so that the farmers' incomes can be maintained and/or increased. He describes the incredible number of applications FONAFIFO receives that they aren't able to provide contracts to. The expectations for the program are high and he believes that FONAFIFO can improve by creating new financial schemes in order to reach more farmers. The kind of farmers that cannot join today due to costs or because they don't meet certain requirements. He believes that the biggest short-term challenge that they face, is the recognition of Environmental Services of other activities that are not forestry. He believes that this could open up other sources of financing, mainly from the water sector, which could fill the gap that the lack of fuel revenues would leave. He also suggests a potential tax for the emission of gases or the use of plastic.

Ultimately, the director is optimistic about the future of the program as they currently are preparing the strategic plan for 2020-2040. Here's how he responded to the question of PES increasing its role as a social program:

“Well, I don't think that's how it is. The program has an objective that is to recover and maintain forest cover. Now, in the course of managing the program, it has wanted to support in social and economic aspects. Why? Because these programs, depending on the point of view, must comply with these three areas, with the environmental, social and economic aspects, but the real strength of the program is the environmental part. In the social part we have collaborated but it is not really our main purpose, for that there are other programs that work with other institutions more linked to the area and economically, it is really difficult to say if the PSA (PES) program has really made the participants leave poverty or at least have improved their quality of life; The amount paid per hectare is not really such a high amount, in fact, if you ask people they would surely want us to pay you much more but it is a scheme that works at the country level regardless of where you are, because always you will receive the same amount” (Director of PES at FONAFIFO, phone interview, May 6 2020).

Here the director expresses some of the core sentiments felt by the farmers which is that the payments are too small and that their quality of life hasn't really changed from the program. He asserts that since social sustainability isn't the program's main purpose there are other governmental resources the farmers can take advantage of that are focused on the social. Although based on the informants' accounts, there is a feeling of a general lack of support of the Costa Rican farmer. A program like PES has shown great results on the national level regarding environmental conservation, but it seems to be more challenging to have a successful social program on a national level.

6.3.2 Comparing the results

Briefly, I think the greatest similarity between the different accounts is the importance that is placed on environmental conservation. The informants highly regard their environment and appreciate a program that recognizes its benefits. The reports extensively discuss the environmental impacts and benefits of a PES program.

Porras et. al. portray the recipients experience accurately in the sense that the direct payments provide some benefit and that other advantages like tax exemption are a great incentive. The former FUNDECOR director and the PES director believe that the program has been successful but that it is unfinished business and will continuously evolve, a sentiment that the informants feel as well.

In contrast, the main difference in the interpretation of the results is that the reports are more focused on the environmental sustainability of the results versus the social sustainability. From the informants' perspective the social aspects play a much larger role because it is about their lives.

Ferreira (2017) explains that social sustainability is the least developed of the three pillars of sustainability because the agenda is conceived by NGO networks, think tanks and governmental structures which makes it a top-down approach and less attention is given to issues of poverty, equity and justice. Because it's the least developed of the three pillars, socio-political elements that are needed to sustain a community of people are not examined. PES was developed in a similar manner and therefore lacks a strong bottom-up approach that critical studies recommends. Payments for Ecosystem services is a program with environmental objectives, but because this program is based on the involvement of local farmers, it naturally needs to give attention and priority to issues of poverty, equity and justice. It is not possible to have a strictly ecological program and critical scholars would disagree with the former director of FUNDECOR's point that the program cannot be a prisoner of its social purpose. The social purpose is as relevant as its ecological purpose. Giving priority to people living in poverty and seeking sustainabilities that result in a higher quality of life is an important principle of the Brundtland Report as well as for critical sustainabilities. Based on Murphy's (2012) argument, the chosen reports missed an opportunity to establish clearer links between the social and environmental pillar. This shows that the informants cannot be considered an influential group because their priorities aren't addressed and included. The instability they experience doesn't fulfill what was previously defined as social sustainability in this essay.

There seems to be a disconnect between the way the chosen reports value ecosystem services and the informants. Amongst the farmers there is a high regard for nature and conservation, the benefits are priceless in a sense. Nevertheless, all informants feel that the payments are too low and they all struggle financially. Porras et. al. describe that payment levels are influenced by three factors:

- 1) “administrative decisions on the available budget;
- 2) the estimated value of the ecosystem service provided by the forest; and
- 3) the ‘opportunity costs’ to the landowner associated with participating.” (Porras et. al., 2013, p. 16)

I understand the resource constraints of PES which is arguably the main factor holding it back. The director of PES points out that the more resources FONAFIFO can have, the more farmers will be able to participate in the program. But, if they pay a very high amount, there will be fewer beneficiaries and more possibilities of deforestation. The program should therefore strike a balance between the social and ecological.

Critical sustainabilities oppose neoliberal conservation and the commodification of nature. How can you truly decide the economic value of the environment? PES has been referred to as “the selling of oxygen” by participants in previous studies. It is viewed as a business deal rather than a conservation program (Allen, 2018, p. 250-251). Critical scholars argue that commodification of nature alienates people from their physical surroundings and furthers the society-nature divide. From the point of view of the farmers and critical scholars, nature should be conserved and valued for nature’s sake. It’s impossible to actually quantify its true value because it is infinite. Conservation in a market system will be abandoned whenever nature conflicts with human interest or doesn’t affect human activity.

Critical sustainability argues that the traditional sustainability discourse shifts the focus from government to citizen responsibility and I found that concept to be internalized within some respondents. When Guillermo argues that his neighbours should adopt his strategy of sustainable agriculture or when Pedro describes seeing people cutting down trees when he was younger it shows that their focus is on the individual actions they’ve seen and not the larger structures in place that enable these actions.

Drawing examples from personal experiences is normal but to address the core issue, critical sustainabilities emphasize the importance of systemic change and identifying larger power inequalities. The reality of our global economic development and the policies that follow have increased these power inequalities. This has resulted in an increase in farm abandonment and local vulnerability which exacerbates the social inequality the country faces today. Even though the informants are happy with the ecological stability that the PES has resulted in, the social impacts aren't substantial enough to ensure economic stability.

Although from a practical standpoint, I understand the idea that something is better than nothing. The problematic idea of quantifying the value of nature is easily recognized but again, it might just be the necessary action within the highly commodified society that we live in. PES has resulted in a slight increase in economic gains at a local level, as well as increased forest cover which can be seen as potential indicators of success for a sustainable development program. These agendas have more strength in political discussions today but the program has yet to achieve long-term sustainability. Costa Rica's new goal of becoming carbon neutral will put a lot of stress on the program and as the former FUNDECOR director states, "it could easily fall down like a deck of cards" (Former FUNDECOR director, telephone interview, May 8 2020). This is why it is important to extend the consciousness of how sustainability can be achieved within the context of the traditional sustainability discourse in place. The perspectives lifted by critical sustainability scholars provide important lessons to how we should view our relationship to the environment and incorporate the voices of those directly impacted by these kinds of programs.

Taking lessons from the reports and the informants' accounts, shows the complexity of developing a PES program and the results that follow. Critical sustainabilities emphasize that sustainable development programs can result in long term success if you incorporate an interest in the sociocultural identities and experiences of those who are most marginalized. After all, I am interested in applying critical sustainabilities to the local PES context, but also connecting it to the global reality. Costa Rica views itself as the laboratory of the world because the country is a pioneer in implementing a PES program on the national level. Of course the cost of being the first is always higher. The farmers have to pay a higher cost because joining a program that is constantly developing presents its own challenges for them. There is also value in being the first.

FONAFIFO receives delegations from all over the world every year. In 2019, they received missions from Angola, Nepal, Vietnam, Brazil and other African countries. There is a great interest to learn from Costa Rica's PES program and identify what ingredients have been most useful so that this can be applied in their home countries. A PES program must be designed and managed according to the reality of each country or region, but also make sure to incorporate a critical sustainability framework.

7. Conclusion

The purpose of this essay was to study the social sustainability of the Payments for Environmental Services program in Costa Rica by conducting a small qualitative case study interviewing five rural Costa Rican farmers that have experience with the program. I wanted to understand how the program has affected their personal lives and what opportunity it provides them with. Additionally, I analyzed two PES reports (Forest Trends, Katoomba Group & UNEP, 2008; and Porras, Barton, Chacón-Cascante and Miranda, 2013) in order to see how these documents discussed the social pillar of sustainability. Theoretical concepts from critical sustainability studies were then used to better understand and compare the gathered material, explain my observations, and to connect it to the larger debate regarding sustainability. The results show that the landholders have a different relationship to their environment and perceive the social impacts of the program differently than the reports. The greatest similarity between the different accounts is the importance that is placed on environmental conservation. The informants highly regard their environment and appreciate a program that recognizes its benefits. Although, the reports demonstrate a neo-liberal conservation view which seeks to commodify nature. The informants value the environment in the sense that the benefits are priceless. Critical sustainabilities aim to show that other conservation values exist. The key is to value but not commodify nature. You shouldn't have to preserve the forest because of its profitable use, but instead because it would be a shame to cut it down. Conservation can exist for awareness and education, not only for efficiency. Although, shifting conservation values requires significant discourse restructuring and might be seen as too slow of a process considering the urgency of the environmental threats our planet faces today.

More attention is given to environmental sustainability in the reports but critical scholars emphasize that the social purpose of a project is as relevant as its ecological purpose. The informants feel like the payments are too little and that the Costa Rican farmer has been forgotten by the government. Sustainability needs to be rearticulated so it can achieve its true potential. The former director of FUNDECOR and the current director of the PES program at FONAFIFO both acknowledge the success of the program, but also consider the reality that it requires constant innovation. The Costa Rican case has demonstrated that there is great potential in a PES program. I believe that the future of the PES program would benefit from incorporating the bottom up perspective of critical sustainability studies.

7.1 Further research

While conducting my research, certain topics emerged that were beyond the purpose of this essay. Further researching the potential for agroforestry as Guillermo explained it, can provide interesting insights to the issue of sustainable agriculture and the feasibility of incorporating this into a PES program.

Since the sample size of informants in this essay was so small, I encourage future studies to continue researching the social impacts of PES programs beyond direct payments. To study what kind of sustainability indicators ensure both human well-being and environmental resources conservation. Future research can benefit from engaging with alternative sustainability values when studying sustainable development programs.

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Appendix 1 - Interview Guide

Semi-structured interview guide for interview with participants of *Payments for Ecosystem Services (PES) program in Costa Rica*

Introduction of the study and me as a researcher:

My name is Emma Ramirez. I am a student from Sweden. I am here in Costa Rica to do research for my university studies. My main aim is to learn about how farmers are positively and/or negatively affected by the Payments for Ecosystem Services program. In this interview I will ask questions regarding your background, your personal experience with PES and the achievements and the problems of PES. If permitted, I will use the material from this interview for my thesis report. I want to thank you very much for your participation. This interview will take no more than forty-five minutes and this conversation will be recorded if I have your permission.

Me llamo Emma Ramirez, soy una estudiante de Suecia y estoy aquí en Costa Rica para cumplir una investigación para mis estudios universitarios. Mi objetivo principal es aprender acerca de cómo los agricultores se ven afectados positiva y / o negativamente por el programa “Pagos de Servicios Ambientales” (PSA). En esta entrevista haré preguntas sobre sus antecedentes, su experiencia personal con el programa, y los logros y los problemas de PSA. Si está permitido, usaré el material de esta entrevista para mi informe de tesis. Quiero agradecerles mucho por su participación. Esta entrevista no tomará más de cuarenta y cinco minutos y esta conversación se grabará si tengo su permiso.

Informant Introduction

Name:

Nombre

Age:

Edad

Education:

Educación

Property owner?

¿Eres dueño/a de la propiedad?

What's the size of your property?

¿De qué tamaño es la propiedad?

Tell me about your work and educational experience? Your background?

¿Cuéntame sobre tu trabajo y experiencia educativa? ¿Sobre ti?

Payments for Ecosystem Services:

Are you or have you been a recipient of PES?

¿Eres o has sido receptor de PSA?

How did you become a part of this program? And why?

¿Cómo se convirtió en parte de este programa? ¿Y por qué?

If I may ask, how much did you receive in monthly/yearly payments? Did you have any say in negotiating the payment amount?

Si puedo preguntar, ¿cuánto recibió en pagos mensuales / anuales? ¿Tuvo algo que decir al negociar el monto del pago?

Did you have any hesitations about starting the program? Any fears?

¿Tuvo alguna duda antes de iniciar el programa? ¿Algún miedo?

What changes has PES brought for you?

¿Qué cambios ha traído PSA para usted?

How has your community been affected by this program?

¿Cómo ha sido afectada su comunidad por este programa?

In your opinion, what is the main struggle for your people? (family and/or community)

En su opinión, ¿cuál es la principal lucha de su gente? (familia y/o comunidad)

How involved and represented do you feel in the process?

¿Qué tan involucrado y representado se siente en el proceso?

What has the monitoring process been like? Do they check-up on the property?

¿Cómo ha sido el proceso de monitoreo? ¿Quiénes chequean la propiedad?

Which achievements have you seen as a result of Payments for Ecosystem Services?

¿Qué logros ha visto como resultado de Pagos de Servicios Ambientales?

a. Changes in the environment
Cambios en el medio ambiente

b. Changes in the participants: the farmers lives
Cambios en los participantes: la vida de los agricultores

i. Living standard, mental health, health, human capital, free time etc.
Nivel de vida, salud mental, salud, capital humano, tiempo libre etc.

What are the problems/challenges you have faced with *Payments for Ecosystem Services*?

¿Cuáles son los problemas / desafíos que ha enfrentado con los Pagos de Servicios Ambientales?

a. Sustainability, funding, resistance from farmers or family, cultural and traditional beliefs, physical availability, etc.

a. Sostenibilidad, financiación, resistencia de los agricultores o familia, creencias culturales y tradicionales, disponibilidad física, etc.

Do you think that the Payments for Ecosystem program can be improved? If yes, how do you think that could be achieved?

¿Crees que el programa Pagos de Servicios Ambientales se puede mejorar? En caso afirmativo, ¿cómo crees que se podría lograr?

a. Funds, training, information, availability, attitude change, etc.

Fondos, formación, información, disponibilidad, cambio de actitud, etc.

Finally, do you have any questions or anything you would like to add?

Finalmente, ¿tiene alguna pregunta o algo que le gustaría agregar?

Thank you for your time!

¡Gracias por su tiempo!

Appendix 2 - Daniel Interview Translation

Semi-structured interview with Daniel

(Oriana Hübner present as well)

English Translation:

E: Hi [REDACTED]!

D: Hi Emma!

E: Hello, how are you?

D: Well, everything is fine.

E: Do you have time to talk now?

D: Yes, yes! We are finishing the meeting we had. Yes.

E: Ok, perfect. How has it been during this time? All good?

D: Yes, everything is fine. Well there are some things with work. We have to take some precautions but everything is fine, yes.

E: That's good. Well, thanks for talking to me. I have my friend Oriana here to help me in the interview because my Spanish is not perfect. Oriana was there when we went to Monteverde. Well, my main objective is to learn about how farmers are positively and / or negatively affected by the "Payments for Ecosystem Services" (PES) program. In this interview I will ask questions about your background, your personal experience with the program, and PSA's achievements and problems. If allowed, I will use the material from this interview for my thesis report. I want to thank you very much for your participation. This interview will not take more than forty minutes and this conversation will be recorded if I have your permission.

D: Yes, of course you do!

E: Your full name, please?

D: [REDACTED]

E: How old are you?

D: 54 years.

E: Do you own a property?

D: Yes, I am the owner.

O: How big is the property?

D: 72 hectares.

E: Ok! And tell me about your work? About you in general?

D: Yes, well my property is in Veracruz, Guacimal, right. And it is in partnership with another brother [REDACTED]. Previously, we had the property about 32 years ago, most of it was part of the pasture for cows and cattle, right. and a part for agriculture. but this property has parts of some areas of great geographical slope, right. So, 4, 5 years after acquiring the property, we thought of releasing (letting go of) those parts of more inclination. That then, by releasing them, they would regenerate naturally. We started with the steepest part and then we released all of them, we did not cut again, we just cleaned it for it to regenerate. We started this 25-23 years ago, and now at this time we have left all the property, we have released everything, without cutting again. The bush or small bushes in the part of the slope are regenerating naturally.

E: Have you received benefits from PSA, specifically?

D: No. Not yet. Last year, through the Monteverde Conservation Association, who have an agreement with FONAFIFO, for this project, right. So, through the Association which has several farmers here, neighbors, five of us, presented this project to FONAFIFO, but we did not qualify, only one project was approved.

E: You applied with the intention to receive payments?

D: Yes, for payments. And that other man here whose request was accepted, I think he applied for 14 hectares. For this year he is already receiving the Payment for Environmental Services, yes.

O: Did you want to be part of that program?

D: Yes, we, my brother and I, intend to present our property and apply to the project again. But we lack a requirement, which is the property plan. We have to renew it and there is an engineer that we pay to update the plan and it has delayed us, so until we have the updated plan they will not accept the project.

E: And the others in the group who do not qualify, do they also want to be part of that program?

