BOSTON UNIVERSITY Global Development Policy Center

Standardizing Sustainable Development?

Development Banks in the Andean Amazon

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Global Development Policy Center

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Section 1: EXECUTIVE SUMMARY

The Andean Amazon basin is experiencing a surge of infrastructure investment that is financed by development banks often headquartered thousands of miles away. Regardless of the environmental and social risk management (ESRM) systems deployed by these projects, the surge has been associated with furthering environmental degradation and triggering social conflict in an area that can scarce afford it. The overall lack of effective ESRM frameworks is not only inconsistent with the goal of calibrating development bank finance toward the Sustainable Development Goals and the Paris Climate Agreement; such shortcomings also pose a number of costly risks to development banks as well.

These are the findings of a multi-year, interdisciplinary study carried out by economists, political scientists, ecologists, geographers, and engineers from Boston University's Global Development Policy Center, the Universidad del Pacífico in Lima, Peru; the Facultad Latinoamericana de Ciencias Sociales in Quito, Ecuador; and the Instituto de Estudios Avanzados en Desarrollo in La Paz, Bolivia. Through cross-cutting statistical analyses and four country studies (in Ecuador, Peru, Bolivia, and Brazil), the team collectively examined the extent to which international development finance institutions (DFIs: multilateral development banks as well as export credit agencies and national development banks operating abroad), host country governments, and civil society deployed ESRM frameworks to ensure that infrastructure projects bring shared economic benefits to nations while mitigating risks to ecosystems and communities. Among our major findings:

The Andean countries of Ecuador, Peru, and Bolivia—and particularly the regions of those countries within the Amazon basin—are currently experiencing an infrastructure boom. From 2000 to 2015, fewer than half of the 60 international DFI projects in Ecuador, Peru, and Bolivia were in the Amazon basin. Roughly an equal number of international DFI projects have moved forward since 2016 in these countries, and over $70 billion in total infrastructure projects are planned for the Amazon basin overall.

The infrastructure boom is characterized by an increasing share of Chinese policy banks, which are relative newcomer DFIs with ESRM strategies that are largely deferential to host country standards. There are signs of a trend where host country governments seek out financing from newcomer DFIs for especially risky projects. A deferential approach can falter when host countries do not enforce those regulations and thus leave Chinese DFI's overly exposed to social, environmental, political, and reputational risks.

The Andean infrastructure surge has been associated with significant environmental degradation. From 2000 to 2015, the perimeters of international DFI-financed infrastructure projects in the Andean countries of Ecuador, Peru, and Bolivia experienced tree cover loss at a rate of over four times the average in comparable areas without projects in these countries. That infrastructure-associated tree cover loss is equivalent to 209.5 million metric tons (MMT) of CO2 emissions, roughly the equivalent of the annual emissions of Colombia, Chile, and Ecuador combined, and leading to an estimated social cost between $2.1 and $10.5 billion. Such degradation is due to the direct impacts of the projects as well as indirect impacts such as illegal mining that can follow official opening of the forest.

The surge has also been marked by social conflict. Every case study covered by this project suffered from setbacks due to conflicts produced by community displacement, water contamination, and labor conditions that did not meet national legal standards or ESRM frameworks.

The various social and economic risks we identified with these projects also often jeopardized the economic goals and outcomes of the projects themselves. The case studies show that social and environmental problems often led to project delays, significant reputational damage, and in one case study—the Inambari dam in Peru—the cancellation not only of that project but of the larger multi-dam initiative of which it was to be the first.

How did ESRM frameworks fail to prevent these project-endangering damages? This project uncovers three core areas in which international DFIs and national governments commonly fell short of implementing their stated safeguards and risk management strategies: inadequate stakeholder engagement, environmental impact assessments (EIAs), and project transparency and oversight. However, the project also shows that when development banks, governments, and communities work together to actively prioritize these areas, they have mitigated the damage.

Specifically: Incorporating stakeholder engagement early in the project development process can help protect against environmental degradation. For example, projects that took place within regulatory frameworks that guaranteed access to prior consultation for affected indigenous communities were associated with significantly less deforestation than those projects that did not. However, projects that neglected to heed communities' needs were associated with greater environmental damage, serious social conflict, and the loss of millions of dollars of potential business for DFIs due to relationship and reputation damage.

Pursuing comprehensive environmental impact assessments (EIAs) can alert international DFIs and national governments to a variety of risks—especially when they are built into the upstream parts of the planning process. Every DFI active in the Andean Amazon Environmental damage can be serious even when it is indirect, brought about through new migration into sensitive territories. When DFIs and governments limit the scope of EIAs, they may expedite project planning in the short term, but in doing so they leave themselves vulnerable to unforeseen environmental, social, and political risk. For example, Peru's Southern Interoceanic Highway was financed in segments, with multiple DFIs and separate EIAs for each segment. As a result, the overall impact of the project as a whole was not taken into account.

Policies and processes related to ESRM need to emphasize transparency and accountability, with built-in measurement and monitoring instruments. Where project plans or follow-up reports are inaccessible, stakeholder participation becomes impossible. Nor is it realistic to expect commitments to be fulfilled if stakeholders cannot monitor progress. Where contractor obligations are not set forth clearly, and where a lack of transparency prevents civil society from monitoring outcomes, performance can easily fall short of commitments, leaving communities with unmet needs in employment, safety, and even access to infrastructure itself.

These methods are far too onerous for any one party to take on alone. Our work suggests that mutually-reinforcing networks of project planning and oversight between international DFIs, national governments, and civil society are needed.

DFIs face social and environmental risks that can be mitigated by early identification, consideration, monitoring, and engagement. While some DFIs have built-in ESRMs, others rely on host country standards and would benefit from upstream understanding and incorporation of those standards.

Governments have social and environmental standards that reflect the priorities of their citizenry but often need institutional capacity assistance to successfully implement these standards, as well as accountability mechanisms to ensure that these standards are met.

Civil society has specialized knowledge and capacity to improve project outcomes through their input, but need greater transparency in order to participate in the project process. Communities have intimate knowledge of local terrain and cultural or workplace expectations, and academic scholars can contribute cross-cutting research, but both of these groups need inclusion into the project planning process.

The challenge of uniting the strengths of these actors and addressing their gaps may require the

involvement of regional platforms such as COSIPLAN (the South American Infrastructure and Planning Council, comprised of ministers of infrastructure and/or planning from UNASUR countries), or barring such initiatives, the leadership of international DFIs, whose scope of work allows for information sharing across networks of related projects. Through case studies and analysis, our work shows that only by working together, early in the project planning processes, can these actors successfully navigate the many risks intrinsic to infrastructure building in the Andean Amazon region and beyond.

