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The Politics of Sustainable Development in the Peruvian Amazon Rainforest

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Introduction

In the Peruvian Amazon rainforest reside 1,816 species of birds; 25,000 species of plants; 515 species of mammals; and 3 million people (Gamboa; "Geography, Agriculture…"). Maintaining the rainforest is crucial for ecological diversity, for carbon retention, as a basis for fair and equitable economic development of the communities living there, and for its potential to increase GDP. Yet, profit-oriented large-scale development interests endanger the forest by opening up land to destruction from small-scale agriculture. Peruvian Amazonia is replete with natural resources that should be utilized sustainably with benefits flowing to local communities.

In this article, I examine the current politics of land usage and how issues contribute to deforestation. After discussing legislative concerns, I examine ways for Peru to maintain and improve economic growth to equitably benefit communities in the Amazon. To effectively counter deforestation, Peru should align priorities across interest groups and effectively allocate resources to subnational governments so that policies can play out as they are intended. Because small-scale agriculture constitutes the majority of deforestation and is especially prevalent in the northern Amazon basin, I propose a sustainable alternative industry in that region with the potential to benefit both small farmers and the agricultural sector. By developing a cohesive, collective wisdom about the value of the rainforest, Peru can work toward a holistic forest policy that accounts for all these factors.

Background

As of 2014, the Peruvian Amazon rainforest spans 69 million hectares, covering 60 percent of Peru's total land area (Piu and Menton). Although Peru historically has had lower rates of deforestation than neighboring countries like Brazil, deforestation has

accelerated in recent years. Between 2001 and 2014, 1.65 million hectares of forest have been lost (Piu and Menton). According to Peru's Forestry and Wildlife Law of 2011 (Law No. 27308, Article 7), it is illegal to engage in any activity that affects forest coverage on land deemed most suitable for maintaining standing forest ("Deforestation…," p. 8). However, profit-oriented companies are often the ones funding land classification, resulting in primary forest areas classified as suitable for agriculture or other development projects and thus deforested. Moreover, weak law enforcement enables illegal developers in the logging, mining, and agricultural industries to pursue deforesting projects that further segment the rainforest. In total, both government-approved and illegal development projects are responsible for less than half of the damage. Most deforestation is due to small-scale migrant farming. From 2000 to 2009, for instance, about 75 percent of the forest cleared was on plots of one-half hectare or less (Gutierrez-Velez and MacDicken).

Small-scale farming creates such a large impact because it is common for small farmers to migrate, slashing and burning small plots of land every three to five years to raise subsistence crops for their families. There is some disagreement about the factors underlying slash-and-burn forestry. According to Ravikumar and colleagues (p. 3), much slash-and-burn forestry is a traditional, sustainable form of agriculture cyclic agroforestry, which involves growing a sequence of ground and tree crops and then letting fields lay fallow every few decades to regain fertility. The prevailing view, however, is that in recent years a majority of small farmers are landless migrants, often seeking refuge from the even greater poverty in Peru's mountain regions. The population influx to the jungle means that fallow fields cannot adequately rejuvenate before the next migrants move in, perpetuating the slash-and-burn cycle ("Conservation…"). To fund other necessities, many of these farmers grow cash crops, like coca,[1] or partake in smaller-scale illegal logging or mining operations.

Although small-scale farming leads directly to the most hectares of forest cleared, migrant farmers often slash and burn near areas of the jungle already segmented by larger deforesting projects. From 1999 to 2005, for instance, three-fourths of all deforestation and forest degradation occurred within 20 km of a road (Piu and Menton, p. 12). In general, the Peruvian government views the lack of infrastructure in rainforest areas as an obstacle to development. Agricultural, mining, private, and other interests push for development projects to maximize economic gain without prioritizing the environmental upkeep to sustain those industries in the long run. These deforesting development projects can occur legally because of the legislative ambiguity surrounding land classification and in turn open up areas for further small-scale agricultural deforestation.