D: Yes, everyone. But, the other three, part of the Monteverde Conservation Association say they are submitting requirements that were missing and possibly after this year their projects will be accepted.

E: Do you have any doubts before starting the program? Or some fear?

D: So, all the farmers that were present before FONAFIFO received a presentation, a little information. I have no doubt or fear.

O: They were transparent when it came to explaining how the program involves you in this whole process?

D: Yes, well, we trust what they tell us or report. Other people who have not applied to the project who talk to us in the group say that they have the fear that at some point they will not be able to return back ... Well, the deal is a five year contract, and after those five years there is always the fear that the land is no longer workable because trees are already growing and

then the owner can no longer grow or cut a tree or anything. It is a certain fear that they have but in my case it's not, because we already freed the land and don't plan on working it again. Maybe if they left a part for agriculture, maybe a part of ten hectares, for agriculture or for some fruit trees. As soon as we have the updated plan then we will present it again and then ...

Although, what other people tell us is that FONAFIFO pays very little. There are people who think that it should be more. Because I know that it is like sixty-six dollars per hectare per year. But after that, the Monteverde Conservation Association takes a percentage, I think they spoke of 15 or 18 percent for everything they do like transmitting the paperwork and everything else.

E: And why do you want to be part of this program instead of cultivating agricultural land with fruits and vegetables that you can sell?

D: Well, as I mentioned before, we had already freed up parts of the property, there are parts that are not suitable for livestock grazing, it is land with a steep slope. It's not suitable for agriculture either because of the strong winds.

E: Yes, I remember!

D: Yes and also there is not enough water during the summer. For that reason only a part can be used for agriculture. We think that the sum will not be much income, but we have never received anything for that part of the mountain so it's something. And we have regenerated this land for about 25-26 years.

O: It is a good extra.

D: Yes, yes.

E: Do you have other land that is for agriculture and those things?

D: Yes.

E: And in your community is there any person who is receiving payments?

D: Yes.

E: So in general your community is not affected much by this program yet?

D: No, not yet. In San Antonio, Veracruz, there is another man, [REDACTED] (Roberto), who is also receiving payments since the previous year. There is another in Guacimal also that has been in the program for a few years. [REDACTED] (Guillermo) too. They have experience in the program.

O: So, your community knows about the program but are not beneficiaries, they are little by little trying to enter.

D: Yes, because not all of us have the right plans and paperwork. There are several farmers who have an account with plans, they have left it that way or have received it as an inheritance, perhaps from the father or acquired it from many years ago and then those lands have never been measured, some properties are without plans and paperwork...
unintelligible.

E: And does FONAFIFO help them with making the plans?

D: No, you need to have an engineer do everything because FONAFIFO does not help with this.

E: And with your experience and what you know about other people's experiences, do you think that PES can be improved?

D: Well, I think that maybe there are some things that can be improved. Because the

Monteverde Association told us that after a five year contract is signed, you have to reapply for another five year contract. But, FONAFIFO is not obliged to renew it, they cannot assure the owner that after five years he will receive the contract again.

O: So you basically apply the first time, they accept you and if you want to participate again you have to go back and start the whole process from scratch without a guarantee that they will say yes or no.

E: It's a bit insecure.

D: Yes, it's risky, that's a part of it... Some homeowners have that fear.

If someone presents this project for the five year contract, the ideal situation for that person is that he frees up his land to receive payments for environmental services and it should be continuous, not just for five years.

Some farmers have had this problem, after returning to reapply they get denied. People from the Monteverde Association told us that we have to be persistent and that there are people who apply once or twice and then they approve it again.

It is a fear that should not be the case, I think, the ideal would be for it to be continuous, it is okay to go back to five years, renew the contract but not be so...

O: So you would like it to be more secure.

D: More secure, exactly, yes. Those are the weaknesses that I see, the negative part of this program.

E: Is there a monitoring process, does FONAFIFO check the property or something similar?

D: Yes, I think so, the Conservation Association itself, they periodically visit the properties, yes.

They also communicate with the farmers to make sure everything is going well. There is a

commitment with them to maintain the land, the same owner has to maintain it and keep the cattle out, both from the same property or from other neighboring properties.

O: [REDACTED], Emma wants to ask you that, in addition to this program, what other challenges does your community face, such as social, economic?

D: Yes, apart from this, regarding the involvement on the part of the government, there is not much support for farmers. Yes, there is so much to sow and we need more support from the government, the owners should receive an incentive rather than continuing to work the land.

O: Yes, one of the main problems would be economic, maybe they are not able to keep the land fertile and that kind of thing.

D: Yes. Another weakness that we see is that there is a lack of policy where the peasant or the person sowing the land is not being helped, information is not given and hopefully what is produced is healthy, because there are no guidelines for one to follow if someone decides to plant with agrochemicals and what is needed regarding the amount of agrochemical that a plant requires.

It is recommended but there are no controls in place. There should be guidelines to support farmers that want to grow organic produce. They need an incentive, that this product has an added value to the market.

E: Sure, like education and financial support.

D: Yes, both education and financial support so that the person feels that incentive, to make it worthwhile for them to grow organic produce, but also to economically recognize that product, to have a better market, a better price.

O: Do you think that perhaps this program, which includes government involvement, and working with FONAFIFO, is a good step to improve education, so that there is more financial aid and progress in the community?

D: Yes, of course. Our community of Guacimal and some from San Antonio have received not directly from the government but from the University of Costa Rica, it is a program run by the universities. It started here three years ago through the University of Costa Rica where we already received seminars on land management and organic agriculture.

E: Do you think that all of this counts as a few good steps in the right direction? But that it has to keep moving forward, to keep improving?

D: Yes, not all the communities, but yes at least we already have several people from other communities who already have a little knowledge about land management, planting and organic agriculture.

E: When do you think you will apply again for the payments?

D: We, my brother and I, have to wait until next year to reapply because it is only once a year, I think around this month or so, April or May, we must present it to FONAFIFO.

We have to talk to the engineer before the end of this year, to see if he can redo the plan. If we have the updated plan next year we can present it to FONAFIFO.

There is a neighbor who told me a few days ago that there are other means to access other environmental services grants that are not through FONAFIFO, someone else told him about it on his visit to Guaitil from Limón, and that is where they told him that they are paying more than what FONAFIFO is paying... I do not have the information to say, "It is such an entity or some international organization", I do not have that because he did not receive that information in such a clear way either.

O: What you do know is that it is not part of FONAFIFO.

E: It is new.

D: Yes, it is another organization, I don't know exactly what organization it is. Me and José Aurelio went to a small seminar at the Monteverde Community Fund about a month and a

half ago for a similar program, we were thinking of having a small nursery here in Veracruz and for the reforestation and then for what is the windbreaker on the Pacific trail.

There is a program through an NGO. The NGO (unintelligible name) is somewhere international where they collect money to donate it, for projects, to help such reforestation projects. It is a process that starts from growing trees in a nursery and then planting them. It is a very nice project but it is slower because it begins with the planting of the trees, the nursery is done first, then the planting of the trees. You have to take care of them, the tree must be between eight to ten meters high, there is already a payment for that tree, they told us that at that height the tree becomes carbon neutral.

From then on, I think they told us that a hectare of trees already that size is capturing more or less between 18 to 20 tons of carbon. This would be an additional benefit separate from the land I have with FONAFIFO.

O: Ah so they are individual, separate things.

D: Yes, it is an individual property. If I have a property with the FONAFIFO project, I cannot present it to this other NGO (unintelligible name). We are presenting for a small nursery on what is part of the Pacific trail.

E: With FONAFIFO you can only apply once a year?

D: Yes, only once a year. They did not give it to me this year. I can resubmit as long as they tell you what requirements you need, what requirement the owner is missing, why they did not accept the project. When you have that or if there are two or more requirements, but yes, for just one requirement that you are missing, you will not be approved.

E: Would it be possible for you to send the contacts of the two who are part of the payment for environmental services still?

D: Yes, I have three. The other gentleman agreed that he was going to send me his number but he has not sent it yet. The nephew told me that he was going to speak to him to see if he

also agreed to give him his contact for you. I can talk to this boy one of these days to see if the other man, his uncle also agrees.

E: Yes, okay.

D: Of these two other people I have the contacts of the house numbers.

E: Can I contact them?

D: Yes. One of them is called [REDACTED] (Roberto), he is the one who lives here in Veracruz, the person who is already receiving payment this year. I can give you the name and number of the contact.

O: [REDACTED] what?

D: [REDACTED] (Roberto)

E: What is his number?

D: His contact at home is [REDACTED].

O: Does he already know about this interview?

D: I already spoke to him, he agrees to participate and in an interview with you so it's okay that you call him.

E: Is he currently receiving payments?

D: Yes, [REDACTED] already started receiving this year. He was one of five applied the year before.

E: Great. Finally, do you have a question or something you would like to add?

D: No, I would like to thank you for your interest in this. I think that it is good, these programs

are good and that I would also find people like you who are interested in these programs. Also thank you and if it is possible that at some point you can support us with a program, provide us with some information for us to take advantage of this, to have a higher income, it would be greatly appreciated.

O: Dionisio, if you can get the others to participate and you can pass the number on to us, Emma thanks you a lot.

D: Yes. The other gentlemen would be [REDACTED] (Pedro), and he has, I think, about three or four years of receiving the benefits of the project. Don [REDACTED]'s home phone number is [REDACTED]. He has a cell phone but I don't think he has WhatsApp. Also, his son [REDACTED] (Guillermo).

E: [REDACTED] information we already have.

O: Yes, [REDACTED].

D: Does [REDACTED] (Guillermo) already have the contact too?

O: Yes.

D: [REDACTED]'s is [REDACTED]. It would be those three, I would contact Mr. [REDACTED] too but I have to speak to [REDACTED] to see if Mr. [REDACTED] agrees that his contact be passed to you and agrees to be interviewed.

E: Take your time! [REDACTED], thank you very much, thousand thanks.

D: With pleasure.

E: It is a great help for me, my project, I am very interested from your perspective and not from the government, how is it for the participants, the people, and I want to write a thesis from your perspective because many times there is not the perspective of the people, there is a lack of perspective of ordinary people and those affected.

D: Yes, unfortunately sometimes there is no perspective of the producer, of the one who works but only of the government or of other organizations that are also valid but that leave aside part that is very important to the producer, the person who is sowing.

E: Yes, it is more important that you also have a voice. A great pleasure speaking with you.

D: Thank you very much too. Emma is very happy, I am happy to give you all this, little one, I do not know much but at least a little of the knowledge I have about this and my little experience. Emma hopefully one day you can visit us again here, it would be a pleasure to have you here again and your colleagues too.

E: Yes of course, after all this is over.

D: Yes, after the pandemic we're in is done, God willing.

E: Yes, we will be in contact. Thanks and blessings to you and your family.

D: Thank you very much. Goodnight. Thank you.

O: Chao [REDACTED], thanks.

E: Bye.

D: Chao.

E: Thanks.

D: Chao.

Appendix 3 - Guillermo Interview Translation

Semi-structured interview with Guillermo

(Oriana Hübner present as well)

English Translation:

E: Hello Mr. [REDACTED], it's Emma Ramirez. Do you have time to talk?

G: Yes, yes. Sure.

E: Great! Well, thanks for talking to me, I have my friend Oriana here with me to help me with the interview because my Spanish is not perfect.

O: Hello!

G: Hello, great pleasure!

E: How are you, how have you been during this time?

G: Well, we are fine. Thanks to God.

E: Good! Well, I'm a student from Sweden and I'm here in Costa Rica to conduct research for my university studies, my main objective is to learn about how farmers are positively and / or negatively affected by the "Payments for Environmental services". In this interview I will ask questions about your background, your personal experience with the program and achievements or problems with PES. If allowed, I will use the material from this interview for my thesis report.

G: Okay.

E: and I want to thank you very much for your participation and this interview will not take more than 30 min. I will record this interview if I have your permission.

G: Okay, fine.

E: Perfect. What is your full name?

G: My full name is [REDACTED] (Guillermo).

E: Ok, and how old are you?

G: I am 42 years old.

E: Where are you now, in what area?

G: I live in the center of Guacimal, in the Santa Rosa neighborhood.

E: Do you own a property?

G: Yes, I have a property of 49 hectares.

E: Tell me about your work, about yourself in general?

G: Well, here what works most is livestock but this farm, thanks to God, has a wooded part and it is protected, that is, the cattle I have always used, well, not now because when I accepted the Environmental Payments program the area was closed so that the cattle was no longer there. But also, I have worked in agriculture and I love it very much. So I not only depend on livestock because we also work lemons, beans, corn, bananas ... everything that is of tropical agriculture.

E: Are you a recipient of the PSA program now?

G: Yes, directly ... I mean, I ... When I entered this area of conservation ... First, I love conservation. I like it because I love nature and I feel that it is a divine creation from a supreme God and not only the trees but also the animals, but how do we do it? Emma, it is very difficult for the farmer and the rancher. It is very difficult when we have livestock because animals... Well farms are very expensive to maintain and so to survive you have to try to have more animals, you have to try to multiply what you have and then that causes nature to be destroyed, the areas of conservation. So, it is very difficult, it is very difficult.

E: But it is a necessity.

G: It is a necessity, exactly. So what I have tried to do is to compensate what I've destroyed with reforestation, with some conservation. I work with fallow agriculture and with agroforestry, that is, in a different part that is not the conservation area. I am leaving more trees, where the cattle don't go and I work with beans in that forested area. Many say to me: but how do you work with beans if there are trees? Because for most farmers it is not correct because they say there should be no trees, however I have done so and I have produced a good product. It is a way that ...

E: Is more sustainable?

G: Yes, more sustainable; it is a way of demonstrating to the people, to the other farmers that it is possible.

E: Wow, how good.

G: Yes.

E: And how many years have you been part of the PSA program?

G: I'm almost ending now ... for 10 years ...

E: 10 years?

G: I mean, the contract will be completed soon and I have the option to renew again to continue with the program, because for those of us who are involved it is easy for us. In fact, all the documents and all the stationery is already there, it only requires my signature and I'll be accepted again.

E: And do you want to renew the contract again?

G: Yes I would like to, but to be sincere, it doesn't pay much, it is not much.

E: Yes, it's like 72 dollars for each hectare, right?

G: Yes.

E: And how many hectares of land do you have in the program?

G: 20 hectares.

E: Ok.

O: And sorry, but how many years exactly have you been in the program?

G: I think about 8 years old.

EyO: Ok, perfect.

G: It's 10 years in total and I think I have about a year and a half left.

O: Perfect!

E: And you became a recipient of this program through the Conservationist League of Monteverde?

G: Yes, we belong to a separate group called "Centro Agrícola de Abangares" and they are the ones that came to us first. There are several associations, there are several institutions that can help farmers within this program. The Centro Agrícola group were the ones that encouraged us first

and that's why I'm associated with them. However, I have heard of other private programs, I do not know where they come from, but I know that they are in the Atlantic zone somewhere, in the Limón zone and that they are paying a lot more, much more than what the PSA pays, that is, what FONAFIFO pays.

Or: Those programs that pay more are only located and available in the Limón area or Are they also for the Monteverde area?

G: Well, as far as I understand they only work with the Atlantic zone like San Carlos and Limón.

EyO: Ahhh, ok.

G: Yes.

E: Did you have any doubt or fear before starting the program, in general?

G: Yes... I was told that when I got into this, that is, some people that were lacking knowledge, would tell me "Don't get into this because afterwards when you're in the contract you won't be able to cut any trees down "And all that is lie, that is, if I had to cut a tree or something I can get a permit, as long as it is not in the protected area... But it was only like 5 people who told me that. They are people who live around here and do not know the system well. So actually, I have felt very good; We have no problems here, instead I feel I have advantages because, for example, belonging to the conservation area, we are a part of the "Biological Corridor" from the Monteverde area to Corta Pájaros, and maybe one day that will bring benefits. For example, another benefit that helps me a lot is having 20 hectares, of the 49, in conservation because that also exempts taxes ... That is, there are certain advantages.

O: Yes, there are certain benefits.

G: Yes, correct. There are certain benefits.

O: What changes have you seen, positive, since you joined the program? Have you seen any change, like socially or economically?

G: Well, economically maybe it is ehm ... I would say a little good and a little bad. Let me explain it to you because when I am in the conservation area, it is logical that animals reproduce more and enter into the agricultural parts, and the agricultural part is what they (the animals) are going to affect. For example, here, before this, people used to hunt a lot, now they know that it is restricted. They still do but now with much more fear, for mammal species like the Pizotes, which eat corn,

cassava and other things ... I lose crops because they have multiplied more, they have multiplied more and I do not hunt them, I've never killed them ... because all my life I have cared for their conservation.

My cattle have also been affected a little because although cougars and cats large as the jaguar, do not live in the area, they like to travel through here sometimes because now they have more protected areas. 2-3 years ago, one or more jaguars, I don't know, they ate 3 calves. So, in part it is a benefit for the creation and conservation of animals, it's like a break for nature, and it's nice because kids get to see all these animals in the area but ... imagine, if we all conserved in the area this would affect us much more. A neighbor here lost 22 sheep 2 years ago to a jaguar.