Section 2: INTRODUCTION

Over the last 15 years, the Andean Amazon has seen a stepwise increase in infrastructure projects, especially in areas that contain high levels of biodiversity and indigenous territory. However, the Andean nations and international development finance institutions (DFIs: multilateral development banks as well as export credit agencies and national development banks operating abroad) involved with these projects have also enacted ambitious social and environmental protections. This combination of events raises the question: to what extent have international DFIs, national governments, and civil society deployed environmental and social safeguards to ensure that infrastructure projects bring shared economic benefits to nations while mitigating risks to ecosystems and communities?

Tropical forests, when they suffer tree cover losses, can drive climate change by becoming net sources of CO2 emissions, rather than mitigating it through their traditional role as ecological sinks for the world's carbon pollution. Though seemingly a source of clean energy at first glance, hydroelectric power plants in tropical forests can accentuate climate change significantly. Comprehensive reviews of estimates find that topical hydroelectric plans can emit up to 2 to 3 times more emissions than gas, oil, or coal plants (Barro et al, 2011; Steinhurst et al, 2012). This is due to the fact that methane emissions are more potent from tropical dams, and because new roads and infrastructure sprout as a result of these dams, causing further carbon-emitting deforestation (Fearnside, 1997; 2012; 2015).

Infrastructure expansion, such as paving roads through wilderness areas, often generates severe impacts on ecosystems and species, ranging from deforestation to illegal mining and land speculation (Laurance et al., 2015). Projects relating to natural resource exploitation have similar environmental impacts. Huge changes caused by large dams can lead to the loss of aquatic biodiversity, coastal erosion, and other problems. These environmental impacts are exacerbated when local regulations are relatively weak. For example, in the Brazilian Amazon, every kilometer of legal road in wilderness areas is often accompanied by three kilometers of illegal roads (Barber et al., 2014). Even improvements of local roads and highways may exacerbate the negative impacts because better road conditions facilitate more and faster traffic in sensitive areas, which in turn, increase the likelihood of road kill of animals (Benítez-López, Alkemade, and Verweii, 2010; Laurance, Goosem and Laurance, 2009). Similar impacts can be found around large hydroelectric plants and mining projects in remote areas, as they often depend on the construction of roads and power transmission networks.

Beyond its role in mitigating climate change, the Amazon rainforest also plays a crucial role as the home and the source of livelihood for forest-dwelling people. As Seymour and Busch (2016) state, tropical forests serve a dual purpose of mitigating climate change and supporting human development. Recent estimates suggest that approximately 1 million indigenous people currently live in the Amazon basin, though these estimates are imprecise by their nature (GITPA, 2005; Heck, Loebens, and Carvalho, 2005; INE, 2011; INEI, 2016; Kambel, 2007; Renshaw, 2007; Reyes and Herbas, 2005; SIAT-AC, n.d.). In addition, tens of thousands of rubber-tapping seringueiros, Maroons, and others depend on intact forests for hunting, fishing, and gathering. Deforestation and tree cover

loss within the Amazon basin has often been associated with displacement of these traditional communities. For example, Brazil's Polonoroeste highway project, financed in part by the IBRD and IADB in the early 1980s, resulted indirectly in the arrival of approximately a half-million new settlers into the Amazon rainforest, displacing existing communities. The resulting social conflict garnered international attention and inspired both the IBRD and IADB to adopt new safeguards, ushering in the modern era of ESRM in DFIs (Blanton, 2007; Eckholm, 1984; Rich, 1994).

The social role of intact forests is especially important in the western Amazon region studied here. The area on both sides of the border of Brazil with Peru and Bolivia is known as the "uncontacted frontier," as it is home to the world's highest concentration of uncontacted and voluntarily isolated indigenous communities (Survival International, n.d.). While social conflict is frequently a risk whenever new sections of the Amazon are opened to development, in the case of the uncontacted frontier the risks are even higher, as uncontacted tribes by definition have not been exposed to many diseases common in other areas (Shephard et al., 2010; Kimmerling, 2008). Both socially and environmentally, then, tropical forests—and especially the Andean Amazon—are indispensable. For that reason, it is important to examine whether the ESRM strategies employed by international DFIs and national governments are effectively ensuring sustainable, broadly-shared development.

Given how high the stakes are for the environmental and social outcomes of infrastructure projects in this region, a team of researchers from four countries has examined the role of DFI safeguards and national regulatory frameworks, through a series of case studies and statistical research, as listed in Table 1.

TABLE 1: National and Regional Research Contributing to This Project

Country	Authors	Scope of Analysis
Regional	Kevin Gallagher and Fei Yuan, Boston University	Comparative typology of ESRM strategies across international DFIs active in the region
Regional	Rebecca Ray, Boston University	Statistical analysis of deforestation surrounding infrastructure projects
Bolivia	Lykke Andersen, Susana del Granado, Agnes Medinaceli, and Miguel Antonio Roca, Instituto de Estudios Avanzados en Desarrollo (INESAD)	Case studies of three highways: La Paz-Oruro (CAF) Montero-Yapacaní (IADB) San Buenaventura-Ixiamas (World Bank)
Brazil	Julie Klinger, Boston University	Case study of the Stonipë Ioway ecotourism project (Fundo Amazonia)
Ecuador	María Cristina Vallejo, Betty Espinosa, and Francisco Venes, Facultad Latinoamericana en Ciencias Sociales (FLACSO)	Case studies of two dams: Baba Multipurpose Dam (IADB initially, though this participation was later cancelled) Coca-Codo Sinclair Dam (China ExIm Bank)
Peru	Juan Luis Dammert Bello, Universidad del Pacífico	Case studies of the CVIS Highway (CAF) and the Inambari Dam (cancelled, though originally expected to be financed through BNDES)