Land Classification

Currently, the Ministry of Agriculture (MINAGRI) is in charge of classifying land through a process called best land use capacity (BLUC). BLUC classifications determine whether land is most productive when used for various types of cultivation, forestry, or protection ("Deforestation…," p. 8). However, BLUC assessments are based on the "climactic and soil characteristics" of land, without necessarily considering whether that land is currently covered by rainforest. Thus, if a forested area is deemed most suitable for cultivation, it could be sold as a concession to a plantation developer and deforested. BLUC assessments are subject to bias, often funded by the very companies pursuing development projects, and few subnational governments have the resources to verify their accuracy ("Deforestation…," p. 4). In this way, Peru's government condones deforesting projects like mining and agricultural plantations.

The Peruvian Ministry of the Environment (MINAM) has a different agenda, establishing several policies in hopes of achieving zero net deforestation by 2020. In the time since MINAM was created in 2008, the agency has implemented a more thorough process, *zonificación ecológica económica* (ecological and economic zoning [ZEE]), to classify forestlands as suitable for economic

[1]Coca is the main ingredient in cocaine, of which Peru is a leading producer.

activity or conservation. Theoretically, MINAM develops ZEE plans in coordination with regional governments, and only already deforested regions are allotted for agricultural or mining projects. In practice, however, ZEE plans are subordinate to the BLUC classification procedure. MINAM's lack of power relative to other government sectors prevents environmental concerns from getting adequate consideration in land use decisions. These conflicting policies at the national level are inherited by subnational governments that are ill equipped to deal with them (Gustafsson). Without adequate human and financial resources at the subnational level, regions are also susceptible to illegal deforestation from logging, gold mining, and other industries. To understand how these issues play out, I examine the current ownership and management of Peru's rainforest land.

Current Land Usage

Approximately 20 percent of the rainforest in Peru is owned by communities or reserved for indigenous populations, who generally seek to keep the forest intact. Nearly all the remaining forestland is owned by the Peruvian national government. Protected areas account for about 26 percent of the rainforest; and, although protected areas can be vulnerable to illegal deforesting activities, in general they have much lower rates of deforestation. Another 23 percent of the rainforest is classified as "production forest," sold as concessions for logging, non-timber forest products (NTFPs), ecotourism, and other economic activities. Much of the remaining forest area, around 22 percent of the total, remains uncategorized. Uncategorized lands suffer disproportionately high rates of deforestation from small-scale agriculture, accounting for about 44 percent of total deforestation, because there is no single entity officially responsible for their care (Kowler et al., p. 8). Further deforestation is imminent if these lands are classified as suitable for agriculture, because not included in these figures are the 690,515 hectares of already deforested land currently used for agriculture (Kowler et al., p. 7). Most unclassified lands should be preserved, titled to local communities, or classified for ecologically friendly forms of forest production, like sustainable NTFP extraction (discussed later).

Much unclassified land is concentrated in the northern region of Loreto and other remote areas lacking studies to determine BLUC assessments. Although large-scale deforestation is relatively rare in Loreto, the region nevertheless experiences a significant amount of total deforestation. For example, in 2010–2011, Loreto suffered more deforestation than any other region in Peru, about 36,200 hectares of forest (Piu and Menton, p. 9). The deforestation problem on remaining unclassified lands suggests that it is important to complete land classification as quickly as possible, but under the current political atmosphere, completing land classification will not be enough. Even if all the remaining land were classified, legal deforestation would continue. In the next section, I discuss how legislative ambiguity creates a political environment that promotes large-scale deforestation and problems that subnational governments inherit.

Problems with Decentralization

On the surface, Peru's regional governments seem like influential institutions. Peru is divided into 25 regions, which are further divided into two levels of local government: provinces and districts. According to the Decentralization Law (Law No. 27783) passed in 2002, provinces and districts share responsibility for environmental protection and conservation (OECD, p. 150). Regional governments grant land rights and concessions, thereby authorizing changes of land use, approving forest management plans, and ensuring that national forest policies are followed (Gustafsson). Theoretically, regional and national governments also share responsibility for promoting productive employment at all levels and for management and regulation of economic activities like agriculture and tourism (OECD, p. 150).