O: Wow! Sure, I get it. It is good because on the one hand nature is being reforested but also it is bad because life in the jungle continues and wild animals can access food more easily through your cattle.

E: There is no protection for farmers on this issue, is it difficult?

G: Yes, exactly. Because whenever there are conservation areas we will collide with that world.

EyO: Sure.

G: We have to respect or try to see how we can get to a middle point where they don't finish us and we don't finish them either. It is as I was saying, I do agriculture in a part where it is agroforestry and I show the people here that it is possible. In the case of animals I know it is a bit complicated because if I have large animals, such as cows without calves or adult bulls, it is very difficult for a jaguar to attack them obviously, but if I have recently gotten little calves it is easy prey for them.

EyO: Sure.

E: And the land you have with trees and beans, where you are planting sustainably, is it possible to have that within the program?

G: Well, here I must clarify something, in the conservation area, agriculture is totally forbidden which is the part that I don't agree with about the Environmental Payments program. FONAFIFO should recognize that this area that I have, hasn't been used as pasture for about 15 or 18 years and it should be able to be used as a conservation area because I only allow bean plantations for every

3 years. For example, since I haven't touched the area there are trees that have grown naturally because all I do is for the beans which only require small clearings, never the trees. I was saying to 2 of the FONAFIFO officials asking why they don't allow me to plant certain agriculture like dragon fruit or vanilla, which are species that adhere to trees, vanilla is an orchid and pitahaya is a cactus that does not harm trees. They replied that no, it was not possible because I had to leave everything completely untouched, naturally. So that is the part that I cannot conceive because somehow the doors are closed to us, and it becomes a black or white situation; There is no way where you can get to a point of medium that benefits both parties.

E: How has your community been affected by this program? Are there many farmers that are receiving these payments?

G: Most of the people here are cattle farmers and they cattle in the summer, not in the winter, but in the summer they really like the forest, because of the seeds that the trees drop, and that gives them a lot of life; But that is destroying forests because livestock has a great impact and destroys the soil with its weight. They break the weeds, and thus harm others animals in general... However, as I mentioned, for the farmer and rancher it is very hard to live in this situation because there are many taxes to pay, many tariffs for animal care products that are very expensive. It's like a saying here "Coyol broken, coyol eaten" and that is to say, with all these expenses we are almost left breaking even. If we had flat land it could be industrially exploited with machinery and planting grass and other things ... but the land here is quite broken and that affects a lot, because people here say "if it is a conservation area, that is very good and everything, but it leaves me with nothing".

O: So, you feel more like people in the community don't want to belong to this program?

G: There are some, almost the majority, who do not want to join because there are very few who are involved.

O: I mean, those who don't get involved don't do it because they don't know the program but because they don't want to.

G: Exactly, it's because they don't want to. They see two things, first it is not productive for them and second this is not a tourist area, although we belong and are close to Monteverde. But if i'm in this area, me or any other person, could show the community that this is a really profitable

environment and we could increase tourism through animal sightings or something. This I am sure of, I am sure that everyone would be motivated. Well, that has not happened yet.

O: So in general, Mr. [REDACTED], if you see this program as positive?

G: Yes, of course I do, because, be that as it may, this is a refuge, it is a benefit not only for me but for many people; That there are still conservation areas and you have animals, of course this is positive. Everything is disappearing, species are dying faster and faster so conservation areas are a refuge for birds and any other animals. Imagine this, I have seen many birds in my life. For example, here in the area you can see macaws, turkeys etc. You can see birds that are not from this area, which are from Monteverde but are coming down here.

I mean, it works even though here in my town, in the area where I live, people hunt, although it has decreased due to laws. In conservation areas we are beginning to see many more animals.

E: And in your opinion, what is the main struggle of your people? For your family and/or community. It could be social, economic, educational etc.

G: Economic. FONAFIFO is a very good thing and I'm not going to say it's bad, but it is a program that requires a lot of bureaucracy, there are several institutions involved. That money that should go to the peasants that conserve the land isn't enough. It's just fractions that don't motivate us farmers.

E: And how involved or represented do you feel in the process with FONAFIFO and the program?

G: I am in meetings with them; We go to meetings, we see how there is growth, new people that are joining and that's good! I feel that regardless of whether it gives us strong financial benefits, the main thing is that it gives us benefits for they see that we are emotionally well because our farm is well. In that space we give extra value to the trees, the forests, and what is regenerating. Honestly, it's nice to hear people say that the farm is fine, it is beautiful, it makes you feel good.

E: And how has the monitoring process been? Who checks the property?

G: Actually they check it by satellite, they have a satellite pilot program and they do inspections. Groups of volunteers from universities like Georgia have come to set up camera traps, to see what animals are around here and we have seen Jaguars, Tainos, Pizotes ... And that is nice, they draw

attention to the place and you see that you are in a biological corridor, and all that makes you feel super motivated.

E: Sure, well ... Do you still think the program can be improved? How?

G: I think what I said before, that if they gave the farmers the opportunity to work with agroforestry, that is, not with livestock but with certain agricultural plantations that can work with trees ... I estimate that a lot of people would join the program. For example, what I said about vanilla, which although it is a very slow process, does not harm the trees, the pitahaya is another crop that does not harm the trees either. Although I discussed it with FONAFIFO and they reply that it cannot be possible, that the program is already structured a certain way and that would mean changing everything. but I tell you, they are crops that do not affect their environment! And although there are bosses in the meetings, they always say that it is not possible, it is not allowed.

E: Yes, and something like vanilla has a lot of value.

G: Yes, it is very good. It is an agriculture that benefits both parties because it helps nature but also helps us human beings. It would be a good economic opportunity.

E: Finally, do you have any questions or something that you would like to add?

G: I would like to add that actually they should be motivated, that there is someone who has the initiative to break that regime and who could somehow allow agroforestry to be done because that way it would be a great profit for many.

E: Yes, there could be some incentives to help the farmer. Yes I agree. Well, this is going to help me a lot. A super thanks to you. I learned about this program over the internet while in Sweden, but all the information was about data on how many hectares are under protection, the reforestation or environmental benefits but information is lacking from the perspective of the people, the farmers and how this has affected them. And if, you can have environmental benefits, but also social benefits and that this could be a sustainable program in all aspects: environmentally, socially and economically. In my opinion. So, thank you very much for sharing your experiences.

G: Emma, right now I would like to thank you for taking me into account, I would be happy to be able to help you because, personally, I like it and it makes me feel good that there are people, like you or international universities, who are interested in everything we do

here; And it is one of my goals to demonstrate to everyone who can, that you *can*; nature can be reforested but agriculture can also continue in a non-aggressive way.

O: Do you think you can give us the number of other farmers who might want to be interviewed by Emma, who can help us with information?

G: Yes, of course I do. I do not see any problem, only if they don't want to hahaha, but of course I will talk to them and if they accept I will give you their number. Well, thank you very much to you and Emma, and your thesis.

E: Thank you very much, blessings to you and your family. We will stay in touch.

G: Thanks. Well Emma... ok, see you later. Bye!

EyO: Bye !!

Appendix 4 - Diego Interview Translation

Semi-structured interview with Diego

(Oriana Hübner present as well)

English Translation:

(I had previously called ten minutes earlier and he needed more time.)

E: Hi! Are you free to speak now, or do you need more time?

D: yes yes, I am less occupied now, thanks to God.

E: Ok, perfect. Well, thanks for talking to me! I have my friend Oriana here to help me with the interview because my Spanish is not perfect.

O: Hi! How are you?

D: Hi!

E: How have you been during this time, considering the pandemic?

D: Good, good. We are enduring some of the consequences of all this. But I'm working a little bit on the farm ... The truth is that here in the countryside, although there are difficulties, it is not that much, thanks to God.

E: Good! Well, I am a student from Sweden and I am here in Costa Rica to carry out research for my university studies. And my main objective is to learn about how farmers are positively and / or negatively affected by the "Payments for Environmental Services" (PES) program with FONAFIFO. In this interview I will ask questions about your background, your personal experience with the program and the achievements or problems. If allowed, I will use this information as material for my thesis and I want to thank you very much for your participation. This interview will not take more than 30 min and this conversation will be recorded if I have your permission.

D: Yes ...

E: Yes?

D: I will answer your questions with pleasure, some may not be correct because you know that I am not a prepared person (with studies) but yes I have some experience, thank to God, with many years of both agricultural and livestock activity. And now, for a few years, with the environmental

system. I am grateful to the environmental system because it is a very logical form of protection that we must all have... with the FONAFIFO program, I am very grateful; I have been participating for 4 years, this year they already made the last environmental payment but it is a small payment, the truth is that it is little because I am a small producer and the area that I have under protection is 15 hectares.

E: 15 hectares?

D: Yes.

E: 15 hectares in total or 15 hectares with the program?

D: With the program, 15 hectares with the program. In total it is a little more, yes.

E: Ok, and what is your full name?

D: [REDACTED] (Diego)

E: Ok, thanks. And your age?

D: 68 years.

E: And tell me about your work, your experience in general; About you?

D: Look, my experience has been very, very, good because with so many years I have enjoyed very good health, thank God. We as a family are bio-farmers, for many years on a small scale we have been bio-farmers.

For many years we have been dedicated solely to livestock, but before we harvested coffee and other things. My experience as a farmer has been, thanks to God, good because it is an experience in which ... it is as I said, that everything has been very healthy, because our work is very difficult, it is very hard. We are in a very ... well, we have always been behind in social aid, the aid from the government of Costa Rica has been very difficult, however we have to survive because, I am one of the people who thinks, and I am not sorry to say it, the day that we do not exist, the day that farmers do not exist, the world is going to fall.

E: Yes. What city are you in?

O: In what area?

D: In the Guacimal area of Puntarenas. I'm a neighbor of Monteverde, I don't know, maybe you know Monteverde.

E: Ok, and so half of your land is under the PSA program and the other half is for agriculture.

D: Yes, half of it is for cattle.

E: And you have been a recipient of the program for 4 years, right?

D: Yes, correct. 4 years ago.

E: And how did you become part of that program, and why?

D: I have participated for many years in a directive, a board, a livestock association; and we have had people from various institutions and it is through them that we have the opportunity to speak with a person from FONAFIFO. When we learned about the Environmental Payments program, one is always interested because always on a cattle farm, there is always an area that is or should be protected, which is a mountain area.

So, when I went to measure my little farm, which is small because it is almost 40 hectares, I spoke with a boy whose name is ... I do not remember the name, he is from Monteverde, works for the Monteverde Biological Reserve and was in charge of the environmental system zone. So, I talked to him, I told him about my case and pretty quickly he asked me about the documentation of the property and, as a matter of fact, thanks to God, everything was in order and they paid me a visit where they reviewed the area and even searched for it by satellite. They could detect it easily because my area is close to a protected reserve near Monteverde; Then it took about 6 or 7 months to give me the go-ahead and tell me that it was approved, and through that man, I went to sign the agreement and started receiving payments. The payments in colones are not the best ... It is not the best, I receive an environmental payment, per hectare, annually 480,000 colones. But for one who is struggling, it is a little help then.

E: Ok! And in your opinion, was it a difficult process to start the program and receive the payments?

D: Yes, it was a little difficult.

E: A little difficult?

D: Yes ... If we talk about my experience as a farmer, let's say ... how do I tell you, let's see ... The environmental system with FONAFIFO seems good to me, what happens is that I feel that the payment is very little, very little.

E: Yes.

D: Then, as a farmer, as a small livestock entrepreneur I receive very little help from the government or institutions and you have to fight a lot but there is no profit, it is a lot of work... So I feel that it is not a good system.

As I said at the beginning, I don't know how the agricultural systems are managed in Costa Rica, but I feel that there are issues that the government neglects, and they do not help us much. Here we are far away from technology mainly because we gradually started to receive technical help over the years.

E: Ok, and did you have any doubts before starting the program, any fear?

D: About the FONAFIFO program?

E: Yes.

D: No, I didn't hesitate much because I already had experience from other friends who were already working with it; Some colleagues from the association of ranchers, and some of them had told me that the system is good, that it is reliable.

Mainly that the area that I protect is an area, which as I told you... It is an area that is worth protecting because my dad, when I was 4 years old, acquired that property and for many years we always took care of it. We have always taken care of that area and protected it and we have never received an environmental payment for it, never ... However, once a mining company tried to do some explorations and I was older and knew what environmental destruction was, where a machine was going to destroy mountains ... and I objected, I did not agree and, thanks to God, the protected area was not destroyed.

E: Wow, ok. So, before knowing about FONAFIFO and the program, you already had the philosophy about conservation and the importance of taking care of the environment?

D: Yes, of course yes.

E: Ok, and in your community are there more people who are part of the program?

D: Yes, in my community there are several people who are part of the program that are benefiting from the payment.

E: How has your community been affected by this program? Have you noted a difference or no?

D: Look, I hear that people are satisfied, what I think does not favor us much is that the program is only for 5 years, so after that time the whole process must be done again from scratch. And it's a bit, let's say, one would like this protection system to be for 10 years or even more, depending

on the area and preference of each farmer. Because, let's say, there are farmers who protect secondary forest areas, but those of us who have areas of primary forest should be given the chance to be in the program for a longer term and the payments should be more, a little better paid because, as far as I understand, the payment we receive depends on the price of the dollar, so if the dollar goes down we get a little less payment, if it goes up we get a little more. The payment system should be a little more stable, with a fixed value of the colon because the colon is what serves us best.

E: So, the contracts are for 5 years only and then you must do the process from scratch ... It is a bit insecure, isn't it?

D: Exactly, it's a little bit insecure. Imagine, there are times that one can lose up to a year in the process of renovation; And then as the property owner you lost a year of payments.

E: So, the contracts are for 5 years, the payments are a bit too small... Those two aspects would be the main problems of the program, right?

D: Yes, exactly. Those are the main problems.

E: Ok, and how involved and represented do you feel in the process?

O: Yes, do you feel or have you felt that they've supported you, that perhaps FONAFIFO is interested in your opinion?

D: No, let's say, I'm not very aware of that because they don't call us to meetings, they don't meet with us. The FONAFIFO managers do not call us to meetings or talks, they do not give us training on how to protect the area, or anything. I have never met with them, they have never invited me, they have not sent me any brochure with information, or anything.

Oriana explains to Emma: That is, FONAFIFO only accepts the process, monitors the area by satellite and pays him. He doesn't meet with them for talks or meetings... And he (Domingo) knew the program because he knows of other friends who have participated in the program.

E: Ok, ok. And the monitoring process is only satellite?

D: No, no. The boy comes and checks, makes measurements ... They do small studies ...

E: I mean, the boy who goes to the property is from FONAFIFO, does he work with them?

D: Yes. The boy's name is Yubert Rodríguez, he works in the Monteverde area.

Or: Emma wants to know, what are the main challenges that your community faces? Is it social, economic, education, greater representation?

E: In general, what is the main struggle of your people or family?

D: Sorry? I did not understand the question well, sorry.

O: In other words, at the community level, what is the main struggle? Would you as a community want to be more recognized or would it be for the government to help you more economically, or would you like to have expanded educational opportunities..?

D: Well look, it is a logic for the human being to want to improve himself, to want to be better. Our area has enough problems when it comes to roads, it has very bad roads. Being a livestock area, we need good communication routes ... mainly that, roads, highways. And also, as I mentioned at the beginning, we are a little bit away from government and municipal aid, and that would be a very good thing to improve because we need it (aid).

E: Ok, ok. Well, about the program again, do you think the program can be improved? And if so, how do you think that could be achieved?

D: Look, our area is called a "biological corridor" ...

E: Ah ok ...

D: Our zone is a biological corridor called "Pájaro Campana" which is an area that runs through almost all the channels of the Guacimal River, Veracruz and Monteverde. What happens is that there are many areas that are not protected and we have many deforestation problems. There are too many unscrupulous loggers that ... well in the environmental system, in that area of wood, there is quite a bit of lack of control, a lot of disorder.

I agree that the farmers, I as a rancher and farmer I know what it means to make a corral, that you have to fix the house and all that, but in those cases we must use the wood from our own farms; It is illogical that one goes to buy the material from a hardware store when one has it on his farm, it is illogical. But there are the loggers who get the wood illegally, with destruction and that is a problem at the community level.

My idea is to try to protect as much as I can so that my children and grandchildren can enjoy everything in the future. But if I see that consciousness is not in the area, it is a very big concern because one who is already a few years old knows what it means to cut a tree that you will never see again ... And that is unfair, it is not fair. In my farm I try to take advantage of all the dry wood, which is "waste", but the tree that is alive, green and growing, we protect it.

E: Sure! And do you think that if the FONAFIFO program would pay more and the whole process of getting a contract was easier, there would be fewer people cutting down trees?

D: I think so because if farmers would receive a little more respectable aid and with less difficult procedures to achieve it, fewer people would be interested in selling wood. The problem is that many farms, when they do not obtain the program, or when they do not have financial aid, look for other ways to generate income such as cutting down wood and selling it. That's the most concerning thing.

I consider that if there were a counseling program that would tell or give farmers easier options, for example, that they only need an affidavit or witnesses ...