Four in-depth qualitative case studies provide the core of this project, exploring the role of national government and DFIs' ESRM policies in the environmental, social, and economic outcomes of individual infrastructure projects in Bolivia, Brazil, Ecuador, and Peru. In each case study, authors

used a variety of qualitative research methods, including field visits, focus groups with key stakeholder groups, and semi-structured interviews with representatives of government ministries, DFIs, project contractors and civil society groups, as well as archival and legal research. In Ecuador, María Cristina Vallejo, Betty Espinosa, and Francisco Venes investigated the histories of the Coca-Codo Sinclair Dam, financed by the Export-Import Bank of China, and the Baba Multipurpose Dam, originally financed initially by the IADB (Inter-American Development Bank, though the IADB later cancelled their participation in the project). In Peru, Juan Luis Dammert Bello researched the performance of the Corredor Vial Interoceánico del Sur (CVIS) highway, routes 2-4, financed by CAF (the Development Bank of Latin America), and the Inambari Dam, initially expected to be financed by BNDES (Brazil's National Bank for Economic and Social Development), though the project's cancellation meant that BNDES was never formally involved. In Bolivia, Lykke Andersen, Susana del Granado, Agnes Medinaceli, and Miguel Antonio Roca explored three highway projects: one from La Paz to Oruro, financed by CAF; a second from Montero in the outskirts of Santa Cruz to Yapacaní on the way toward Cochabamba, financed by IADB; and a third from San Buenaventura to Ixiamas in the northwestern Bolivian Amazon, financed by the World Bank. Finally, as a separate, contrasting case, Julie Klinger worked with the planning process for the Stonipë Ioway ecotourism project, funded through the Fundo Amazonia, a BNDES-managed fund for participatory sustainable development projects.

On a regional level, Kevin Gallagher and Fei Yuan conducted a Latin America-wide study of all international development finance for infrastructure in Latin America, developed the typology of ESRM strategies in those DFIs that is explained in the following section, and explored the position of Chinese policy banks among all international DFIs in the region. Their results show that Chinese policy banks have a more deferential approach to ESRM than most of their peers, and a smaller emphasis on "green infrastructure" projects such as renewable energy sources. Separately, Rebecca Ray used satellite data on tree cover change to determine the level of tree cover loss associated with each international DFI-financed infrastructure project in the Andean region from 2000 to 2015, and tested the relationship of these environmental outcomes with individual environmental and social safeguards associated with the projects. Her results show that projects conducted under regulatory regimes (from either national governments or DFIs) that require prior consultation with affected indigenous communities had significantly less tree cover loss than other infrastructure projects; formal grievance mechanisms—though important in other ways—do not appear to have a significant association with tree cover loss rates.

This paper synthesizes the results of these studies. The first section reviews the varying ESRM strategies across DFIs and how they have evolved over time. The second section shows the surge of infrastructure projects in the region since 2000, and the social and environmental impacts that have resulted. The third section delves into case studies, showing the obstacles to effective use of environmental and social safeguards in the projects examined here. Specifically, it highlights three areas of shortcomings that have emerged in our research: effective stakeholder engagement, comprehensive environmental impact assessments, and transparency and accountability for government, DFI, and implementing actors. A discussion section then draws lessons from all of the work presented here, concluding that these obstacles can only be overcome with the formation of mutually-supporting networks incorporating DFI, government, and community stakeholders.

Section 3: ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT in international development finance institutions and Andean governments

Environmental and social risk management (ESRM) has become a major focal point of reforms in international development finance institutions (DFIs) as well as among Andean governments, especially with regards to infrastructure projects. Over the last several decades, in response to campaigns by communities affected by projects, partnering with global NGOs, international DFIs and governments have adapted a series of environmental and social safeguards (ESS), "rules or institutions that help ensure that investments meet minimum social, environmental, and governance standards" (Larsen and Ballesteros, 2013). International DFIs can employ these safeguards at various stages of the project cycle: initial screening, due diligence prior to approval, the approval decision itself, and monitoring throughout project completion (Nolet et al., 2014). National governments can employ them through related ministries that oversee projects (including transportation, communication, or energy ministries), ministries that oversee government performance across sectors (such as labor, environment, and culture ministries), and, when problems arise, their judicial systems.

ESRM aims to bring significant benefits—and limit costs—for project stakeholders of all types, by ensuring that projects do not bring unforeseen environmental damage, social conflict, or governance misconduct. Correctly designed and implemented ESRM can help ensure that the economic goals of a project are met, that it is completed on time, and that the experience strengthens the capacity of all of the institutions involved, as Table 2 illustrates.

TABLE 2: Benefits of Effective ESRM

Stakeholder(s)	Benefits
Global	Equitable use of resources Enhancement of global public goods
Development banks	Greater project effectiveness Mitigation of environmental and social risk Realization of broader development goals
Borrower governments	Better management of natural resources Strengthened institutional capacities Mitigation of environmental and social risk Realization of broader development goals
Local communities	JEnhanced voice and ownership Reduced vulnerability Improved livelihoods

Source: Gallagher and Yuan (2017).

3.1 ESRM: Andean Governments

Over the last decade, Andean governments have enacted legislation that seeks to enhance environmental integrity and protect the rights of communities—especially indigenous

communities—affected by new development projects. New constitutions in Ecuador (2008) and Bolivia (2009) enshrine environmental conservation and sustainable development as key roles for the central government. Ecuador's constitution goes so far as to recognize rights for nature itself, effectively allowing all parties to sue on behalf of nature in cases of environmental degradation, without having to first show that their private property was damaged in the process (Art. 71). Peru established its Environment Ministry in 2008 and tasked it with overseeing national environmental policy and performance, and giving technical assistance in environmental management to national and sub-national governments.

Regarding the rights of indigenous communities, Ecuador, Peru, and Bolivia have all ratified the International Labour Organisation's Convention 169, the Indigenous and Tribal Peoples Convention of 1989. ILO 169 enshrines indigenous communities' rights to "decide their own priorities for the process of development as it affects their lives, beliefs, institutions and spiritual well-being and the lands they occupy or otherwise use, and to exercise control, to the extent possible, over their own economic, social and cultural development" (Art. 7). It calls on governments to "consult the peoples concerned, through appropriate procedures and in particular through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly" (Art. 6). Furthermore, all three countries have also approved the 2007 United Nations Declaration on the Rights of Indigenous Peoples, which states that "Indigenous peoples shall not be forcibly removed from their lands or territories. No relocation shall take place without the free, prior and informed consent [FPIC] of the indigenous peoples concerned and after agreement on just and fair compensation and, where possible, with the option of return" (Art. 10). These two rights—prior consultation and FPIC—play a crucial role in national treatment of indigenous rights regarding infrastructure projects.