In practice, subnational governments are limited in their ability to carry out their responsibilities. In part, this is because the different national sectors of government lack coordination. For example, the Regional Government Law (Law No. 27867, Article

53) states that regional governments under the supervision of MINAM coordinate with local governments to perform *ordenamiento territorial* (territorial planning/land use planning [OT]). Combining ZEE and OT in theory would create a cohesive process that accounts for environmental, economic, and social impacts before classifying land. Provincial governments under the supervision of the Ministry of Housing, however, are responsible for a process similar to OT, called territorial conditioning, which often is not coordinated with ZEE-OT; yet, they are charged with determining land use at the district level. Complicating matters further, it is not uncommon for these sectors of the government, as well as for the different local governments within a region, to use different databases and spatial information when creating their plans. Finally, regardless of what conclusions OT and conditioning lead to, their decisions come second to other financial interests. If a private company can get the land classified through BLUC as best used for agriculture, then MINAM and regional governments can do little to stop the resultant development and deforestation (Gustafsson).

Legislative Loopholes

Recent controversy in the agriculture industry provides an illustration of how these problems play out. Despite the export value created by agricultural plantation products, Peruvian national policy prohibits granting agricultural concessions in regions of healthy forest. Even agroforestry plantations that are theoretically better at preventing soil degradation can still create devastating consequences for biodiversity. Thus, agricultural concessions are to be granted only in areas already heavily degraded or deforested. However, some plantation developers purchase concessions from local governments in regions that are supposedly deforested but actually contain expanses of primary forest. Others are so deterred by the concession process that they ignore it and start clearing fields for plantations illegally. By the time Peruvian officials reach plantations in these remote areas of the jungle, it is often unclear whether plantation owners cleared the land illegally or whether it had been deforested beforehand.

One such plantation was developed in the northern region of Loreto by Cacao del Perú Norte,[2] a division of the Cayman Islands–based company United Cacao. United Cacao claimed to use a sustainable planting strategy, developing plantations only in areas already heavily degraded and thus suitable for agriculture (Cannon). In reality, the company chopped down more than 2,000 hectares of primary forest between 2012 and 2014, creating tensions with indigenous groups who occupied the land (Finer et al.). In 2014, the Peruvian government ordered United Cacao to stop developing the plantation because the surrounding land and water resources were suffering and significant amounts of greenhouse gasses were being released (Cannon). The next year, Peruvian courts ruled that United Cacao was acting legally because it claimed that it only cultivated lands that were already degraded, thus most appropriate for agriculture. Satellite studies confirmed that the plantations were indeed developed in areas no more degraded than any average stretch of rainforest, with about 98 percent of forest cover still intact (Finer and Novoa, 2015). Companies like United Cacao have used this loophole of classifying nearly intact forest as suitable for agriculture to get away with clearing hundreds of hectares of primary forest. Although representatives from MINAM are trying to complete environmental studies satisfactorily before plantation development begins, as of March 2016, adequate enforcement of these policies was lacking. United Cacao continued to cut down primary forest, arguing that its method of cacao production was sustainable and expecting the public to forget that the eradicated forest had been healthy and longstanding (Erickson-Davis).

Like the communities affected by Cacao del Perú Norte, many Amazonian residents have suffered the consequences of unclear forestry legislation. Although indigenous populations and other communities currently manage approximately 20 percent of forested land, they occupy much more. In 2009, indigenous peoples' dissatisfaction worsened when

[2]Peru is a leading producer of cacao, the main ingredient in chocolate.

President Alan García bypassed the legislative process to make a free trade agreement with the United States. This agreement aimed to boost the economy, restructuring land rights in the jungle to make more land available for foreign oil, mining, and livestock investment opportunities. However, the agreement's open-ended forest protection clause essentially consisted of each party promising to try its best to protect the environment. This loose legislation resulted in primary forestlands once controlled by indigenous populations auctioned off to foreign investors (Barrera-Hernánez).