For example, I have some neighbors who would like to participate but they do not have the measured farm and to get the plans and the deeds is very expensive, however they are people who have protected these lands for 20, 30 or 40 years ... And they cannot receive the program payments because they do not have enough money, a million or two million colones, to measure it... So, if there was an institution that would somehow help them join or get those papers to be able to be part of the program, it would be a great guarantee.

E: Ok, ok. Well, we previously spoke about the problems of the program in general, but only to conclude ... The program is good, right? And you want to continue as long as you can with the contracts because the program in general is more good than bad?

D: Oh right. For me the program is excellent, it is very good.

E: Finally, do you know someone else who is part of the program with whom I can connect with? Someone I'm able to interview?

D: Yes, there is a man ... a man named [REDACTED], he is in the program ...

E: Is it part of the Payment for Environmental Services?

D: Yes, he receives benefits with the environmental service. Even though he always has trees and they have already given him permission to cut some trees on his farm ...

E: Ok, and do you have his number?

D: Yes, it is [REDACTED].

E: Ok, perfect! Well, do you have any questions or would you like to add something else?

D: No, no, I would just like some students to visit the area, maybe share a bit in the area so that they can get to know both on a volunteer and visiting level. Although tourism isn't doing well with the problem we have (coronavirus), but hey, yes, come as volunteers and see the area, this area is very beautiful and important.

E: Yes, in fact I wanted to do the interviews in person but with these restrictions it was not possible.

D: Exactly, yes! It would be better ... I had an interview some time ago with another girl who even knew the area a little, about the corridor. She made a video and we talked about the system and all that. It's more, as someone says, more personal ... It's better.

E: Well, but maybe for the future!

D: Yes, for the future if God wants. I hope to live even a couple of years more haha.

O: Mr. [REDACTED], I'm going to give you Emma's Swedish number, because right now she has a temporary Costa Rican number .

E: Yes, it is temporary. After May 8th I will return to my Swedish number but if you have any doubts or questions, even if you have someone else who wants to participate in the interview you can write to me.

O: Yes, you can contact her without any problem.

D: Ok, I'm going to write it down.

O: It is: [REDACTED]. That is Emma's number, so if you know someone who wants to participate in the interview or if you have any questions or something, you can write to her without problem.

E: Yes!

D: Very well, thank you very much!

E: No, thank you very much. The interview is over and I want to thank you very much for your participation Mr. [REDACTED], this will help me a lot in my thesis and in my work. Blessings to you and your family.

D: Amen, the same for you. You have to have faith in God and from now on, studies come first, then work, and with God's blessing, then, life.

E: That's right. For me it is important to talk to people and have the perspective of those who really are affected, so well.

D: Of course yes, well Emma, have a very nice night.

E: You too, good evening. Bye!

Appendix 5 - Pedro Interview Translation

Semi-structured interview with Pedro

(Oriana Hübner present as well)

English Translation:

E: Hi [REDACTED], it's Emma Ramirez.

P: Oh yes, how are you? Good?

E: Good! And you?

P: I'm here, working with beans.

E: Oh, ok. Would you like to speak later? Or do you have time now?

P: Yes, yes of course! We can talk now.

E: Well, thanks for talking to me. I have my friend Oriana here to assist with my interview because my Spanish isn't great.

P: No, I understand you perfectly well!

E: Thank you. How have you been during this time with everything going on?

P: Good, good. Thanks to God I'm good. As we live in the country, we have to be careful. I go to work at the farm and come back, and so on. Everything is fine.

E: Ok, that's good. Well, I am a student from Sweden and I am here in Costa Rica to do research for my university studies. My main objective is to learn about how farmers are positively and/or negatively affected by the "Payments for Environmental Services" (PES) program. In this interview I will ask questions about your background, your personal experience with the program, and PES's achievements and problems. If allowed I will use this material for my thesis report and I want to thank you very much for your participation.

P: I am more grateful to you. I would've loved to talk in person. Farmers in Costa Rica have been forgotten, because what the government of 40 years is doing here, is not supporting the farmer.

Because it is said that it is cheaper to buy from other countries, more than anything to those who have money, big entrepreneurs. So the small farmer has had to sell properties and they have gone to the city, where they have had to fight on the other hand, they go to the cities where there are drugs and well, I don't know...

E: It's tough.

P: Yes, rather they become a burden for the State because they have to help them more, on the part of the State institutions and the farmers in Costa Rica, the truth is that they (the farmers) do not have support, they do not have government help.

E: Is it okay if I record this interview, do I have your permission?

P: Yes, no problem.

E: Well, let's begin. What is your full name?

P: [REDACTED].

E: Ok, thanks. And how old are you?

P: I was born October 14, 1948, that is, next October 14 I will be 72 years, God willing.

E: Ok, and where are you, in what city?

P: The place where I live is called "Guacimal de Puntarenas". It is a place where everyone who goes to Monteverde has to go through Guacimal. Do you know Monteverde?

E: Yes, but I only know Santa Rosa and the children's forest... eternal children ...

O: The children's forest?

E: The children's forest ... something like that I think it's called.

P: Oh yeah, where groups come, sure, right? (Tourism)

E & O: Yes, exactly!

E: I have walked the Sendero Pacifico hike with Dionisio.

P: Ah, already. Then you must know, of course! I'm sure you know of San Antonio.

E: Yes, yes, yes. It is very pretty.

P: Yes, I have farms in San Antonio and Santa Rosa.

E: Ah ok, it's very beautiful.

P: Yes, well you asked me yesterday about the FONAFIFO matter.

E: Yes, exactly. Do you own property?

P: Yes.

E: Of what size?

P: In San Antonio I had a farm of 200 hectares but I have already sold some pieces, due to the same situation of the farmer as I had mentioned. Then I had to sell some pieces to be able to help my children, my family. But there is still like 170 hectares maybe.

E: Ok, and tell me about your day-to-day work, about yourself in general.

P: How much do I earn ... is that the question?

O: It's like what do you do every day, are you a farmer? Cattle rancher?

P: Well ... I like to plant corn, just to eat corn. There is a product called ñampí, that product I plant and sometimes sell in the summer but this time it was not good for me, then ... Beans, every summer I try, around 20 to 30 hectares; and right now I'm getting onion ready too, because in Monteverde and Santa Elena there are vegetable fairs every Friday, so I take beans, honey and another product called "Chan" there, and bananas and other things. And ... there we are, facing life.

E: Are you a PES receiver now?

P: Yes.

E: And how did you become part of that program?

O: How did you join the program?

P: Well, we went to a meeting with some people and we were informed on what we needed to do.

O: Ah ok, and to enter the program and receive the payments did you have to submit any documents?

P: Ehm, well yes. A couple from the Abangares Board and they helped me to arrange it, with FONAFIFO. A program for 5 years ...

E: Ah ok, a contract, right?

P: They (FONAFIFO) gave me that contract and they gave me a little money, they (the Abangares Board) also took a little part, right, but ... because they helped me.

O: In other words, what you did to join the program with FONAFIFO was to receive help from a third party, so that you could enter.

P: uh-huh, yes. But it is very little money, right, me and my son ... it is a sum like 1,500,000 colones per year ... but rather this year I had to sell a little piece of land and because of that, rather they stopped some of my payment, they haven't given it to me.

E & O: Ah ok.

E: How many years have you received these payments?

P: We have already received them for 3 years, yes.

O: You receive the payment for how many hectares?

P: Ehm, for example, the farm has, like, I know, about 25 hectares of mountain and the rest is pasture then because of that ... and in Santa Rosa too ... There are about 30 hectares of mountain and also pasture. That is why they give us so little money from FONAFIFO.

E: And did you have any doubts or fears before starting the program?

P: No, because I know friends who have their lands like that, and that it is money they send from other countries so that Costa Rica conserves what they call "mountain forest" so that the air can be purified.

O: I mean, did you feel sure with all the information you had on the program?

P: Yes, I think that there are countries with few trees, but thanks to God, despite being such a small country, we have many mountains and other things that Costa Rica has, it is a lot of water that comes from the mountain ranges, both for the Atlantic and for the Pacific, and thanks to that there is a lot of vegetation.

E: Yes, and what changes has this program brought to you? Have there been changes in your life on a social or economic level?

P: Well ... no. There has been no major change, it is only a little help because if one works with agriculture and as I say, one is not treated very well because in Costa Rica the labor force, that is, the worker is very expensive on a Central America level, for example, here one of them earns 8,000 colones in a day but in Nicaragua to earn that they must work 3 or 4 days.

E: Do you think the payments are too small?

P: That is why I think that in those places like Nicaragua or other parts of Latin America there are more rich people but too many poor. In Costa Rica, thanks to God before all this happened (Covid-19), there was work and the poor were not too poor, and well, with everything that is happening many people are left without a job.

O: And, Mr. [REDACTED], do you think that the help farmers receive from the payments is very little or could it be a little more?

P: Ehm, I think that it should be more but what happens is that this help is sent from other countries to Costa Rica and those programs (PES) keep a good part of it.

E & O: Ah, ok.

E: And how has your community been affected by this program? Has it been a common program? Does it carry much significance?

P: Well, in my case it has been very good, because they give you that money every year and it is very good, it is a help.

E: And how involved and supported do you feel in this process?

P: Well, yes, a little. They treat me well.

O: Would you like to feel a little more involved in the process or is everything just fine?

P: Well, since the money is more like a "gift", I think it is good because it is not money that the farmer generates by working, staying in the sun, fighting the plague.

E: And the work with FONAFIFO, how has the monitoring process been? Do they check the property?

P: Yes, of course. They come to investigate with the owner, that everything is fine, that they maintain the forests, that they take care of the trees.

E: And that is during the entire contract, for the 5 years, or only in the beginning?

P: It is throughout the contract that lasts 5 years, then it starts again once the other one ends.

O: So during those 5 years, FONAFIFO is always monitoring the area, correct?

P: Yes, they are always monitoring. For example, in the case of my farm they monitor by satellite, they see everything there, yes.

E: Ok, have you seen achievements as a result of this program, like changes in the environment or in your life?

P: In Costa Rica, thanks to God, every day the trees multiply naturally because people have become more educated on this subject. For example, when I was young people burned forests for agriculture, nowadays that doesn't happen anymore. Whoever does it is a drifter who does not know what he is doing, who does not think or because he hunts animals. But thanks to God nature has multiplied.

O: In other words, the improvement that you have seen, for example on your farm, you've seen with more trees.

P: Yes, yes, of course! As for the betterment, people now take better care of the forests and this is very good. According to the scriptures, the Sun warms more every year, year after year and that cannot be avoided. That is, it is inevitable that the human will return to make the sun be like it was before.

E: And in your opinion, what is the main struggle of your people or your family: social, representation, economic?

P: It is very important that we take care of the forests so that the birds live, the animals in general, it is very important and it is very good, but to say that we are going to cool the Earth or to say that the sun lowers its temperature is impossible because in the Bible rather, the Earth is going to disappear.

E: And has climate change affected your work, your agriculture?

P: Yes, a little yes, for example winters are not normal, it rains very hard suddenly and then summer stops and returns. Winters are different than when I was young.

E: Well, about the program and FONAFIFO, based on your experience, do you think that the program can be improved in any way?

P: Well, to improve costs a lot but at least they should maintain the help for the farmer and the peasant, because taking care of the land is very important and it is good that they help us a little with that money because we need it.

Right now, where are you? In San José or Monteverde, or where?

E: In San José, I wanted to do the interview in person, face to face, but with the pandemic and the restrictions it was difficult.

P: Yes of course, it is difficult. Although I would have liked to meet you in person!

E: Yes.

P: And will you be here for a while in Costa Rica?

E: Yes, now I am doing an internship at the United States Embassy, in the Environment section but I am also in my final semester of university in Sweden. Therefore I am writing my thesis, to obtain my bachelors degree .

P: And the language of Sweden is English?

E: No, it is Swedish. It is a strange language hahaha. Well, would you like to add something else about FONAFIFO, the program, or something else you want to say?

P: Well, I just wish they would pay more, but I'm still glad that even if they pay that little bit, it's a help. Well, one wants the government to increase support for those of us who work the land, but Costa Rica for about 40 years here, governments do not help farmers much, but now it is very important that governments help us more with planting rice, fruit, I don't know, with everything. Many years ago Costa Rica was self-sufficient with what it produced but later they discovered that it was cheaper or easier to buy everything in other countries than to produce it here. So, that's why many people have sold their land and poverty has increased.

E: Now, you have the 5-year contract, right?

P: Yes, I have about 1 year until it's finished.

E: And after 5 years you have to start the process from scratch, right?

P: Yes miss, exactly, I must start again. But we don't know what will happen because with all this crisis, we don't know if they can continue helping us.

E: I mean, is there no guarantee that the contract can be repeated again?

P: Exactly, we have no guarantee that we can have the contract again because we do not know what will happen tomorrow.

E: So, that is a fear that you have, do you feel that the program is a bit insecure in that sense?

P: No, I am not afraid because one has faith in God and we know that God will help us.

E: Yes. Well, last question, do you know more people who are part of the program who want or can share information, who want to be interviewed?

P: Few have it, well, if you want to talk to my wife.

O: We mean do you know of other farmers who have participated in the FONAFIFO program that would be open for an interview?

P: Yes, of course. The number would be [REDACTED]

E: That person's name is ...?

P: They are two brothers, the one we gave you is called [REDACTED]. The other number is from [REDACTED], he is in FONAFIFO also, the number is [REDACTED].

O: They are part of the FONAFIFO program, right?

P: Yes.

O: Are they FONAFIFO or have they participated in the program?

P: A few years ago they put the papers in and helped us in the whole process as well.

O: Ah, perfect! Many thanks! Maybe you know other farmers who are in the program, like you?

P: Yes I know some but right now I don't have their phones.

E: Oh, if you want, save my number and if you can contact them, you can write to me by WhatsApp. My number is [REDACTED].

P: Thank you very much!

Appendix 6 - Roberto Interview Translation

Semi-structured interview with Roberto

(Oriana Hübner present as well)

English Translation:

E: Hello, [REDACTED]?

R: Yes.

E: Hi, it's Emma Ramirez. Do you have time to talk now?

R: Yes!

E: Well, thanks for talking to me. I have my friend Oriana here with me to help me with the interview because my Spanish is not perfect ...

O: Hello!

R: Hello! Pleasure.

E: How have you been during this time?

R: Good, good. Thank God.

E: Ok, that's good! Well, I am a student from Sweden and I am here in Costa Rica to carry out research for my university studies and my main objective is to learn about how farmers are positively and / or negatively affected by the “Payments for Environmental Services” program. In this interview, I will ask questions about your background, your personal experience with the program, and the achievements or problems of PES. If allowed I will use this material for my thesis report and I want to thank you very much for your participation. This interview will not last more than 30 min and this conversation will be recorded if I have your permission.

R: Okay, sounds good.

E: What is your full name?

R: [REDACTED] (Roberto)

E: Thank you, and how old are you?

R: 39 years old.

E: Where are you now, in what area or city?

R: Guacimal.

E: Ok. And do you own property?

R: Yes, correct.

E: What size?

R: Approximately 33 hectares.

E: And tell me about your work, about yourself in general?

R: I mostly work in the fields, I have a little cattle and I produce basic grains.

O: Ok, so you grow some grains and livestock.

R: Exactly.

E: And are you a recipient of the program?

R: Yes

E: For how many years?

R: Oh no, about 2 months ago I started the program.

E: Ah, ok. And how did it become a part of the program and why?

R: a part?

O: Yes, why were you interested in participating in the program?

R: It interested me because it protects the forest a bit, the animals and also they encourage one with help for other things that one needs.

E: And how big is the land you have under the program?

R: Approximately 14 hectares.

E: Ok, and was it a difficult process to enter the program?

R: More or less. It is not very easy because they rate the farm in a score ...it's like a forest score, I don't know what they will call it ...

E: I don't know ...

O: I mean, in what sense? The altitude, where the farm is or ...?

R: Yes, I think height ...

O: And did an engineer have to map out the entire terrain?

R: Yes, a boy from the Conservation League made a sketch for me.

E & O: ah Ok!

O: And how did you hear about the program? Was it from someone at FONANIFO directly or did you know other people who are in the program ...?

R: No, it was from a boy from the Monteverde Conservation League, he was the one who helped me with the papers.

E: And did you have any doubts before starting the program? Any fears?

R: No, no.

O: Those 14 hectares you had before they became a part of the program, what were you doing with them? Was it for agriculture, did you have cattle?

R: I had cattle in some parts.

E & O: Okay.

E: And what changes has the program brought to you?

R: Ehm ...

O: Has it been positive on an economic, social level ... Has it brought about any change or not?

R: Yes, of course. Economical and also for the environment.

E: Ok! Are there many farmers in your community who are part of this program?

R: No, there are not many, but there are several that are in the process.

E: So, the community in general is not very affected by this program yet?

R: No ...

E: Ok. And how involved and represented do you feel in the process?

R: Pardon?

E: How involved and represented do you feel in the process with FONAFIFO?

R: Ehm ... Alright, I feel good. What do you mean involved?