All three of the governments studied here—Bolivia, Ecuador, and Peru—incorporated ILO 169 into their own national laws in the last decade. Bolivia's 2009 constitution specifically protects indigenous communities' right to "prior, informed consultation and participation in the benefits from the use of non-renewable natural resources in their territories" (Asamblea Constituyente de Bolivia, 2009, Art. 403, authors' translation). Ecuador's 2010 Citizen Participation Law states that the national government must consult with indigenous, Afro-Ecuadorean, and coastal Montubio communities regarding all decisions that might affect their environment (Asamblea Nacional del Ecuador, 2010, Art. 83). Finally, Peru's legislation (the 2011 Prior Consultation Law) is the most complete in this regard, codifying already-enshrined consultation rights by formally empowering communities' elected officials to negotiate on their behalf and laying out a seven-step process for the consultations (Congreso de la República, 2011).

3.2 ESRM: International DFIs

The international DFIs that operate in the Andean Amazon have developed a wide variety of their own ESRM approaches, as Table 3 shows. Multilateral development banks (MDBs) based in the global North (the World Bank and the Inter-American Development Bank) have honed their practices over decades of work, yielding high standards that are applied to each loan application, regardless of the varying national standards that may apply in different borrowing country contexts. They condition their loans on meeting harmonized global standards, so Table 3 refers to these DFIs as practicing a "conditional harmonization" ESRM approach. The public-sector lending windows of these DFIs (which Table 3 shows under their acronyms of IBRD and IADB) also can offer concessional financing and even grants for occasions where borrowing governments find themselves unable to meet those standards, so Table 3 refers to them as following a "capability enhancement" approach.

Table 3 calls the combination of these two characteristics—conditional harmonization and capabilities enhancement—"dark green" lending practices.

On the opposite end of the ESRM spectrum, developing countries' national development banks, when operating abroad, fit into a "light green" lending pattern. These DFIs usually recognize the standards used by borrowing countries, and they do not condition their loans on countries' ability to meet their own standards. Nor do they offer borrowers assistance in reaching their own standards. For that reason, Table 3 classifies them as following a "national recognition" approach with "capability deference."

Between these two extremes are the private-sector windows of the Northern-based MDBs (the International Finance Corporation and the Inter-American Investment Corporation), which practice conditional harmonization but do not offer capability enhancement. The other DFI between the "light green" and "dark green" extremes is the Development Bank of Latin America (CAF). CAF recognizes the national standards of each proposed project but offers concessional finance for public-sector borrowers that need help reaching their own standards: a national recognition strategy with capability enhancement.

TABLE 3: ESRM Approaches of International DFIs Active in the Andean Amazon

	National recognition	Conditional harmonization
Capability deference	Quadrant 1: light green BNDES CDB CHEXIM	Quadrant 2: yellow green IFC IIC US EXIM
Capability enhancement	Quadrant 3: blue green CAF	Quadrant 4: dark green IADB IBRD

Source: Adapted from Gallagher and Yuan (2017).

Table 4 explores these differences in more detail. All of the DFIs shown here require environmental impact assessments, and also require that projects meet host country environmental standards. Those with capability enhancement offer concessional loans when needed to help borrowing countries meet those standards. Those with conditional harmonization bring their own standards to bear as well, including prior consultation protections in all cases, and grievance mechanisms in most cases. Within the last decade, the IBRD, IADB, and IRC have also enacted requirements for projects to have the free, prior, and informed consent of affected indigenous communities before receiving approval, though too few projects have been completed under this framework to compare their outcomes to other projects across the board.

As the case studies discussed below show, there is no "one size fits all" approach that is appropriate for every project. CAF's approach of national recognition with capability enhancement has been crucial, at times, to give space to locally-specific priorities and building institutional capacity to

TABLE 4: Specific ESS of International DFIs Active in the Andean Amazon, by ESRM Category

	National recognition				Conditional harmonization				
	Capability deference			Capability enhancement	Capability deference			Capability enhancement	
	BNDES	CBD	CHEXIM	CAF	IFC	IIC	USEXIM	IADB	IBRD
Environmental Impact assessments	X	X	X	X	X	X	X	X	X
Host-country environmental standards	X	X	X	X	X	X	X	X	X
Assistance for meeting standards				X				X	X
International competitive bidding process				X	X	X	X	X	X
Formal prior consultation process					X	X	X	X	X
Formal prior consent (FPIC) processes					X			X	X
Grievance mechanism					X	X		X	X
Project-level grievance mechanisms					X				X

Sources: Adapted from Gallagher and Yuan (2017).

meet those priorities. At other times, the conditional harmonization of the IBRD expanded the scope of environmental considerations beyond what national law would foresee and manage indirect as well as direct causes of deforestation. Thus, while these "four shades" of green lending denote four different approaches to project oversight, they do not necessarily prejudge DFIs' ability to carry out successful projects.[1]

In this context of varying institutional ESRM frameworks, it is important to explore what recent experience can show regarding the efficacy of risk management reforms. This question is especially pressing now, in the midst of a boom in infrastructure building in the Andean Amazon, which has exacerbated environmental degradation and social conflict.

Researchers in four countries—Bolivia, Ecuador, Peru, and the United States—explored this question through quantitative analysis and in-depth case studies. In many cases, researchers found challenges obtaining information that might reasonably be expected to be public. Often, project EIAs were not initially public; DFI, country, and contractor representatives were initially unwilling or unable to discuss their decisions; and DFI records were incomplete. However, after over a year of fieldwork, the team has been able to find answers to the overarching research question, at both the local and the regional level.

[1] It is worth noting that these safeguards are not static. Several of the DFIs shown in Tables 3 through 5 have revised their ESRM strategies—and specific ESS—over the course of the time period covered in this paper. The World Bank in particular is revising its ESRM policies as of this writing. Thus, the ESS shown in Tables 3 through 5 reflect the state of their ESRM approaches as of this writing, though not necessarily during the time periods covered by the case studies discussed below.