Improving the System

To address problems like illegal clearing and indigenous peoples' dissatisfaction that are created by legislative ambiguity, territorial governments are pressuring the national government to pass a central ZEE-OT law. This law would unify the current policies surrounding land use, requiring decisions to be made from a political process that recognizes the differing priorities of subnational and national governments and then comes to a solution. Naturally, mining, agricultural, and private interests are opposed; thus, ZEE-OT plans continue to be non-binding and have limited power to determine how land is used (Kowler et al., p. xii). Nevertheless, the Peruvian government has made multiple efforts to integrate the priorities of different sectors. In 2011, Peru created the National Center for Strategic Planning (CEPLAN) to improve decentralized planning and coordination between sectors. Unfortunately, CEPLAN lacks the resources to successfully moderate all the interests of different sectors and subnational governments. At the subnational level, Peru has sought to increase coordination by creating regional environmental commissions (CARs) and local environmental commissions (CAMs). Although intended to promote coordination between private and public stakeholders and civil society organizations, CARs and CAMs have limited effectiveness. In one study, community members from Madre de Dios, Ucayali, and San Martín said that their CARs did not meet often and lacked a diverse array of actors, specifically in the mining and agricultural sectors (Kowler et al., p. 41).

Although tensions between conflicting interests of different sectors are inevitable, Peru needs a clearer division of power at the national level and a better working relationship between government sectors. By passing unified legislation that details the process for land allocation and prioritizes ZEE-OT over BLUC classification decisions, Peru can move past the conflicting rulings of different sectors. Such a process involves strengthening coordinating bodies like CEPLAN, CARs, and CAMs and guaranteeing that all relevant sectors are participating. Finally, it should enable and require all these actors to use one unified database system when weighing in on land use decisions.

Collectively, political efforts to reduce deforesting development projects will have a minimal impact on reducing overall deforestation. In relative terms, the implications of these projects are what lead to most deforestation. Large-scale clearing, especially when done without benefits flowing to Amazonian inhabitants, opens up forestland to the small-scale agriculture that accounts for 60 to 75 percent of deforestation (Ravikumar et al.; Gutierrez-Velez and MacDicken). Thus, it is essential for Peru to restrict extensive further expansion while allowing agricultural, private, mining, and other interests to profit as much as possible. Because small-scale agriculture results in the most deforestation, in the next section I make a case for an alternative, sustainable industry.

Sustainable Alternatives

The government of Peru is on board with alternative development options to counter deforestation from small-scale agriculture, especially that resulting from migrants' dependence on illegal coca production. From 2007 to 2011, Peru steadily increased funding for alternative development and counter-narcotics programs. However, each year the amount of funding used has significantly lagged behind the total amount of funding allocated. For example, in 2010, more than $30 million was allocated for alternative development and counter-narcotics programs, but less than $20 million was spent. This gap suggests that

Peru's National Commission for Development and Life Without Drugs (DEVIDA), along with regional and local governments, requires targeted technical assistance to effectively utilize funding (United States Agency for International Development/Peru, p. 23). The abundance of funding allocated for alternative development should in part be used to ensure that DEVIDA and subnational governments have the capacity to use their funding to complete alternative development projects. Although many current alternative development projects promote cultivating agroforestry crops like coffee and cacao, some experts suggest that harvesting naturally occurring tree crops can be an even more economically and environmentally beneficial alternative. Because the northern region of Loreto is especially affected by deforestation from small-scale farmers, I discuss an example of how forest products produced by the jungle in Loreto can provide a sustainable alternative.

Loreto is a vast lowland river basin containing an abundance of forest fruits, seeds, and other tree products, many of which are already harvested for small-scale consumption or are useful in medicinal remedies and cosmetics. A few of these NTFPs have become widely popular, much to the benefit of the forests where they originated. The palm fruit agauje, for instance, already plays a key role in sustaining the communities around Iquitos, a city in Loreto. There, between 20 and 50 tons of fruit are consumed daily (Smith and Venegas; Bloudoff-Indelicato).