O: Basically meaning, do you feel that FONAFIFO has kept you involved in the process with the decision making or with what needs to be done?

R: No, not much.

O: But with what little they do or with what needs to be done, it feels alright?

R: Ah, of course it does. Yes.

E: How has the monitoring process been? Who checks the property?

R: Well ... the man from the Conservation League has checked my property.

E: And do you have meetings?

R: Yes, with the guy from the League, yes.

O: And that boy from the League works with FONAFIFO or is he an intermediary? How does that process work?

R: No, he works with the Conservation League. They help you and then charge a percentage of your payments for their work.

O: So, the guy from the League goes to the field, sees that everything is fine and reports that information to FONAFIFO?

R: Yes, that is correct!

E & O: Ahh ok.

E: And what do you think about the potential of the program in the future? If more farmers join.

R: The possibilities for the future?

E: Yes.

R: Well, I think it would be very good for protecting our waters, because these things take a long time and the secondary forests would grow ...

O: In other words, you think it would be good if other farmers in your community join the program?

R: Yes, of course yes. I would like that very much.

O: And what is the main struggle of your community? I mean, what is the biggest problem that you would like to solve, is it financially, socially, educationally...?

R: Ehm... Well, right now, financially would be best because of everything that is happening in the country.

O: Do you think that would be the main concern, as a community, where everybody needs help?

R: Yes.

O: Ok.

E: And what are the problems and / or challenges that you have faced with Payments for Environmental Services?

R: No, so far we have not had problems with anything ...

O: So it has been an easy process?

R: Yes, for me yes.

E: It is a 5-year contract, right?

R: No, it's for 10.

E: For 10?

R: Yes, it is now because they extended it for 10 years.

E: Ah, I see. It's only because I have spoken with other farmers who are part of this program and for them the contracts are for 5 years.

R: Aha, yes for the older ones. The most recent are for 10 years.

O: Ah ok, it's a recent thing.

R: Yes, it is new.

E: Ok. Thank you. .

E: Do you think the program can be improved, and if so, how?

R: Yes, I think it can be improved ... For me or for the community?

O: Just in general. For the farmer who wants to join the program or for you who is already a part of it. What aspect can be improved within the program?

R: Well ... Yes, it would be very good if some neighbors were encouraged to enter and could join, because they have properties in very good areas.

E: Yes... So it is difficult to enter the program?

R: Yes, because of the documents they ask for from the properties. It is a little difficult.

There are farms that do not have those kinds of papers.

O: Perhaps a point to improve could be that for farms that do not have these papers, FONAFIFO would assist with options.

R: No, in fact, the guy from the League who encouraged me always made sure to ask what I need help with.

E: What do you think about the “agro-forestry” concept, which is having a forest with trees but also agriculture within it. As a way to avoid cutting trees. So you could plant vanilla, beans or dragon fruit. Is it a concept that you have thought about?

O: I don't know if you know about the topic?

R: No, I don't know anything. I don't know. So it's about planting and having more trees? That is the question?

O: Yes, what do you think about “agroforestry” agriculture. We say this because we spoke to a farmer that told us that he is trying to talk with FONAFIFO so that in protected areas they give permission to sow or work the land but not aggressively. For example fruits that grow on trees, beans etc.

R: Well, fruits yes, but I don't think it would be possible with beans. For beans you have to cut trees. But fruits would be good, even for the animals.

E: Sure. But from now on, you can't do anything with the land you have in the program?

R: Oh no, nothing.

E: It's just for ...

R: Only for Environmental Services.

O: Do you know or do you have information about any other farmers who are a part of the program and who would like to be interviewed?

R: I am going to talk to someone, but I don't remember his number.. I don't know if he is still in PES, he was there when the contracts were for 5 years but it expired and I do not know if it's been renewed.

O: Yes, it doesn't matter that he no longer is in the program.

E: I would just like to speak to someone who has experience.

: Ok, I'm going to see if I can get their number and pass it on to you.

E: Perfect. Do you have any questions or something that you would like to add?

R: Well no, everything has been very clear to me.

E: Ok, well ... thank you very much, we will be in contact!

R: Yes, thanks. If anything you can contact me at this number.

E: Yes, of course, this will help me a lot. Thank you.

R: Have a good evening, bye!

E: Bye, good evening.

Appendix 7 - Interview Guide FUNDECOR & FONAFIFO

Semi-structured interview guide for interview with FONAFIFO and FUNDECOR

Introduction of the study and me as a researcher:

My name is Emma Ramirez. I am a student from Sweden. I am here in Costa Rica to do research for my university studies. My main aim is to learn about how farmers are positively and/or negatively affected by the Payments for Ecosystem Services program. In this interview I will ask questions regarding your personal experience with PES and the achievements and the problems of PES and what the future may look like for the program. If permitted, I will use the material from this interview for my thesis report. I want to thank you very much for your participation. This interview will take no more than 30 minutes and this conversation will be recorded if I have your permission.

Me llamo Emma Ramirez, soy una estudiante de Suecia y estoy aquí en Costa Rica para cumplir una investigación para mis estudios universitarios y también hacer mi pasantía con la embajada. Mi objetivo principal es aprender acerca de cómo los agricultores se ven afectados positiva y / o negativamente por el programa “Pagos de Servicios Ambientales” (PSA). Por ahora he hablado con algunos finqueros y alguien de FUNDECOR. En esta entrevista haré preguntas sobre su experiencia personal con el programa, los logros y los problemas de PSA y la potencial para el programa en el futuro. Si está permitido, usaré el material de esta entrevista para mi informe de tesis. Quiero agradecerles mucho por su participación. Esta entrevista no tomará más de treinta minutos y esta conversación se grabará si tengo su permiso.

Informant Introduction

Name:

Cual es su nombre completo

Age:

Edad

How long have you been working for FONAFIFO/FUNDECOR?

¿Cuánto tiempo llevas trabajando para FONAFIFO/FUNDECOR?

What are your work responsibilities?

¿Cuáles son tus responsabilidades laborales?

Payments for Ecosystem Services:

Do you know many farmers are currently in the program? Or is that data available on the website?

¿Sabes cuántos agricultores están actualmente en el programa? ¿O esos datos están disponibles en el sitio web?

According to the farmers I have spoken to, they receive payments of 66 dollars per hectare, correct?

Según los finqueros con los que he hablado, los finqueros reciben pagos de 66 dólares por hectárea, ¿correcto?

Are the contracts for five or ten years now? Does it depend on what services you are protecting?

¿Los contratos son por cinco o diez años ahora? ¿Depende de qué servicios está protegiendo?

All the information on how to apply is on the FONAFIFO website, but more than half of the farmers I spoke with don't have access to the internet? How does FONAFIFO solve this problem? Is it through the regional offices?

Toda la información sobre cómo postularse se encuentra en el sitio web de FONAFIFO, pero ¿más de la mitad de los agricultores con los que hablé no tienen acceso a Internet? ¿Cómo resuelve FONAFIFO este problema? ¿Es a través de las oficinas regionales?

What is the role of those associations that are in direct contact with the farmers?

¿Cuál es el papel de esas asociaciones que están en contacto directo con los agricultores?

They take 15-18% from the farmers payment which is quite significant.

Toman 15-18% del pago de los agricultores, que es bastante significativo.

What is the monitoring process like? Does FONAFIFO check-up on the property?

¿Cómo es el proceso de monitoreo? ¿FONAFIFO realiza un chequeo de la propiedad?

Which achievements have you seen as a result of Payments for Ecosystem Services?

¿Qué logros ha visto como resultado de Pagos de Servicios Ambientales?

Como cambios en el medio ambiente y como cambios en los participantes: la vida de los agricultores.

What are the problems/challenges you have faced with *Payments for Ecosystem Services*?

¿Cuáles son los problemas / desafíos que ha enfrentado con los Pagos de Servicios Ambientales?

- a. Sostenibilidad, financiación, resistencia de los agricultores o familia, creencias culturales y tradicionales, disponibilidad física, etc.

Do you think that the Payments for Ecosystem program can be improved? If yes, how do you think that could be achieved?

¿Crees que el programa Pagos de Servicios Ambientales se puede mejorar? En caso afirmativo, ¿cómo crees que se podría lograr?

- a. Funds, training, information, availability, attitude change, etc.
Fondos, formación, información, disponibilidad, cambio de actitud, etc.

What does the future look like for funding? Since the country has pledged to become carbon neutral and most funding comes from fuel taxes.

¿Cómo se ve el futuro de la financiación? Dado que el país se ha comprometido a convertirse en carbono neutral y la mayoría de los fondos provienen de los impuestos al combustible.

I want to discuss the topic of agroforestry. Is there potential for the farmers to be productive and still preserve the land? Like sustainable farming, for fruit trees, vanilla and what not. Could FONAFIFO be heading in that direction or is it going somewhere else?

Quiero discutir el tema de agroforestal. ¿Existe potencial para que los agricultores sean productivos y aún así preservar la tierra? Como la agricultura sostenible, para árboles frutales, vainilla y demás. ¿Podría FONAFIFO ir en esa dirección o ir a otro lado?

The program started with the intention of being an environmental program but it seems that now it has also become a social program in some sense. What do you think of that?

El programa comenzó con la intención de ser un programa ambiental, pero parece que ahora también se ha convertido en un programa social en algún sentido. ¿Qué piensa de eso?

What potential do you see for this program in the world? Can it be successfully implemented elsewhere? Has there been an interest shown from other countries?

¿Qué potencial vez para este programa en el mundo? ¿Se puede implementar con éxito en otro lugar?

Finally, do you have any questions or anything you would like to add?

Finalmente, ¿tiene alguna pregunta o algo que le gustaría agregar?

Thank you for your time!

¡Gracias por su tiempo!

Appendix 8 - Former Director of FUNDECOR Interview Transcript

Semi-structured Interview with the former Director of FUNDECOR

F: Hello Emma

E: Hi [REDACTED]!

F: How are you?

E: Good, how are you doing?

F: Fine thank you.

E: Thank you so much for taking the time to talk to me for my thesis. I really appreciate it! How are you doing considering these circumstances?

F: Honestly, we've been very lucky. I was in NYC last year, I was living in New York. We came down to Costa Rica on March 1st, just the day that the first case appeared in the city. Still in Costa Rica you have to go through the entire process but there's no comparison between the two places right. Here we have space and it's good for my kids. It has been challenging though, because we have to adjust many things, but definitely better to be down here. How about you? When did you arrive in Costa Rica?

E: I got here February 3rd. I'm from Sweden and I was supposed to go back home on April 30th, but that flight got cancelled. I'm going to try to leave at the end of May. But Sweden is doing horribly too, Sweden has a lot of cases, kind of going against everybody else doing herd immunity. My two younger brothers have been in school the whole time..

F: Wow.

E: Not much has changed although many businesses have been impacted and there have been some closure, but many are acting as business as usual. It's shocking to see because here I've been inside for 40 days.

F: *Laughing*

E: I love being in Costa Rica and I feel like the government is taking good precautions and I don't feel that happy about having to go back to Sweden.

F: I understand, but at the same time I am a bit sorry for you, because Costa Rica is such a nice place to go around and you've spent half of your trip indoors.

E: Trapped inside in paradise.

F: Hopefully you can come back again.

E: Exactly, I've fallen in love with this country and I definitely plan to come back. So, basically what I'm doing, I'm in my final semester for a bachelor in Global Studies at the University of Gothenburg.

F: So you live in Gothenburg! Not in Stockholm.

E: I grew up all the way in the south near Malmö.

F: Yes, I know Malmö! I know about these cities. I went all the way up north to the arctic circle and spent two three days up there, it was beautiful and so fun. I remember Malmö and Gothenburg well.

E: Do you know about Lund?

F: Yes!

E: That's where I grew up!

F: Aha! Nice!

E: Basically, I am interested in environmental sustainability and theoretically it's what I love studying and where my passion lies but I never really knew practically how the work was, how I would enjoy it etc. While I was doing my research for what I could write my thesis about, I came across the Payments for Ecosystem Services and I thought that was such an interesting solution to a problem that so many countries face. But then all the data that I looked at was very quantitative in the sense that it was about hectares of forest that have been recovered and this big data, and I was wondering, well if this program claims to be sustainable is it also socially sustainable for the farmers? My plan, if I could get this internship, get to Costa Rica, at the same time I would be able to do a qualitative study where I would get in touch with farmers who are participating in the program. Do a case study with semi-structured interviews where I ask them about their experiences, what PES brought them, what are they missing, just add the social aspect of it. I have spoken to a couple farmers already and it's been really interesting but then Thalia suggested that she has contacts on the other side, from the people who manage the program, and that it would be extremely valuable to talk to these people as well. Is it okay if I record this conversation for the interview?

F: Feel free.

E: Thank you. Tell me a little bit about yourself, you worked at FUNDECOR or are you still working there?

F: I'm not but I will give you some information. I'm a biologist, I have a masters in environmental management focusing on resource economics and policy. I worked a lot in Costa Rica but also abroad. I worked for the Nature Conservancy for about 8 years, before I went to FUNDECOR to serve as the Executive Director which I did for 7 years. I left FUNDECOR more than a year ago.

FUNDECOR has a story of its own, very solid institution in the context of developing the payments for environmental services scheme that has been applied in the country. I myself have followed these kinds of themes cause my career I worked a lot with government and local landholders and trying to develop innovative financial mechanisms that try to provide an incentive and retributions for the environmental services that are generated by the forests ecosystems. I think as a result of that, I had an important role I would say, not only within FUNDECOR but within the process that Costa Rica has to develop in such a way that the PES approach is getting refurbished, I would say. So that it can evolve over time so that it can become effective and efficient and of course there are a lot of challenges there but it is part of the normal dynamic of trying to improve good instruments. Within that I can tell you about many strongpoints of the model, of the system, of the instruments as well as the barriers and challenges and opportunities from different perspectives: government perspectives, landholder perspectives, private perspectives and NGO perspectives. It depends what you would be interested in. One important thing I should mention.

I think Costa Rica's PES scheme is well done. It has been proven as a successful story, but it is unfinished business. The process itself as it was outlined back in the early 90's, hasn't been concluded and I would say that I believe that many stakeholders have fallen into the tendency to generate and stay in that comfort zone as a result of that success of the initiative. There is a saying in Spanish: en el mundo de los ciegos, el tuerto es rey - in the world of the blind they one-eyed man is kind.

An the entire, at least when I was director at FUNDECOR, FUNDECOR has different faces and I'll give you some elements about that which are relevant for what you are interested in, but at

least when I was working as the director my entire period of work was very much focused on trying to push Costa Rica into getting out of that comfort zone and aspiring to do more and do it in such a way that it consolidates investments to that date. And that it translates into a more robust green economy model, as you see things like the Green Team Laboratory of Costa Rica, were the government into the De-carbonization laboratory concept and so on. Those are things that Thalia, marginally, but most of the team at the U.S. embassy were able to test when I was working closely with them.

With that said, before I was at FUNDECOR, FUNDECOR has played different roles over time, it is a very important NGO for Costa Rica in the context of PES because it is a think tank as well as a GONGO (government-organized non-governmental organization) and those are hard to see. As a technical entity, it played an important role in ... can you give me one sec?

Pause

F: Emma?

E: Yes

F: Okay, sorry. So I was saying that FUNDECOR is this unique instrument that the country of Costa Rica has. FUNDECOR was set up in the late 80's early 90's and it was part of an agreement between the U.S. government and the Costa Rican government and was set up as a foundation, foundations in Costa Rica are NGOs. The founder of this foundation was the government of Costa Rica, so that is why it is a NOGO. FUNDECOR has a complex governance but I don't need to get into the details, just so you are aware. It has a very interesting structure in such a way that it was created by the government but it doesn't necessarily have to abide by the government.

E: It doesn't report to the government.

F: It reports to the government, the U.S. government in terms of making sure its managing resources and it's fulfilling its purposes. But you're not going to have a ministry coming one day forcing everybody to do something. However, you have to work with the ministers.

E: And where does the funding come from for FUNDECOR?

F: The way it worked, is FUNDECOR was established under a USAID project in the early 90's. The project was so successful, the foresta project, once it finished, there was an agreement between the U.S. government and Costa Rica to create a trust fund that would support the NGO. That happened when the USAID left Costa Rica in 1996. There were 3 trust funds that were supported by USAID remnants, FUNDECOR, CRUSA and Earth University. Then you have a financial instrument, this is like a two-pronged governance structure, you have the foundation itself with a board as mandated under the foundation law and then you have another board that oversees the financial instruments, to administer. I remember saying I used to have 11 bosses. It's a bit complicated to manage but at the same time it's a way to ensure cost control.

Now the important things there is that FUNDECOR works hand in hand with the government but it's an instrument that accompanies the government in these kinds of processes that give value to good environmental services management processes that in such a way that it can go beyond governments and support policies so that they become state policies. That was very critical, especially in the 90's and also later when I was the director, the way we set up the Water Fund, which is an instrument that we set up within FUNDECOR with the government of Costa Rica and many other stakeholders. We were able to do that with three different administrations. FUNDECOR allows to ensure that there is technical support and guidance and leadership in the design and architecture of instruments in such a way that these instruments go beyond political forces. That is very important, it proved very important in the 90's for the establishment and success of the PES scheme.