TABLE 5: Specific ESS of International DFIs Active in the Andean Amazon, by ESRM Category

	National recognition				Conditional harmonization				
	Capability deference			Capability enhancement	Capability deference			Capability enhancement	
	BNDES	CBD	CHEXIM	CAF	IFC	IIC	USEXIM	IADB	IBRD
Environmental safeguards									
Pollution prevention	N/A	X	X	X	X	X	X	X	X
Biodiversity/natural habitats	N/A	N/A	X	X	X	X	X	X	X
Climate change mitigation	N/A	N/A			X	X	X	X	X
Social safeguards									
Rights of indigenous peoples	N/A	N/A		X	X	X	X	X	X
Involuntary resettlement of people	N/A	N/A		X	X	X	X	X	X
Labor, health, safety	N/A	N/A			X	X	X		
Cultural heritage	N/A	N/A		X	X	X	X	X	X

Section 4: AN INFRASTRUCTURE SURGE IN SENSITVE TERRITORY: triggering social conflict, accentuating environmental degradation, and jeopardizing economic goals

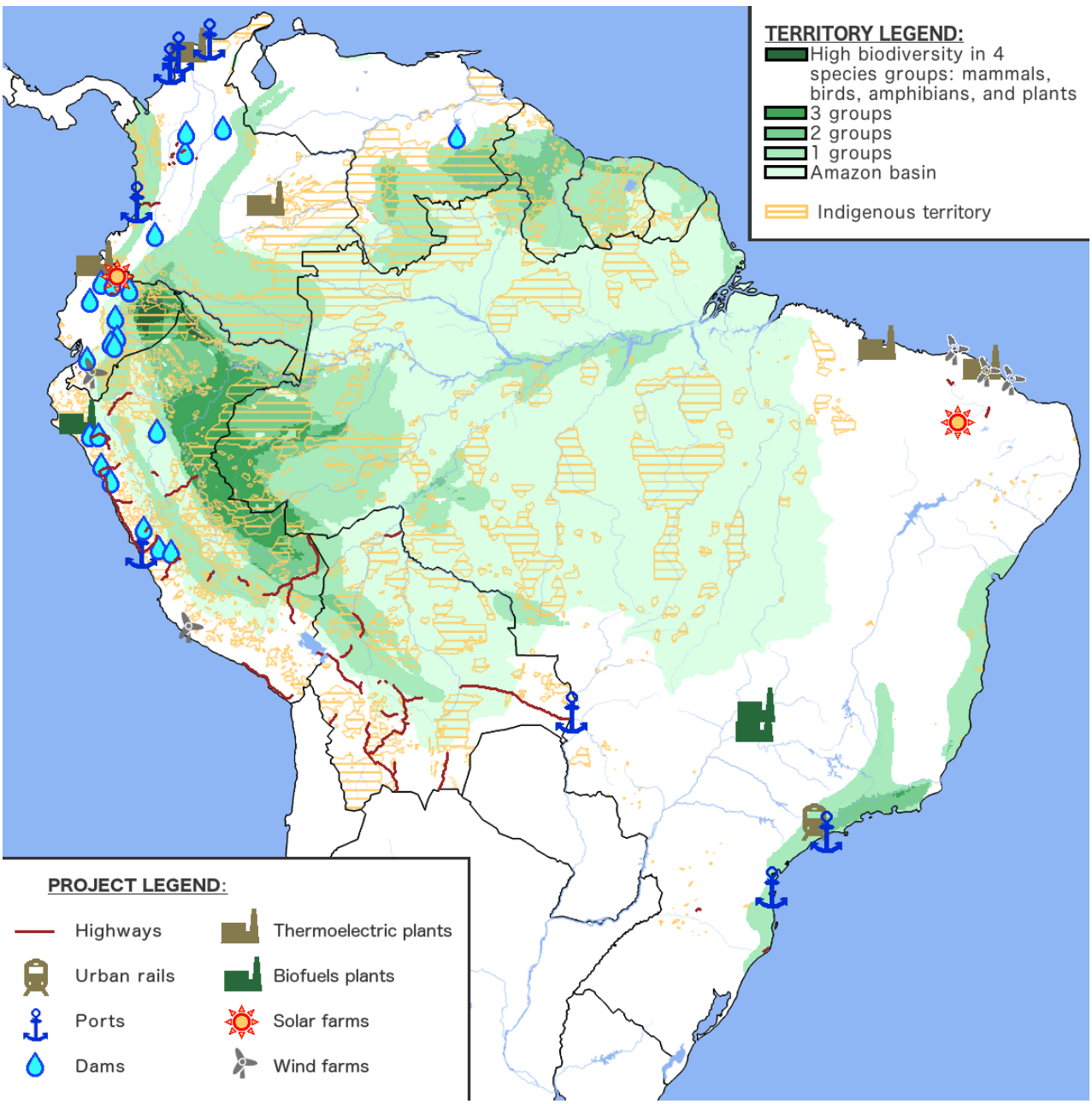
The Andean Amazon is currently experiencing a surge in infrastructure projects. From 2000 to 2015, 60 international DFI-financed infrastructure projects took place in Ecuador, Peru, and Bolivia, and 57 new projects have continued since then. These projects are pushing further and further into the Amazon: just 27 of the 60 projects from 2000 to 2015 were in the Amazon basin, but 45 of the 57 new ones are planned to be there. Moving forward, there are upwards of $70 billion in planned investments in the broader Amazon basin region, including those financed by development banks and the private sector, between now and 2020 (GVF-IFC, 2017).

Figure 1 shows international DFI-financed infrastructure projects approved and completed between 2000 and 2015, and Figure 2 describes them in more detail. Most of the projects shown—and all of the projects shown in the Amazon basin—are located in the western Andean nations of Ecuador, Peru, and Bolivia. Thus, within the Amazon basin, the Andes are the most important area for infrastructure. And within the Andean nations, the Amazon basin is crucial—and becoming more so.

As Figure 2 shows, international DFI infrastructure lending in Ecuador, Peru, and Bolivia has been concentrated in highway construction and improvement, with dams comprising another important segment. In addition, international DFIs financed two ports (an ocean port in Lima, Peru, and a river port in Puerto Suárez, Bolivia) two renewable energy plants (one wind farm each in southern