Because aguaje and many other NTFPs perish so quickly, they are primarily consumed in cities close to where they are harvested. However, if companies were to invest in strategic processing facilities, such as in boats that sail along the rivers to visit communities, NTFPs could reach the growing international market for sustainably sourced goods. When a fruit can be identified as already popular within the local community, can be produced or harvested sustainably on a large scale, and has outstanding nutritional or flavor qualities, it is sometimes called a "Cinderella fruit," demonstrating potential to be the next supermarket success. For example, consider the açaí industry in Brazil. Although the nutritious açaí berry had been a staple of the Brazilian Amazonian diet for centuries, it was perishable within a day, thus little known elsewhere. In the 1990s, when producers discovered that the berry held its outstanding nutritious qualities if frozen and sold as pulp, it gained popularity throughout the U.S. and Europe. The industry now employs more than 30,000 people in Brazil, and much of the açaí is wild harvested sustainably ("Açaí").

Aguaje could be the next açaí. The aguaje palm is already prolific and distributed throughout the Amazon basin. A single tree can produce over 10,000 fruits a year, and its pulpy orange flesh is rich in phytoestrogens, vitamins, and minerals. Harnessing the potential of aguaje and other NTFPs could provide a valuable alternative to communities that now rely on subsistence farming but only if the industries are developed with social and environmental responsibility in mind.

Overcoming Obstacles

Currently in the aguaje industry, most of the profits benefit intermediaries who sell the fruits in Iquitos rather than the harvesters themselves (Penn and Neise). In Brazil, similar problems were remedied when households adopted trade partnerships for NTFP commercialization (Morsello et al.).

Another problem is that much aguaje harvesting is done in an unsustainable way. Because aguaje palms grow tall and straight, the trees are often cut down to access the fruit at the top. In many regions, there is an annual "race for aguaje," where people in the Amazon compete to harvest the fruit before their neighbors get to it. Thus, every year the harvestable trees are farther and farther away (Penn and Neise). To prevent communities from cutting down primary rainforest trees, there are several initiatives to help farmers grow shorter aguaje palms on monoculture plantations. Although plantations enable farmers to harvest aguaje on trees left standing, monoculture plantations are prone to diseases, lead to soil degradation, and disrupt the surrounding ecosystem. For example, although 44 percent of the world's species of birds can be found in the Amazon rainforest, less than five percent of those species can survive on the oil palm

plantations that also replace primary growth forest throughout Peru (Srinivas and Koh). With the right resources, communities can learn to harvest wild aguaje and other NTFPs in a sustainable way that eliminates the need for domesticated aguaje plantations.

With the help of partners to provide capital and education, communities can develop ways to harvest forest products in profitable and sustainable ways. For example, in the community of Roca Fuerte in the central Peruvian Amazon, the Center for the Development for an Indigenous Amazon (CEDIA) has hosted workshops to teach a new method of harvesting wild aguaje without cutting down the palms. The technique enables a harvester to quickly climb aguaje trees and harvest the fruit in just 30 minutes per tree. To promote this method of sustainable harvesting, Roca Fuerte starting declaring nearby regions protected areas, prohibiting the destruction of aguaje trees. Every month, policy enforcers visit the areas to check on the health of the community and forest (Manzi and Coomes). Although harvesting NTFPs can provide a viable alternative to subsistence farming, the harvesting must be done on a limited scale so that the flora of the forest can regenerate. As the industry expands, it is essential to verify that companies are buying NTFPs only from sellers who are following regulations to harvest sustainably. Because the NTFP harvest is limited in scale and requires high shipping costs, many companies have been deterred by the high prices of wild-sourced goods. There are several options to improve the economic viability of an expanded NTFP industry.