When you go out and do your research on FONAFIFO, you're going to see FONAFIFO started in 1997 and everyone at FONAFIFO will tell you that that is when PES started, and that is not true. That was when the government started to implement the system which was trialed and developed under the Foresta project between 92-96, and the information generated by the project, all the trials. I can tell you a story for example about los Gingeros, which is a group of landholders that were one of the first landholders to jump into the exercise, they decided to give it a shot and put their land to be subject to PES. People were very nervous, like "what is this? You are coming with a program linked to the government? And you're telling me you're going to pay for my trees to be

standing?” People felt like they might want to get control over the property, there were a lot of barriers to get people on board, and that happened over a big... give me one sec.

Pause

F: Hello Emma sorry about this, but you know you have to be doing multiple tasks at a time with kids around.

E: No, I completely understand! My supervisor is also dealing with the same situation.

F: Anyways, multiple tasks in surviving, that's quarantine now.

Just to continue:

What happened is that all that knowledge generated through the trials, and the exercise with the Gilgeros, was generated under the Foresta project through FUNDECOR's technical testing and development and outlining things and gathering of stakeholders. All that knowledge gave base to the reform of the Forestry Law in 1996. That legislation is very important for Costa Rica's model and FUNDECOR was the instrument that the government used back in the day to generate knowledge and it was possible because of the arrangement for the institution. That knowledge was able to set up a legislation and that was used to develop the framework for FONAFIFO to operate and the system to bloom.

Further down the road, FUNDECOR even helped out once the expectations of channeling resources from the international quote on quote “market”, the word refers to the discussions that tries to create transfers and transactions of carbon costs, it fall apart, we were able to pull one out with Norway. But then countries started to set up rules of how that should work and those rules were called the Kyoto protocol, right? And the Kyoto protocol took years to set up and never was able to get tractions. Costa Rica had to innovate again, and the way it did that was through the connection to the fuel system, the fuel tax. That's how it was able to channel resources and fulfill the expectations because the country was already activating SINAC and FONAFIFO to reach out to the landholders and tell them, “hey you might get into this program and get retributions if you abide by these rules”. And you know, you have to walk the talk. So it's interesting how it started, how the process was created.

And then, everything led to beyond the 97 and 98, then FONAFIFO, in a very good manner was able to get the program running and to implement the monitoring, reporting and verifications instruments that had been applied. We should give credit to the institutions for that. As I give credit to the FUNDECOR design of the instrument, the implementation of the instrument was successful as well. That's important.

However, when you look at the Forestry Law, there are many things that could be improved. I should say because this is very important, the perfect is the enemy of the possible. You would have fallen into the trap of trying to be very academic in terms of how you design processes and make sure you have all your margins of error controlled etc. That program would still be outlined.

There was a set of information that makes sense, with a lot of risk involved but good strategy. Then what was needed at the time was to go down and implement it. And that worked. That was a good bet. Of course, over time you want to retroactively evaluate and improve that program. The reason why I want to say this is that in the design of the law, you are going to see that PES in Costa Rica are connected to four services:

1. Carbon fixation
2. Water provision
3. Scenic beauty
4. Biodiversity

The model, the financial arrangement, was linked to taxing fuel consumption, the model heavily rose depending on the fact that somebody was... It was not a willingness to pay model, it was a willingness to accept, you go out, you pump your gas into your car and you were willing yourself to be charged and that was going to be funneled towards the fund. Technically, that's because you're polluting, right? But your carbon footprint from your car has little to do with your biodiversity services. The model was highly dependent on that variable. Although, the money was being used for paying for four different services as outlined in the legislation.

The challenge was, as the process evolved, to identify and develop other instruments that were able to channel other resources for the other services. That has happened partially, that's what I mentioned at the start, there is an unfinished business.

First with water, they developed the CANON DE AGUAS, which is an instrument where you have PES for water pyramids and part of the resources go to FONAFIFO and part of it goes to SINAC. There was an instrument there that got maximized when they developed the Agua Tica model. Regarding biodiversity, FONAFIFO ended up developing the Fondo de Biodiversity and very little with scenic beauty. Still, when you see the numbers of the system of the model of FONAFIFO they are heavily dependent on the fuel tax. Now, this is a problem and a huge threat for the system and continuity of the program, because the country now wants to be carbon neutral.

E: That's exactly what I wanted to ask you about!

F: So you are going to run out of tax. Part of the caution, at least when I was director, is that we were putting a lot of pressure on FONAFIFO to create new instruments. This is where we came out with the Agua Tica model. Anyhow, that is part of reality and it is relevant because then what you have, and I want to connect it to more things, what you have with the FONAFIFO and the FUNDECOR, it was kind of like - I'm going to say something and I know that you're recording - it's like those two processes have to go together good and bad, OK? The FUNDECOR instrument is very important to be pushing the envelope, to push out of the comfort zone to evolve. On the other hand, institutionality is always going to have resistance, there is a resistance to innovate, there is a resistance to mainstream things. However, when the information with the processes are developed, there is going to be receptiveness and things move forward. It's like a love and hate dynamic that is very important.

E: Is that a fault that you can notice working with governments, that there is a resistance to innovate and change because things take much longer in that environment?

F: Yes, but I would not tag it as a fault, it's just a normal dynamic. It's a different approach towards risk management because of the different types of institutional variables that are around each entity. In government you have to be very careful about the logic behind using public resources,

it's a risk averse instrument dynamic by nature. The role of FUNDECOR of trying to do innovation, is trying to be more respondent in trying to generate processes. That's a well needed counterbalance. When you lose the balance, that's not healthy. You have a lot of bureaucratic drag which is not healthy. The instrument has to always work in a balanced way, which depends very much on who's in charge of both processes. If you have lousy management on one front you are going to stay in the comfort zone of the institutionality. If you have, the other way around it works similarly. It's part of the challenge.

If you look at it in the big picture of things, it's very intelligent. These are part of the core elements on why the program is so successful because you have a country that has been able to create those types of cross-checks and public dynamics and instruments. That is one of the reasons why the model has sustained itself over time, it is technically solid. There are a lot of self-control elements in it, but it allows you to have an integrated story on the outside. That is something that the country itself likes to make use of, it fuels propaganda and it falls into place with the eco-tourism dynamic. The model created enabling conditions for a tourism dynamic to bloom, as an economic alternative.

I think this is important for you to be aware of, in terms of the institutional arrangements, the governance of the entire model, the checks and balances.

FUNDECOR is not universities, they are technical entities. They bridge the technical knowledge from the universities, more academic ones, those that do more applied science like Universidad Nacional or Tecnológico. It's an interesting arrangement.

The other thing I want to mention, is that the program itself has had... You know we talked about the interface between the private/public... Many of the trials and errors that FUNDECOR did have been done in partnership with the private sector. Back in the 80's, but also recently, Agua Tica was put together as a public/private scheme. We were able to get Samsung, Coca Cola and Pepsi in a competitive approach. There's a lot to say there.

What I want to get into is about the social dynamic on the ground. This has much to do with what you are interested in. It has to do with the FONAFIFO program itself. FUNDECOR and other

NGOs are very important as vehicles to implement and ensure success of the program on the ground. PES is designed in such a way that it allows any landholder to access it, right? But if you are a campesino in the north part of the region, you might not be in the same conditions that a doctor in downtown San Jose that has a farm next to you. The doctor can go and send one of his staff to submit an application for PES and do what's needed and hire the forestry engineer etc. It's not the same for a campesino that has the land in the northern part of the country. That's where the NGOs come in as a broker to ensure that the program is reaching out to different corners and be able to fulfill the goal in engagement. There is no discrimination in the program, the program goes around according to forest cover and created a lot a traction and it became an important instrument to mobilize resources onto the ground. Over time, there have been different iterations on how to try to allocate resources based on technical parameters, because you want to make sure you maximize your impact in terms of areas that have added value because of forest coverage but also because they serve as protection for water etc. Then you will be maximizing your services. There are many iterations that FONAFIFO has had to do. Always supporting a system in making sure that there isn't a dissociation between potential beneficiaries.

But, at the same time, once there was an increase on the demand - previously it was hard to engage people, which is what FUNDECOR did initially to get the program running, then FONAFIFO and SINAC implemented the model - one the model was successful, there was no leakage and you were really getting what you were paying for, in terms of the flow of resources, money was really being effectively managed and you were establishing contracts. The model worked, I give credit to FONAFIFO for that. Once that happened, a snowball effect was created.

The Forestry Law basically has a stick and the carrot, the carrot is basically the PES model, the stick is the well structured approach to condemn land use change. Part of the success of the instrument has to do with having those two elements. Many people started to be trapped with forests and knew that the government was being effective in controlling land use change so what do you do? Give me the carrot, right? Because I have no option. So that created an increase in demand for PES. This became an enormous challenge for FONAFIFO, and even that FUNDECOR fell into that dynamic. When you look at FUNDECOR, they were highly involved in the 90's and then it lost its edge of innovation and when I arrived FUNDECOR was all about volume. How

could FONAFIFO get volume? How could we get people on the ground? When it was my term at FUNDECOR, it was like, no, we have to innovate again because the demand was already surpassing the supply. And you have to finish your homework right? With other potential instruments or mechanisms which could capture new sources of resources. That means you have to do more innovation, you have to give value to those forests for the goods and services they provide. It has focused heavily on one good which is timber, and the service of carbon, then we have to evolve into new goods and services. This is when we got into the Agua Tica model.

Anyhow, the point is that as the demand increased, people got into PES and the program grew up and became very strong. It started to become a *social program*, like it or not. If you look at FONAFIFO, it means Fondo Nacional de Financiamiento Forestal, National Forest Finance Fund, and it stopped operating as a financial program long ago. It became a Fondo de PAGOS de Servicios Ambientales, PES Fund. Most of those PES payments were channeled towards conservation protection projects, not even for the productive projects. There has been a lot of trouble with the productive front of it. It actually became a trap, it ended up generating PES for plantations that didn't have productive caliber and that's a pity. That's another story on the side.

What I think you should capture at this point, FONAFIFO ended up trying to respond to the demand of people that have forest and wanted to conserve it. That grew up as the eco-tourism dynamic came about in the country. Now that has loosened up, because now the country has taken it one step further and wants to be carbon neutral. Now we have the necessity to capture to more carbon, and the productive projects like reforestation and restoration become important.

The important thing is that, as that happened FONAFIFO started to become an important source of income for many people in the rurality. People that had their small patch of forest. In a complex scenario, you have a campesino that has 50 hectares and he has 15 of those in forest. He better get something out of that, right? There's another component of the productive realm which is what does he do with his 45 hectares that have no forest, right? How can he be productive in such a way that he can generate income for his family to grow and leave out of the property. Most of these campesinos sons, who go to the city because its not competitive, and the farmer will make numbers to sell the farm to the pineapple companies. The cost of an hectare for pineapple was 5000/6000

dollar per hectare. If you have 45 hectares with no forest then pineapple companies will jump into that. Good ones will keep the forest within PES the bad ones don't care about that. They may even put some pressure into the spots. So there is a lot of complexity behind it. We had a bottleneck, basically we had an enormous dependency of the type of landholder for whom the model became an important complementary source of income, but without having more land. That is one of the reasons why FUNDECOR was trying to get more innovative processes not only looking at the forest but the entire management unit, because you need to generate value for the property management. FONAFIFO was not necessarily into that frequency of such, this in the last year, this was kind of the huge puzzle. How do we push forward and push FONAFIFO into renovation in which they can look into the landscape approach of integrated production, creating incentive, bringing back again the financial forestry component so they can give alternatives to these people. To a certain extent, FONAFIFO had to... because the demand was higher than the supply and you were capturing enough taxes from the gasoline. Then they had to put filters and those filters were not necessarily the most technically balanced filters, they were more like *unintelligible* filters. One of them was as I mentioned, ok, we are going to give more priority to your forest, as it is also serving as an important force for water capture, that is a technical filter. But, another filter that we started to use is, you know, however has properties under 25 hectares has more points in the submission. That started to leave the "big guys" out, like 300 hectares and things like that. We tried to develop instruments like Agua Tica to channel complementary resources in a successful way. It started to become a social program. It might have had an important effect but it is a dangerous move, because the PES model has to be a PES model, you know?

I know you are dealing with limited resources but, that means how you work with institutionality to revamp you innovation and give new sources of income that can move the program forward, Not stay in the comfort zone in such a way like, ok, we are just going to select the little ones and that's it, because then you are basically generating a subsidy. This is very important from a macro standpoint. That is not good. Worst off, there were certain people, the most vulnerable were left out. The Gilgeros, which I mentioned to you earlier, the first group of landholders that jumped into the model when nobody believed in it, they can't access the PES anymore. Why? Because of one of the filters, and I can understand why this happens, but the demand led FONAFIFO to make a decision they're only gonna give money to people with certain "escritura", formal land title. These

guys had come into the program with “Derecho Posicion” and suddenly they were left out of the process. It’s not anyone’s fault, it’s just the complexity of the system. That is why it is so important to constantly continue to introduce the system in other ends and generate new sources of income and get out of that comfort zone. But, the program itself fulfills - and this is relevant - a social purpose, but it cannot be a prisoner of its social purpose. Cause if not it will denaturalize itself, ok?

Now, that said, in FUNDECOR I put a lot of pressure in my team, back in the day, to do an assessment of what the project meant socially. We had a lot of statistics of how many contracts we had with xy amount of people that represented z amount of factors. How much was the flow of resources? What was the calculation of carbon tons *unintelligible*, all of that. But, what had that investment meant, in terms of social development on the ground? You know not only first round, but second collateral benefits, social development you know, because suddenly you have people who can support their farm and create their supply chains. Towns like Sarapiquí have tendencies of that. I don’t have the numbers here, but I remember under the FSC certification we created an important study that represented, it was about 2 million dollars of value, of just collateral value that the program is not able to capture because the program, although it started to become a prisoner of its social variable, is not necessarily developed in such way that it has a social metric. One thing is that you are giving money to small people, the other thing is that you have the capacity to measure your impacts on the ground and the communities. There are a bunch of elements.

I just want to finish saying that the program has been of enormous social value, but it's a program of environmental services retribution and should be stressed as it. Hopefully you can always increase that social value and you can evaluate the program by generating schemes which capture resources for the user of the scenic beauty, the users of the biodiversity, the users of the ... you can even bring in the other services that are not included in the legal framework from 1996 such as erosion control. There are many instruments that can be played out and could be factored into the model in such a way that FONAFIFO can capture more resources and deploy more resources and also generate more social value, aside from the physical environmental services parameters. For that, the institutionality would need to have to want to go that extra yard, it has to have a push. Would that come from FUNDECOR? Hopefully. It has to also come from the leaders on the

ground and the ministers. Costa Rica has a Catch-22 situation because we go out and tell the story and get so much press internationally right? It's easy for us to think "oh we are doing so good". Which we are, we are. But that relaxes you, right? And institutions tend to think that we are doing better than the other countries, there is no need to go step further, but that is a mistake. With this I just wanted to outline many of the variables, many of the challenges. Of course, you might need a lot of data and it requires a lot of data to attest to some of these things and ideas.

I guess what you want to capture is which are the variables that create pressure or are relevant for the model to run or where the model could break or where the model needs to get evaluated.

E: I think learning from the program and hearing from your experience, is that this program came out from environmental conservation laws and it's intended for the environment and for environmental sustainability and for people to be able to benefit from these environmental services. But the unintended consequences are the lower income farmers who own these lands and all of a sudden it turns into a social sustainability as well. And so how do you balance the economic, social and the environmental pillars of sustainability within one program that might not have the funding/means to take care of it all?

F: Mhm, I think you have a good reading. The program itself is dual. I would say it has been fairly well run, FONAFIFO has done a good job. When you see the "Estado de la Nación" and the evaluation of the institutionality, it has been very well run. However, in a country like Costa Rica that has what... 15 years of debate since we jumped into the TLC free trade agreement with the U.S., we've had a subtle polarization between left-ish and right-ish approaches. That paired with what has come in the last 10 years of the fiscal deficit, it could put the program in a very compromising situation. Why? Because there could come a line of thought to say we need more efficiency, less taxes, and we're putting taxes on fuel and there are people who necessarily aren't into the carbon neutrality strategies, they are starting to politicize some of those strategies. It could be that there is a law to try to diminish the state's capacity, and in a min perspective I can understand where it comes from, because I know the institutional state of Costa Rica has a lot of fat, but the risk is that you turn it off. The risk is that somebody comes and says "lets take away the solution that FUNDECOR helped develop back in the day with the tax of the fuel". That's a

decree that can be taken away tomorrow. Easily. I always told Jorge Mario, the Director of FONAFIFO, “Jorge you have to go one step further. You know internal events, you could have somebody that wants to undermine the institutional capacity. It’s very easy to turn the switch off to FONAFIFO, with a lot of problems”.