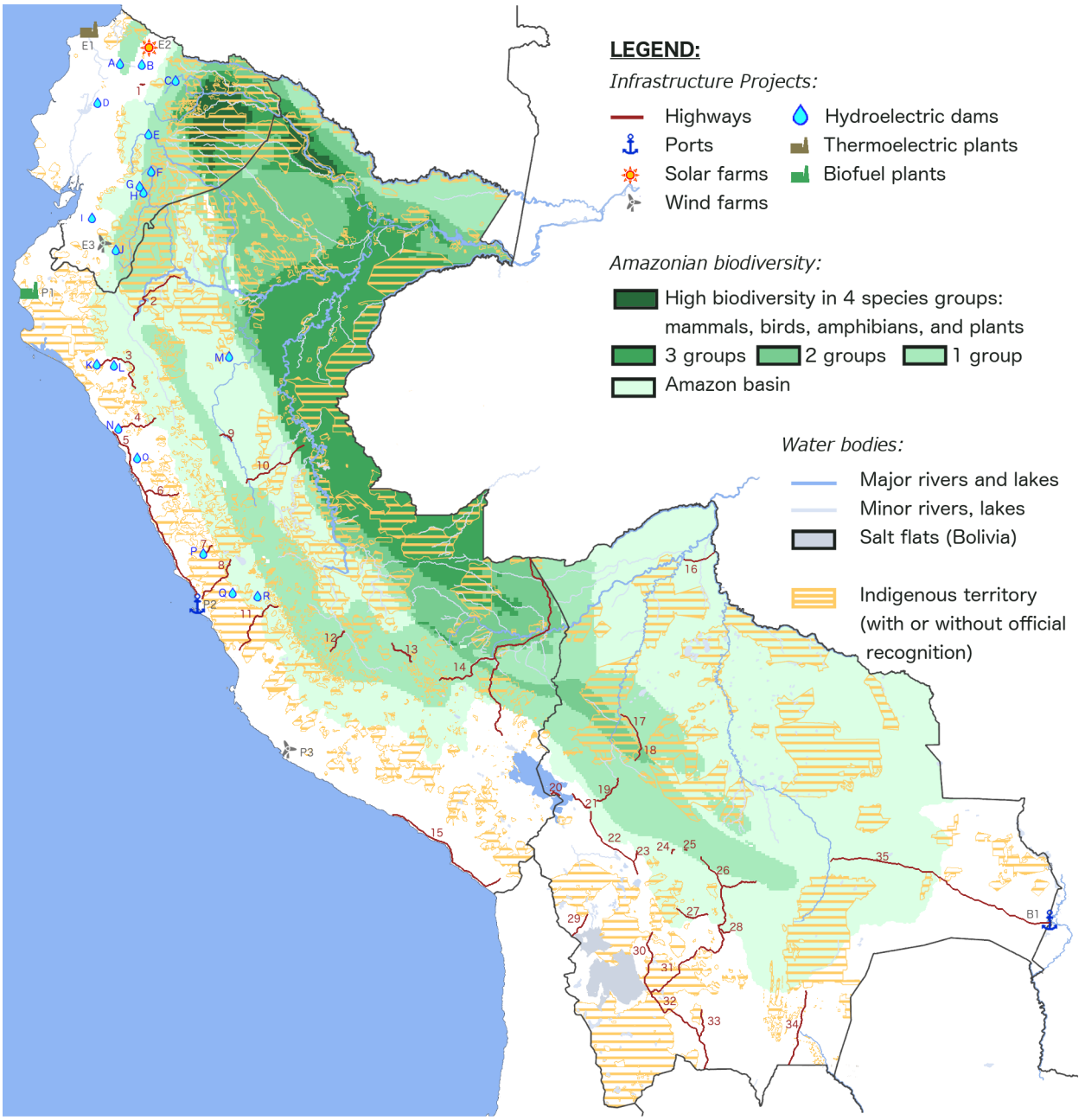
Ecuador and southern Peru, and a solar plant in northern Ecuador) and two thermoelectric plants (a fossil fuel power plant on the northern coast of Ecuador and a biomass plant on the northern coast of Peru). Geographically, the projects are concentrated along the edge of the Ecuadorian Amazon, along the Pacific coast of Peru, and in Southern Bolivia.

FIGURE 1: DFI-Financed Infrastructure Projects in Amazon-Basin Countries, 2000-2015



Source: Ray (2018). Note: DFIs here include only international DFIs, excluding national development banks operating domestically.

FIGURE 2: DFI-Financed Infrastructure Projects in Ecuador, Peru, and Bolivia, 2000-2015



INDEX:

HYDROELECTRIC DAMS — ***ECUADOR:*** A. Manduriacu (BNDES); B. San José de Minas (CAF); C. Coca Coda Sinclair (CHEXIM); D. Baba (IADB); E. San Francisco (BNDES, CHEXIM); F. Abanico (IBRD); G. Sopladora (CAF, CHEXIM); H. San Bartolo (CAF,); I. Minas San Francisco (CDB); J. Sabanilla (IBRD); ***PERU:*** K. Cerro Mulato (IBRD); L. Las Pizarras (CAF); M. El Sauce (IBRD); N. Moche (IBRD); O. Tanguche (IBRD); P. Cheves (IFC); Q. Túnel Graton (IBRD); R. Canchayllo (CAF).

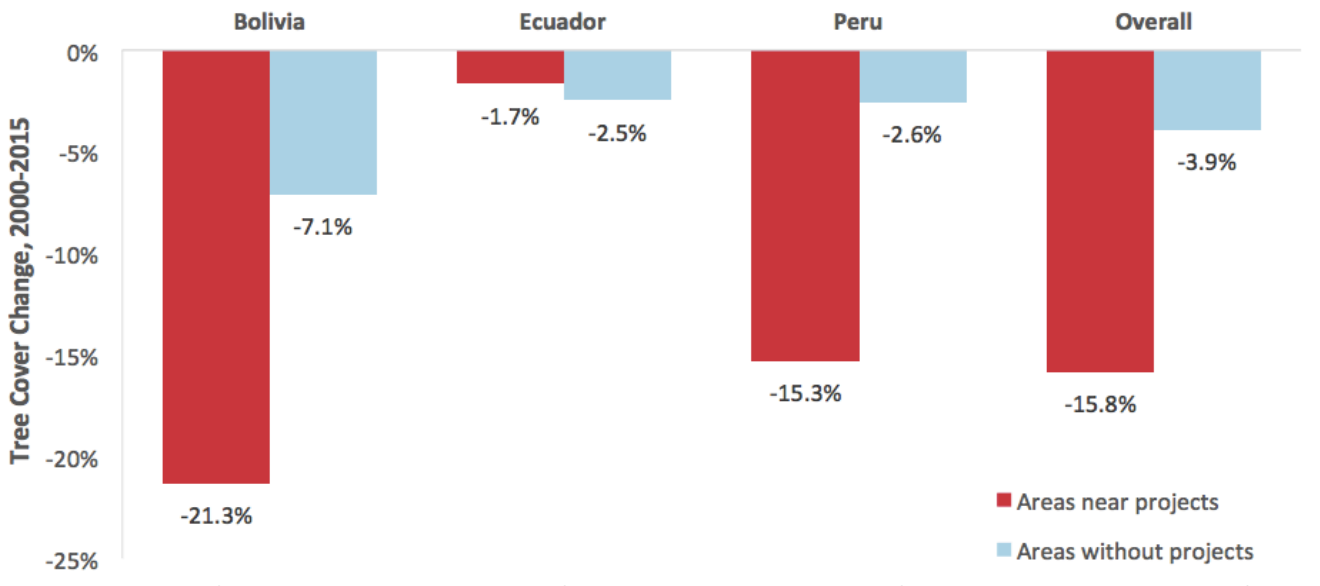
HIGHWAYS — ***ECUADOR:*** 1. Ruta Viva (CAF); ***PERU:*** 2. Reposo-Saramiriza (CAF); 3. Chongoyape-Cajamarca (CAF, IBRD); 4. Trujillo-Huamacucho (CAF); 5. Pativilca-Trujillo (CAF); 6. Casma-Huaraz (CAF); 7. Churín-Oyón (CAF); 8. Canta-Lima (IBRD); 9. Tocache-Dv. Tocache (CAF); 10. Tingo María-Pucallpa (CAF); 11. Lunahuaná-Chupaca (CAF); 12. Quinua-San Francisco (IBRD); 13. Ollantaytambo-Quillabamba (CAF, IBRD); 14. CVIS, Sections 2-4 (CAF); 15. Camaná-Tacna (CAF); ***BOLIVIA:*** 16. Riberalta-Guayamerín (CAF); 17. Rurrenbaque-Yucumo (IADB); 18. Yucumo-Quiquibey (IADB); 19. La Paz-Caranavi (IADB); 20. Tiquina-Copacabana (IBRD); 21. Huarina-Rio Seco (IBRD); 22. La Paz-Oruro (CAF); 23. Caracollo-Colquiri (CAF); 24. Quillacollo-Suticollo (CAF); 25. Sacaba-Chinita (CAF); 26. La Y de Integración (CAF); 27. Chacapuco-Ravelo (CAF); 28.Yamparáez-Sucre (IBRD); 29. Huachacalla-Pisiga (CAF); 30. Uyuni-Cruce Condo K (CAF); 31. Uyuni-Potosí (CAF); 32. Uyuni-Tupiza (CAF); 33. Integracióon Sur, Phase 2 (CAF); 34. Yacuiba-Boyuibe (IBRD); 35. Río Grande-Puerto Suárez (CAF, IADB).