The first key factor in increasing the potential of the industry is creating ways for NTFPs to be processed locally. Like the quickly perishing açaí berry that did not achieve popularity until it was discovered that it could be locally processed into a frozen pulp, many other NTFPs cannot reach high-paying markets without similar processing. Some companies are already taking advantage of strategic processing facilities. The Peruvian beer company Backus, for instance, owns a floating processing plant to pulp and freeze the flavorful camu camu berry to use in beverages. With this mobile plant, the company can reach remote areas of the jungle via rivers and maintain a high-quality harvest (Panduro and de Jong, p. 270). Although large companies like Backus have been successful, the expense of shipping the frozen pulp prevents many markets from accessing NTFPs.

Thus, investors and others interested in alternative development should explore ways to process NTFPs that result in lower shipping costs. Rather than pulping and freezing fruits, for instance, companies might invest in drying or aseptic[3] packaging plants. Dried fruit has a higher value per weight—Peru can look to Honduras for a dried fruit success story. There, village-level drying facilities each produce more than ten tons of dried fruit per season, last for ten years, and cost only $5,000 to $10,000 to build. Aseptic processing plants are another excellent option. Aseptic processing creates shelf-stable fruit concentrates. Like drying, this method produces products with less water weight that do not require freezing. Moreover, like freezing and pulping facilities, aseptic processing plants can be mounted onto barges and floated to sources of fruit in remote areas. Because many forest fruits have short, intense seasons, floating aseptic processing plants can sail along the many Amazonian rivers, working with local people to harvest and process the in-season NTFPs (Clay and Clement).

Another way companies can increase the potential of the NTFP industry is by taking the natural sugar percentage of fruits into greater consideration. Currently, most Amazonian forest fruits are chosen for their strong, unique flavors that can be diluted when they reach their destination. Instead, some researchers suggest that it makes more sense to prioritize the sugar concentration of fruits. Choosing fruits with high sugar concentrations would save time and money because a higher sugar concentration means less water in the resulting pulp. Thus, the overall weight is reduced and the product is less expensive to ship. As the authors suggesting this method put it, “It makes no sense to ship frozen water halfway around the world” (Clay and Clement). By studying ways to optimize NTFP processing

[3]Aseptic processing methods expose a product to a quick burst of heat to minimize the chance of contamination from microorganisms.

and minimize shipping costs, investors can benefit immensely from the wealth of naturally occurring products in the jungle. By working with rainforest populations to harvest these goods sustainably, the NTFP industry can one day eliminate reliance on slash-and-burn agriculture.

Conclusion

Peru's rainforest ecosystem and the communities that depend on it have much to gain if industries in the Amazon can be developed in a sustainable way. The two key factors in promoting sustainable development in Peruvian Amazonia involve clarifying national policies and developing alternative industries to equitably benefit Amazonian communities. Government sectors and subnational governments should coordinate their efforts to create a common vision about the value of the rainforest. Then, Peru can create a unified legislative procedure for determining land use that moderates the needs of all relevant interest groups and finish land classification as soon as possible. When allocating resources to subnational governments, Peru should emphasize training programs so that regional and local governments have adequate technical capability to take advantage of those resources. In this way, the country can ensure that new legislation will be implemented. The aim of such a political environment is to minimize further development projects that segment primary forest and open it to deforestation from slash-and-burn agriculture.

As Peru relies less on industries implicated with deforestation, it will need to help people in Amazonian communities develop alternative ways to make a living. For instance, in the lowland river basin of Loreto, where slash-and-burn agriculture is especially prevalent, public and private interests could partner with local communities to sustainably harvest NTFPs and process them locally, thereby minimizing shipping costs, whether by implementing new types of processing or by using new criteria for choosing which NTFPs to process. By creating a collective wisdom about the value of the rainforest and sustainable alternatives to deforesting industries, Peruvians can utilize rainforest resources without sacrificing the jungle on which they depend. Sustainable development of the Amazon rainforest is essential for improving the lives of jungle communities now and saving the rainforest for generations to come.

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