Now, I’m happy to see in the last year that with the nature based approaches, these kinds of agendas have gotten more strength within the political realm and political discussions. But, three years ago, the entire country was just about getting to the energy sector and the transportation sector which I know is where we have the big problem with carbon neutrality, but it gave a false impression that the nature component is secure. And it’s not secured. I’m not saying you have to jump into the other side, you have to be careful to think that it’s secured. It still doesn’t have full long term sustainability, you know? It’s a very successful program, it’s extremely positive in terms of marketing and positioning. It’s extremely positive in terms of impact on the ground. As we talked, if we are going to be successful becoming carbon neutral, we are going to have to put a lot of stress on the model and it will fall down like a deck of cards. If you have a little state kind of approach it could be an easy way to dismantle things.

That’s why I was telling FONAFIFO many times, that we have to get the productive variable, you have to think beyond the borders, think about the farms and that you can create instruments that can provide value to the families. We tried out the Sarapiquí Resiliente Model to provide incentives to farms that do resilience agriculture, in such a way that you don’t necessarily have to mainstream it to PES or direct payment. For example, you can do it through better work with the bank sector and get better interest rates for those that are applying xyz, so there are many ways that you can innovate and build from what you have. It is very easy to destroy but it is hard to build up.

On the other hand, what you have with the leftist side of things, “you know I have 4 year and then I can retire, so why do I have to rush?” And we get that with many people who started in the 90’s with the government programs and that now are starting to retire from FONAFIFO and SINAC on many levels. We have the renovation program for young leaders and it was pressure for the young leader to think of incentives is in innovating and not in necessarily trying to get the “anualidad”, you know for the next year. That is the huge complex scenario.

Now, what we are looking at, we've got the pandemic situation in the middle of a huge fiscal deficit. A lot can go bad. I still believe that the program is very strong, but you have to be very careful. I would say that I'm optimistic and that there is an opportunity now to try and revamp certain dynamics that could allow there to be a more balanced approach. To open up the field so there can be more innovative ways of channeling these forces. It's a very interesting scenario.

E: Is that the role that FUNDECOR plays 'till this day? To be that innovative force and to push for growth and development within the program?

F: Well I wish, I hope. I think it has to play that role. Whether it happens or not I don't know, but it depends on many variables. It depends on how much the government wants to have those nongovernmental stakeholders playing a role. I had a lot of resistance when I was the director of FUNDECOR, when we were trying to do innovation. We were able to do it but the government structure... - I told Francis who was the director back in the beginning - he said "you know you have it easy now, when I came I had to build the organization", and I told him "Yes! But when you started, you didn't have to deal with the FONAFIFOs or the 'Dirección de Cambio Climático', they didn't exist, you were ad hoc! The Direccion Cambio Climatico is negotiating under the UNFCCC and the transactional costs are huge now because FUNDECOR has to deal with so many layers. Some of those institutional layers feel threatened, so there are a lot of challenges. It depends much on the political leadership, those that are the heads of the government and that can understand the variables and be able to try to find the appropriate balance between how much you support yourself to the FUNDECORs and the FONAFIFOs and the CATIEs, in a way that you are able to channel forces into the appropriate direction, to go to that 2.0 person. That's the challenge. Of course if you have a risk averse leader and xyz entity that's not going to help. You might not have, I think that was my case, you didn't have aggressive leaders, but I was an aggressive leader out of FUNDECOR, so I was pushing these agendas that created a lot of resistance at the same time. There are many equations to this.

Now, in theory, I would say yes, that's what I expect from FUNDECOR. There is a saying: "In theory, theory and practice are the same. In practice, they are not."

Yes, the idea is that happens. The other thing I would say is that, even from the FONAFIFO standpoint, I am very critical of FONAFIFO many times, but honestly it's one of the best institutional instruments within the ministry of environment. Hopefully they will be able to build appropriate partnerships to get the ball running. What I am convinced of is that the PES model of the 90's needs to be refurbished, but not in a negative way, it's an adaptive process. You have to take it to another level. Now you have information technology, you can use different ways in managing technology and use metrics to engage with people on the ground. This is not the pen and paper dynamic. That doesn't mean you should not be able to have your back-up scheme right. Now especially with the pandemic you can see that many things can derail and you have to be resilient. Definitely you can do many things and we were trying to do that. We were trying to do innovation and metric schemes using drones to try to measure carbon volumes in the forest. Using this as an instrument of calibration, innovation that we capture with pen and paper from the model of the 90's.

This is what led us, in FUNDECOR's approach and when I was there, to develop the concept that goes beyond PES, the concept of Costa Rica as a lab. This is a laboratory of the world, because the world is engaged in this agenda. This is where you can trial things out, this can create a green economy for Costa Rica and hopefully the solutions here can be deployed in Peru, in the Amazon, in the Congo basin. That is the land component. Then we have the other component which is the Green Hub, knowledge sharing. I was able to get the government around these concepts, but the laboratory concept filled the capacity. That's why you have President Alvarado talking about the de-carbonization lab, but the Green Hub was a bit too much. Which was how do you have Costa Rica leading international initiatives to transfer knowledge in such a way that creates a value model, a value proposition. Like the Singapores of the world share knowledge, a portal of logistics and create value through that. And Costa Rica can do that with environmental services. With some exercises with Morocco, we created the proposition of the Green Hub, up and down, but that idea is not going to die, we will make it happen soon. Maybe it wasn't the right moment and it is part of the process.

What I want to get to is that the country has all that potential, enormous potential. It will only be possible if you have very solid bases like the FONAFIFOs and these instruments on the ground.

You need to have your eyes set on the skies but your foot on the ground. It's part of the process, I'm no longer in FUNDECOR but I am still a part of the dynamic of trying to push the government, thus far I'm trying to do it with Quantum and other processes. I'm not the only one, there are many people that think like this and hopefully the collective energy will keep the pressure for these kinds of initiative.

I'm glad that beyond FONAFIFO and FUNDECOR and whoever is in the ministry, there is a very good cohort of professionals and experts that Costa Rica has generated that this cohort are not going to look to the side and let things fall down, right? It goes beyond who's in charge of what, it is something that we understand is an asset for the country. Of course you have to deal with a lot of challenges but it is important for the country. That's a safety net. It has been a result of what has been done in the 80's, 90's and 2000's which has created a good solid network of professionals that understand the value of this and other instruments. Those are elements of value, but yes, I think it is a fantastic challenge. These are the kind of things, when you start to envision your future problems, these are the kind of problems you want to have, right? That means you have done a lot, you have achieved a lot. This is something that the country should be happy about.

E: Wow, I believe you answered all my questions without me having to ask them! I really just initially want to thank you for making that clarification between the roles of FUNDECOR and FONAFIFO because it seemed challenging to find that information online. How they act differently in regards to the program. About the funding, so there seems to be an awareness that the country made a proclamation in 2007 that they were going to be fossil fuel free by 2050 but is there any kind of plan of what the future of the funding will be or is that something that FONAFIFO and FUNDECOR are still grappling with?

F: I don't think that there is a very straight plan, but I think there is an awareness of the situation. I think FONAFIFO is aware, when I was in FUNDECOR we put a lot of pressure on FONAFIFO regarding that matter. There are no details of how that is going to be addressed. At least they are aware and it needs to be tackled because it is a big challenge and threat. However, I think that there are many ways of making that work. There is a lot of resistance to discuss this because there are a

lot of.. Well because we care about our international image and nobody wants to brag about something and then say that they want to change things. We will be facing that reality.

E: Have any other countries reached out to you about this? Is there an interest? Do you believe it is possible to implement a similar model in the region at least? Or is Costa Rica so unique in its leadership and institutions that it has in place that it would be difficult to develop somewhere else?

F: No, not at all. I think it is totally feasible. I have done exercises in Paraguay, in Morocco, in Peru and even in Panama. It can be done. What can happen is that sometimes, which happens with other countries like Indonesia who reached out, is that people are looking for a cookie cutter model. That's not going to happen. We had an enormous exercise, which by the way was done together by FUNDECOR and FONAFIFO with Morocco. We were able to bring the Moroccans out of their logic of having the cookie cutter model and that they have to design their own model. There were even some important things that were achieved, like replicating the instrument that FONAFIFO has with the Fondo Biodiversidad using credit cards and it became more successful in Morocco.

My point is that - and these are the things that the Green Hub needs to address - if Costa Rica takes leadership on that, it would benefit the country. Or else somebody else will. The knowledge sharing exchange. The opportunity exists, the Costa Rican case is very unique, but definitely it has enough to offer. The good and the bad. I'm going to give you another example:

Cambodia. If you want to put PES in Cambodia then Costa Rica can help you think about what variables need to be addressed, but at the same time you are going to capture the Costa Rican model at a mainstream adaptation. Because at that time we didn't have enough information, but if you are going to do a program outline for instruments for Cambodia, you have to get that into the model now, because you can achieve more and it makes a lot of sense. Costa Rica can teach the good, the bad and the unseen and that's important. That's why I think that Costa Rica has to be the one to lead knowledge sharing in such a way that it generated a benefit out of that. The cost of being the first is higher and that knowledge has value and that has to be put into terms, operative terms. But it's there. I do think it can happen. Many of the countries want a quick route and that is not going to work, but it depends on how good of alliances are set up. It's a good proposition. I am very confident that this boom of considering nature-based solutions is going to provide another

set of opportunities for Costa Rica to really maximize its knowledge and at the same time pay attention to security conditions domestically for the model to grow up strong.

E: When I was speaking to some farmers, there was some discontent in 1. The payments are too small, which plays into it being seen more as a social program now as well as an environmental program. 2. There is some fear in the uncertainty in not having your contract renewed after the 5 year, because there is no guarantee from FONAFIFO that after the 5 years your contract will be renewed again. The submission must be completed basically from zero.

F: To compete again.

E: This is what I'm hearing from the side of the farmers. Some of the suggestions that I've heard from them, is that they want to be productive, but they also want to conserve their land. So, the term 'agroforestral' means that... There was one farmer I spoke to that had a couple hectares of land with trees but he also had frijoles plantations around. He wanted to have a forest where he could plant vanilla, dragon fruit or frijoles or certain crops where he wouldn't have to completely clear the land and make an agricultural field. Do you think that could be something in the long term future for the program? Or is that just something else, a different program that could be established? What's the potential for agroforestaes, if that's the term?

F: More than agroforestaes, which is a specific approach, let's use this concept: landscape management. Do I feel like there is potential? I am totally convinced that that is the potential. When I did a reprofiling of FUNDECOR, a different logo for example, we even had the U.S. Embassy onboard at the inauguration when we presented this new approach. We had the slogan change. The slogan we created was called: Laboratorio Vivo de Mi Paisaje. The Breathing Lab concept. Mi Paisaje means my landscape. But M-I, mi, means Manejo Integral. What I want to stress is that personally, I'm totally convinced. Institutionally I have my doubts. I have my doubts that the institutions understand this because it becomes very complex. What you are saying, what you are telling me as a piece of information, is that by speaking with landholders, you are precisely, through quality analysis, you are getting input on the landholder. He is basically saying that he has an interest, there is a demand for programs that look at things out of the forest patch and that

include forest patches. Saying “Hey I want to do things with my land so I can have more incentives and more long term security.” This should be the other way around. We shouldn’t have the programs evolve in such way that they are the ones pulling the landholders with opportunities, with incentives and not with doubts, because doubts is “I don’t know if we are going to give you a program, a contract, I don’t know if I am going to be able to increase the payments”, which is not that competitive when you look at different things. There’s the stick right, next to the carrot. As long as the stick is there it doesn’t matter if I pay you 64 dollars per hectare, you are stuck with that. But it is not good enough for those guys.

E: Exactly.

F: The thing has evolved, it is not the 1990's. So, my entire quest is that it should be an institution with the support of the FUNDECOR and Costa Rica por Siempre and Universidades Tecnológicas. Put the solutions on the ground and create the instruments. The adversity for this is enormous despite the fact that we have all the elements and all the ingredients to do this kind of work. You have a country that is going outside the world saying “hey we are leaders, we are ambitious!”. Ok, so we have to walk the talk and this is the moment to do so. You have receptivity from the ground, from the producer. If you come to these guys with these programs saying “hey I have this line of credit, we spoke with banks, if you do xyz you will have a better credit line”. Those guys will feel happier because the cost of production is going to go down. But that’s not easy, you have to connect many dots and FUNDECOR can do it to a certain extent, but you need to have it backed by the government. And there needs to be a will from the government for this kind of innovative work and believe in the private/public schemes etc. etc.

Again, that’s the Catch-22 we are in. I personally believe it has to be there. It’s not that it should, no, it has to. If not, we are going to fall into stagnation mode that is going to be counterproductive. And you are going to have problems once you have a fiscal deficit exploding, and then there will be cuts. If you view it the other way around you can justify it and say no this is the way that we will move forward and halt the divide from the urban context and the rural context. There is a lot to do, but definitely.

You should call [REDACTED] who is the new director of FUNDECOR. Scratch what he thinks, where does he want to go with this. You should talk with [REDACTED] in FONAFIFO and hopefully young kids in FONAFIFO like [REDACTED] and [REDACTED]. You can do an interesting case there, you can have the elements to capture the perceptions because you will receive different answers. You could also talk with people in the central government. It would be interesting to see for me how people would answer these questions, the input that you get. Where are these things moving?

E: Yes, I completely agree with you and everything you say about the program's potential because it is a wonderful program from its foundation and being so unique in the world. I just think that there is so much potential if there are people who continue to move it forward and innovate and move with the times to see what the demand is and what these farmers need, it could be great. The knowledge Costa Rica learns from this, the lessons, is something that other countries can take apart of instead of having to reinvent the wheel every time.

F: I agree. I'm going to tell you one more element, more of a side note but it has to do with FONAFIFO, more with the productive scheme. Part of what was tried at FONAFIFO with FUNDECOR was to bring the productive component, like forest management and reforestation. In Costa Rica forest management doesn't get PES but reforestation does. It has been totally missed... it hasn't been dealt properly in terms of potential opportunity. You have guys like Centro Agrícola Cantonal Hojancha that have a very interesting reforestation program. They sell gross timber to China, which is a pity because this country should be processing timber. Anyhow, the Hindu people come here to negotiate, with a 15% margin of negotiation. They come directly to the people at Hojancha, how much do you think the guys in Hojancha negotiate? Zero. They don't know how to negotiate, and worst off, it's negative. I'm sure they are such nice people that they open their homes to the Hindus. The reason that happens is because there is such a profound lack of understanding on how you can build a productive supply chain for these kinds of things, for these services of products from the forest. You have the Oficina Nacional Forestal, the national forestry office, you can find information on that in the late 90's Forestry Law. They have their own legal structure. The national forestry office should be the promoter of the private producer. They have two people on the board of FONAFIFO. FONAFIFO is unique because it has an institutional

instrument but also a board. The national forestry office which tries to group out people from the Productores de Madera, Investigadores, all sorts of sectors, and these guys... It's just a group of people that control the national office, they are also a part of this comfort zone mentality. They are totally concentrated in playing a game of pressure with FONAFIFO, because many of those guys control the Agencia Forestales in certain areas. Remember when I mentioned the contract for PES and that you have to hire an engineer? That's *unintelligible* by agencias, so they lost sight of the goals. They are more concentrated on how the PES model and how the money from the gasoline is going to flow and where they can connect their own little things. When I went to the national forestry office, they didn't like me very much because I put a lot of pressure on them. I told them that they should get involved, your main aim is to create productivity for the sector, of course within sustainable parameters, you should get involved with the people in Hojancha. Train them, put together a training program, and if you can teach them to negotiate, even if they get half percent of the range within the negotiation margin, they still have a 15% margin. If they go on average, you know, so so, that means they will get 8 of the 15 points. That's income for those guys. If you do that in such a way that they receive a percentage, 10-15% you have the possibilities of financing a program of engaging more producers. But they don't want to do that because they are comfortable being next to FONAFIFO receiving the tax ful money. Again, this is just an example of why should we wait until the collapse of the system and not just do adjustments now. It is possible to give value to the social context of Costa Rica. We can translate this into a better quality of product for the world. It takes time and effort. If you gear the institutions towards those solutions, I believe it can be done. Will it happen? I don't know. The last thing we want is for this to be shut down. I put pressure, because I think you guys are worth it. I just wanted to share that example, because it is part of the dynamic that needs to be changed. Today, people must be worried because things are changin by the minute. The income from the fuel tax is going to decrease dramatically. It will be interesting to see how they go about addressing this.

E: It's important to remember that getting to this point required so much hard work and that the hard work must continue in order to push the needle forward.

F: I agree, and they take it for granted.

E: Exactly, the more I read into this - I mean I'm only supposed to write a bachelor thesis - I would like to write a book. It's hard for me to stop and start analyzing. But this has been an incredible conversation, extremely enlightening. The data that you mentioned earlier about the amount of participants in the program, is that publicly available?

F: You should be able to find that through FONAFIFO, maybe in one of their online reports. If I find something I'll send it to you. I suggest to follow it up, I get very busy, but process all of this. If down the road you need specific questions, because now I gave you the big picture. Feel free to reach out if you want to. I will gladly give you my thoughts.

E: Thank you so much! This has been wonderful and I really appreciate you taking so much time to talk and I feel the fire underneath me and I am excited to write about this.