OTHER - ***ECUADOR:*** E1. Termoesmeraldas (CDB); E2. Gransolar (CAF); E3. Villonaco (CDB); ***PERU:*** P1. Maple Inc. Biofuel (IADB); P2. Callao Muelle Norte (IFC); P3. Marcona-Tres Hermanas (CAF, IADB); ***BOLIVIA:*** B1. Puerto Aguirre (IFC).

Source: Ray (2018). Note: DFIs here include only international DFIs, excluding national development banks operating domestically.

Given that the vast majority of the infrastructure projects shown in Figure 2 are concentrated outside of the most sensitive Andean Amazonian territories, it is especially striking that these same projects, taken together, have come with a heavy environmental and social cost. Satellite imagery of the areas immediately surrounding international DFI-financed infrastructure projects in Bolivia, Ecuador, and Peru show that this territory has experienced tree cover loss (deforestation and forest degradation) at a much higher rate that the rest of these three countries. Figure 3 shows the results of this analysis: areas immediately surrounding these projects have lost an average of 15.8% of their tree cover since 2000—four times the rate of the remaining territory in Ecuador, Peru, and Bolivia. The total tree cover loss associated with these projects comes to a total of 4,450 km^2 of deforestation. In terms of its climate impact, this level of tree cover loss is equivalent to 212.7 MMT of new CO2 emissions: roughly equal to ten years of Bolivia's total emissions, five years of Ecuador's total emissions, or 3.5 years of Peru's total emissions (Ray, 2018). Conservative estimates of the social cost of these emissions (taking into account the climate change-related costs but not the loss in local forest-based livelihoods) range between $2.1 billion USD and $10.5 billion USD, using estimates from the Interagency Working Group on Social Cost of Carbon for 2010, (Ibid).[2]

FIGURE 3: Tree Cover Change Near International DFI-Financed Infrastructure Projets and Elsewhere, in Bolivia, Ecuador, and Peru, 2000-2015



Note: "Areas near projects" is defined as territory immediately surrounding infrastructure projects, where the tree cover loss is demonstrably related to the project itself, as measured by a uniform algorithm applied to all projects. This range varies between one and 13 kilometers for the various projects. For more information, see Ray (2018).

[2] These estimates use the most recent US Interagency Working Group on the Social Cost of Carbon estimates for the cost of emissions in 2010, the only estimate within the 2000-2015 time period: between $10 and $50 per tCO2 (US Government, 2013). As Grieg-Gran (2008) points out, the cost of limiting emissions through forest conservation are well below this level: less than $5 USD per metric ton of CO2. Furthermore, Ickowitz, Sills, and De Sassi (2017) explain that the social costs of Amazonian deforestation are likely to fall on poorer households, while the opportunity costs of limiting deforestation are disproportionately represented among those already well-off.

Among the case studies examined here, the most significant damage was associated with Peru's Southern Interoceanic Highway, Route 3. Over 15% of the forested area within 10km of the 403km road (or a total of 1,265 km2 of tree cover) was deforested by 2015. This forest loss was a result of both direct impacts from construction and indirect impacts from new migration to the area fueled by illegal gold mining, which itself is a major driver of water contamination from the heavy metals used in ore processing. In another case, the Baba dam in Ecuador had a stated goal of assisting with irrigation and flood control. Unfortunately, due to poor implementation, it also resulted in water scarcity for households in the vicinity, who found themselves in need of deeper and deeper wells for their own water use.

Furthermore, each of the case studies examined here shows that largely inadequate ESRM has led to significant social conflict, as Table 6 shows. Triggers for conflict include workplace complaints, difficulties maintaining traditional livelihoods in the areas affected by projects, community displacement, and access to natural resources for the surrounding communities.

TABLE 6: Triggers of Social Conflict Among Case Study Projects

Country	Project	DFI	Social Conflict Trigger(s)
Ecuador	Baba Multipurpose Dam	IADB[1]	Community displacement Inadequate replacement of old livelihoods Less water available for well-dependent households
	Coca-Codo Sinclair Hydroelectric Plant	CHEXIM	Fewer local jobs than expected Unsafe working conditions
Peru	CVIS Rtes. 2-4	CAF	Community displacement and water contamination from new informal mining settlements
	Inambari Dam (cancelled)	BNDES[2]	Community displacement
Bolivia	La Paz – Oruro	CAF	Low quality and lack of safety of final road
	Montero - Yapacaní	IADB	Unpaid workers and subcontractors from contractor abandonment of project
	San Buenaventura - Ixiamas	IBRD	Unpaid workers and subcontractors from contractor abandonment of project

Note: 1 The Baba dam project was initially financed by the IADB, which later cancelled that participation.