F: Good, good. Hopefully you have a good rest of quarantine in Costa Rica. Be safe!

E: Thank you, you too.

F: One thing I have to ask you, please if you talk with Thalia and the team, please give them my absolute best. Honestly the Hub was extremely supportive of my work and they are very special and devoted.

E: Absolutely! Have a nice evening and thank you once again. We will be in touch if anything else.

F: Take care, ciao.

E: Ciao.

Appendix 9 - The Director of PES at FONAFIFO Interview Translation

Semi-structured Interview with the Director of PES at FONAFIFO

English Translation:

G: Hello?

E: Hi Mr. [REDACTED], it's Emma Ramirez. Are you free?

G: Hi, how are you?

E: Good and you? Are you available to talk?

G: Of course Emma!

E: Ok, perfect! Thank you for speaking to me and I apologize about the confusion about the earlier date.

G: No problem.

E: I've written my questions in Spanish but if I would like to add something, could I ask you in English or are you more comfortable with Spanish only?

G: I'm more comfortable with Spanish but we can try.

E: Alright! I also have my friend Oriana here to help me in the interview because my Spanish isn't perfect.

G: Oh, perfect!

O: Hi!

G: Hi, how are you?

O: Great, thank you!

E: Alright, I'm a Swedish student and I'm here to do research for my thesis as well as do an internship at the United States embassy. My main objective is to learn how farmers are positively

or negatively affected by the Payments for Environmental Services (PES) program. For now, I've spoken to some farmers and with one person from FUNDECOR. In this interview there will be questions about your experience with the program, the achievements and challenges with PES and the potential for the future.

G: Ok.

E: If I have your permission, I will use the contents of this interview for my thesis. I also want to thank you very much for your participation. The interview will take no more than 30 minutes and I will record it if I have your permission.

G: Ok, sure sure. Not a problem!

E: Thank you! What is your full name?

G: [REDACTED].

E: And how many years have you worked for FONAFIFO?

G: Around 21 years.

E: Oh wow! And what are your responsibilities? What do you do with FONAFIFO?

G: I am the director of Environmental Services, that is, I am in charge of the Payment for Environmental Services program.

E: Ok! So I've been trying to find information on the website, but it is in Spanish and I'm not sure if there is information on how many farmers are currently in the program. Is the data available on the website?

G: Ok. On the website there is also the English version; Just at this time we are updating the statistics, so we just downloaded the information we had and now we are uploading the new information.

E: Ok, perfect.

G: Now, I don't know how much you have read or studied in depth about the Payments for Environmental Services program, so the data that I am going to give you have to try to understand

them in the sense that, the contracts for Payments for Environmental Services have a finite validity, that is, once the contract is signed and the period is completed, the owner can request again to apply to the program.

E: Yes, but there are contracts for 5 and 10 years too, right? Depends on the service.

G: Exactly. If I tell you about the history from 1997 to the present day, I can tell you that we are close to 18,000 contracts for Environmental Services, that is the history, right; But currently, the contracts that we have in force or that have some type of management, are about 6,000.

E: Ok. Yes, on the website there is information on how much the farmers receive per hectare and all that. So, you don't have to go into that information now because I can find it on the website but thank you very much!

G: Yes, uh ... regarding the amount, the program has been adjusting over time. We have done payments in Colones, after a period it was done in Dollars at the exchange rate and now, again, in recent years the program is in colones; And for each of the 5 activities the amounts are different. In addition, we have an activity called "Agroforestry Systems" where the amount paid to the farmers is for the number of trees and in other activities the amount is per hectare.

E: Ok, yes. All of that information on how to apply to the program is on the website, but most farmers I have spoken to do not have internet access. How does FONAFIFO solve this problem? Is it through the regional offices or what is the solution?

G: Well, let's see Emma ... The program started in 1997, and at that time many of the users did not have internet. So, rather, the program started with the basics so that people can access the information to the most current today where, from our website, they can do a lot of things.

One of the vehicles or instruments with which the program has been awarded is through organizations, in this case as FUNDECOR, where FUNDECOR is in an area and does this promotional work, looks for farmers, explains what the program and they apply. As all the farms that undergo the program must be labeled, then a neighbor sees that sign and finds out that they are paying a person, looks for the information and approaches us through FUNDECOR or directly to our regional offices.

E: With the farmers I have spoken with, there is, for example, the Monteverde Conservation Association that helps those farmers with the contracts and do all the paperwork. So, the role of all those associations that work with FONAFIFO is to make direct contact with the farmers.

G: Well, it can be in both ways. 1: It can only be providing information and 2: It is serving as a technical advisor and thus helps people to comply with the requirements of the program to formalize the contract.

E: Ok. And these associations that I've talked to take as a percentage of the payment to the farmers.

G: Emma, I'll explain it like this... FONAFIFO formalizes the contract with the farmer, and that farmer in turn contracts with the organization or with a particular manager, who is a private technical advisor, and they define how much the cost is. FONAFIFO does not interfere in that, it does not participate. All that the producer requires to invest to be able to sign a contract for Payments for Environmental Services, are costs that are borne by the farmer.

O: But, the union of that third person, of that technical advisor is not obligatory, right? In other words, do farmers do it because they do not have a direct option to make their signs, plans or what they need?

G: Well, I'll explain further; What the program asks the farmer, rather, is that he has a technical advisor. This technical advice can be given by an association such as Monteverde or FUNDECOR or someone privately such as Juan, María or Pedro who is accredited as Forestry Regent.

E & O: Ah ok.

E: And the monitoring process is on the side of FONAFIFO with satellites or ... what is the monitoring process like?

G: Yes, in the monitoring process several actors intervene, the first is the technical assistant or Forestry Regent because he is in charge year after year of presenting a report so that we (FONAFIFO) can make the payments. Another actor is FONAFIFO directly, which has a monitoring department and also has engineers in the regional offices to do the field inspections; Another actor is the National System of Conservation Areas, SINAC, which incorporate the information that we (FONAFIFO) give them for their field monitoring.

E: Ok, perfect. I found information about the entire program while I was in Sweden and I realized that the program is fantastic, in my opinion. It is very unique in the context of the world and what the environment needs, and in your opinion, Mr. [REDACTED], what achievements have you seen as a result of this program? Changes in the environment, the lives of farmers etc.

G: Thanks, well I can tell you about various things. First, the program has contributed to the country maintaining and recovering forest cover, since today, Costa Rica has 52.4 percent forest cover at the country level. Two, we have invested more than 600,000,000 dollars in the rural area. We have promoted the recognition of Environmental Services on farms where perhaps the owners did not have their information in order with the state, that is, they have been arranging their legal situation as a farm to be able to be part of the PSA program; So the program has become an element of land use as well.

To be able to receive the payment people have to be up to date or have no debts with the social security of our country, so in some way the program has not only contributed in the environmental part but also to the land management, in addition the program is highly recognized worldwide; Every year there are between 10 and 15 students with doctorates, master's degrees, that do different studies that we know about and there are also others that we perhaps don't know about...

Regarding the participation of people, we have a high degree of participation in indigenous territories, for example, we also have a number of women who own farms that participate in the PES program; So we have been able to develop metrics to meet different social indicators that now require different instances with which we have been able to meet with the program.

E: Alright, and what are the challenges you have faced with PSA?

G: Emma that is a very good question. The main challenge is to have financial sustainability, that the resources used by the country to recognize farm owners are maintained or increased, so for this increase FONAFIFO has been looking for other mechanisms to complement the available resources that we have year to year to be able to add more and more farmers.

E: Ok. And do you think the program can be improved in any way and how do you think it could be achieved?

G: Sure, the program can be improved. How can we improve? Well, in the technical assistance that forestry professionals give to the owners of the farms could have better projects, we can also improve in new financial schemes to be able to reach more farmers who today cannot enjoy the PSA program due to costs, or because they do not meet current conditions ... I think that the biggest challenge, in the short term that we have, is the recognition of Environmental Services of other activities that are not forestry.

E: Ah ok, perfect.

O: And what could those Environmental Services be?

G: Well, all the benefits of the soil are being explored, the benefits of agricultural practices that may be thought of or related to improving the conditions of the farm.

E: And is there a need to improve environmental education in the villages?

G: I believe that the environmental education part is complementary, not so much from the FONAFIFO area but rather from the Ministry of Education and other policies that may be developed.

E: Ah ok, yes... Well, what does the future of financing look like because I know that the majority comes from fuels but the country is also committed to becoming carbon neutral and most of the funds come from taxes on the fuel... and what is the plan to solve this and ensure future financing?

G: Very good question! Yes, the country has indeed embarked on a course towards decarbonization, which would affect the income from the sale of fuel, which would therefore affect the financing of the program. For this reason, what we are visualizing at the moment are other sources of financing, mainly from the water sector, which could fill the gap that the lack of fuel revenues would leave.

Today the country has a canon (tax) for the use and exploitation of water, so an adjustment can be explored in that canon (tax) so that the resources collected come to finance the program. The current minister, Don Carlos Rodríguez mentions, as another measure within the plan, some other tax for the emission of gases or the use of plastic, which, for example, also help to compensate and finance the program in the future.

E: Ok, so you are optimistic about the future of the program.

G: Yes, the truth is yes. It has been a program that has had a history of more than 20 years, we have survived 5 changes of governments and we will continue, because with each change that has taken place in the president, the program has been further strengthened. Now, recently, we are preparing for the strategic plan for 2020-2040, that is, we are projecting ourselves to 40 years; So yes, I think I'm quite optimistic.

E: Well, another issue is that with some farmers I have talked about the subject of agroforestry, do you think that there is potential for farmers to be productive and still preserve the land, such as sustainable agriculture: trees with some fruits as seeds and things like that. Could FONAFIFO go in that direction or is it for now just seeking to maintain the conservation-only vision?

G: Well, there Emma I think there is lack of information because FONAFIFO and the Payments for Environmental Services scheme has 5 activities, one activity is forest protection (areas that are conserved and protected) but we also have recognition for activities where it is recognized , redundancy worth (valga de redundancia), production to farms, for example, farms that have agriculture and combine it with forest trees, then we have agroforestry systems; Or they combine it with livestock and we talk about agrosilvopastoral systems.

So, since FONAFIFO since 2003 recognizes the whole part of the agroforestry system, that's why I think your question is rather about a lack of knowledge of those producers who you asked that these alternatives exist and that have been running for many years.

E: Ah, ok. So you believe there is a lack of information on their part then.

G: Yes, exactly.

E: How can you ensure that farmers know about all the activities that are available. How do you handle that information issue?

For example, we spoke with a farmer who told us that he had tried to have meetings with FONAFIFO to talk about agroforestry issues and always received no for an answer. Rather, he was looking for a way to accept that kind of thing within the program and he was told that it was not possible.

G: Well, there are several things mixed together. The first thing is that if you have a forest area you cannot carry out any activity other than the care and protection of that forest, you cannot clean forest areas to plant beans, for example; That is not allowed because the law does not allow it.

In other words, if you have a contract with FONAFIFO where you are being paid for the protection of the forest, you cannot have agricultural activities in that area, which you are protecting.

The other thing is that if you have an area where you have no forest but have a crop like corn or beans, you can combine that crop with tree planting and those FONAFIFO trees are recognized as PES. What is not allowed is that in the forest areas you cannot do activities contrary to the forest.

As for the information, then, FONAFIFO manages its website with the general information of the program, it also has regional offices and interested people could call the offices or call us directly to access the information that is of interest to them.

E: Yes, of course. Well, I have talked to the farmers about the general challenges in their community and their issues are mainly economic. I think this program started with the intention of being an environmental program but it seems that now it has also become a social program, in some sense. What do you think about that?

G: Well, I don't think that's how it is. The program has an objective that is to recover and maintain forest cover. Now, in the course of managing the program, it has wanted to support in social and economic aspects. Why? Because these programs, depending on the point of view, must comply with these three areas, with the environmental, social and economic aspects, but the real strength of the program is the environmental part.

In the social part we have collaborated but it is not really our main purpose, for that there are other programs that work with other institutions more linked to the area and economically, it is really difficult to say if the PSA program has really made the participants leave poverty or at least have improved their quality of life; The amount paid per hectare is not really such a high amount, in fact, if you ask people they would surely want us to pay you much more but it is a scheme that works at the country level regardless of where you are, because always you will receive the same amount.

Emma, we have an incredible number of applications that unfortunately cannot enter the program because they do not give us the resources, we are exhausted. So, believe me, the expectation is very high and that the more resources FONAFIFO can have, the more farmers will be able to participate in the program. Now, if I pay a very high amount, there will be fewer beneficiaries and more possibilities of deforestation.

E: So it is not the role of FONAFIFO to have social and economic responsibility because there are other government programs to address these issues. But in a bigger perspective what potential do you see of this program for the world. Do you think it can be successfully implemented in other countries?

G: Of course I do! I am going to explain, every year we receive around 8 to 10 delegations from anywhere in the world. Last year, for example, we received missions from Angola, Nepal, Vietnam and we also constantly received groups from Brazil and from African countries ...

So much so that the program of Payments for Environmental Services and FONAFIFO add to the catalog of what Costa Rica has to offer for other countries, to cooperate. In fact, in 2019 we signed two triangular cooperation projects with Peru, where the PES program was one of the entities where we transmitted the experience from here to there.

Now, at the country level in the world, only Costa Rica, Mexico and Ecuador have a similar scheme. And at the local level there are many experiences that have been developed that are based on the Costa Rica program. So, I can tell you for sure that our program is highly requested worldwide.

E: So, year after year there is an expansion in terms of collaboration with other countries in the world, there is a curiosity from them to learn about the program.

G: Yes, because the experience is transmitted. They want to come to know how the program works and cooperates and how people participate, so we are the reason for many studies and visits, and so we continue.

E: Ok, but do you think that those countries can take the program and implement it exactly the same in their own countries? I don't know how to explain my question, do you understand what I'm trying to say?

G: Yes, I understand you perfectly and I will explain it to you in this way: The program has elements that Costa Rica mixed to develop the mechanism of Payments for Environmental Services and execute it. What we recommend to other countries is that they evaluate and mix and develop their own scheme from their own ingredients.

Or: Yes, make the adjustments depending on what works for them and what is available in their country.

G: Exactly, each reality is different. We do not make a presentation of the program, we show them what ingredients we use and how we made the mixture to make it work. Now, those who come to learn from the schemes, the challenge is to be able to identify what ingredients they have in their country or in their regions and how to manage or operationalize a program according to the reality of each country or region.

E: And why do you think Costa Rica is so unique in the world context?

G: Well that's a very difficult question to answer. What I can give you is another example, a few weeks ago the world congratulated us for the way in which we are dealing with the pandemic (having few cases and few deaths) and well, I think that is because it is part of the ability of the Costa Rican to be able to adapt and generate solutions. But the answer to your question is too broad.

E: Ok, perfect. Well these were all my questions. Finally, do you have any additional questions or anything you'd like to add?

G: Yes, perhaps I would like to understand how, from your interviews, we could determine if the PSA program has a positive or negative impact on farmers, because in order to know that, you have to have a baseline and not just keep the information that farmers supply it; That is one of the errors of the researchers, who sometimes do not go deeper and perhaps manage to give recommendations to other people without first seeing the whole context and being able to generate a biased criterion of whether it is good or bad, or whether it is positive or negative, “x” or “y” program.

E: Yes, I understand. My thesis is to get my baccalaureate and I have spoken with 5 farmers during this time and I know that my thesis will be in a very specific context where I will not be able to

generate opinions in the whole country or in the world. But, I have your contact Don [REDACTED] and I could send you my thesis once it is finished for you to see.

G: Yes, perfect. Sure! It is part of what we ask students who research on the subject, to share with us the final study, or the thesis or the project so that we too can learn.

E: Yes, of course. I can say that in general the farmers are very grateful and happy with the program, for the vast majority everything is very positive. So it's good news.

G: Ah, perfect! And what did you think of the experience?

E: Yes, well, because of everything related to the coronavirus, I couldn't go directly to do the interviews, but before, I went hiking in Monteverde and I was able to talk to farmers about the idea of my thesis and if they had experiences with the program, and they said "yes, yes, yes".

So on that occasion I received his contacts and it was how I managed to do all the interviews by phone but all the farmers were receptive, with good conversations, very friendly and we talked mainly about the PSA program but I also got to know a little more about them and their personal life, their lifestyle which for me is also a very interesting subject because it is very different from Sweden.

But as soon as I learned about this program, I wanted to write about it because, for me, it is a great opportunity for the world to learn about Costa Rica and it is also a way to combat climate change and all those problems that we are experiencing with the environment. So, for me there is a lot of potential with this PSA program. So, I'm going to send you my thesis when it's ready in August.

G: Ok, perfect. I want to thank you.

E: Well, I thank you very much for your time, this will help me a lot and we will be in contact. Really, a thousand thanks for taking this time to talk to me, it means a lot.

G: No, with pleasure Emma and your partner also for the support. The same is where my email was and if you have any questions we can help you with, it would be a pleasure.

E: Ok, perfect! Well, I hope you have a good day, we will be in touch.

O: Bye!

G: Bye!