2 The Inambari Dam was initially announced as a BNDES-supported project, but as the project itself was cancelled, BNDES participation was never formalized.

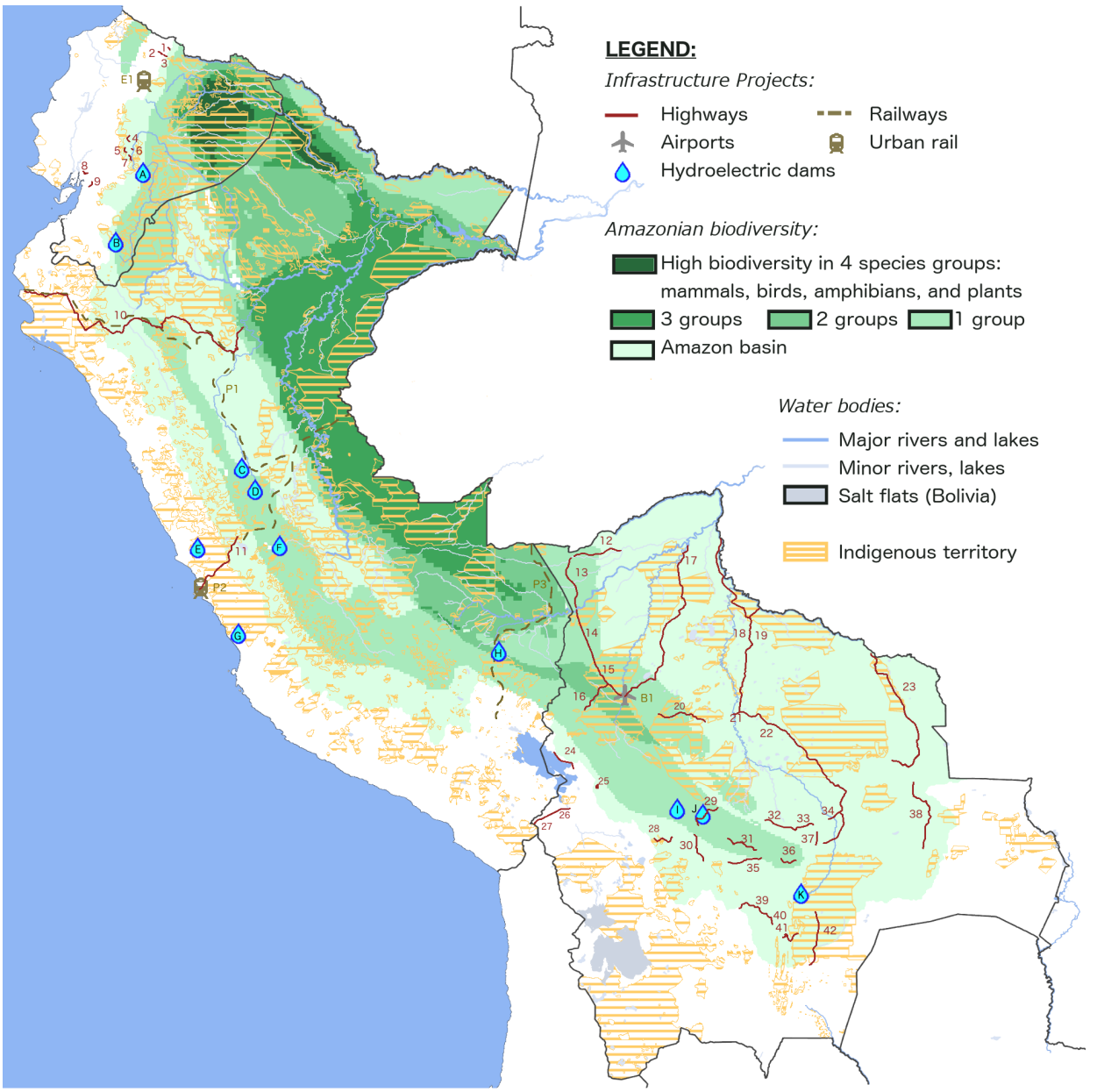
Consistent with a recent analysis of 200 infrastructure projects in Latin America over four decades (IDB, 2017), we find that poor planning, lack of benefit sharing, and lack of community consultation were often the triggers for the social conflicts arising across the projects we studied. As Table 6 shows, such conflicts appear to arise even in projects financed by DFIs with high level safeguards, indicating that such policies were not adequate or well-enough enforced to prevent and mitigate conflict.

The environmental damage and social conflict shown here is not merely the cost of ensuring economic benefit for countries and the communities therein. Instead, our work shows that these

problems can jeopardize those economic benefits. Several infrastructure projects could not be included in the tree cover loss results shown in Figure 3, because they were cancelled or had their financing revoked after social and environmental problems arose. In one case (the Inambari Dam in Peru), civil society reaction to the project's inadequate consideration of social and environmental impacts resulted in the cancellation of the project itself, as well as the shelving of a multi-dam, bilateral energy agreement between Peru and Brazil (the expected source of project financing, through BNDES), of which this was to be the first project. In the long term, this one problematic project denied BNDES several years of potential business in Peru.

These risks and costs show no sign of abating. Instead, evidence suggests that they will accelerate, as projects currently in international DFI pipelines are increasingly concentrated within the Amazon basin. From 2000 to 2015, 27 out of the 60 DFI projects shown in Figure 2 were in the Amazon basin. As Figure 4 shows, since 2015, 58 new projects have already been completed or had their DFI financing approved, and 46 of them are within the Amazon basin. Furthermore, these future projects are increasingly expected to be financed by Chinese policy banks, which are relative newcomers with deferential ESRM frameworks. Of the 58 new and pipeline projects shown in Figure 4, 28 are financed (or slated to be financed) by DFIs that rely on national environmental and social standards—and all 28 of those projects are in the Amazon basin, indigenous territory, or both. Half of those 28 projects have or are expected to receive financing from China. As these projects come through the pipeline, it will be important for newcomer DFIs to avoid becoming ensnared in the riskiest projects, some of which have been unable to secure financing from more traditional sources with more active ESRM strategies.

FIGURE 4: New and Pipeline DFI-Financed Infrastructure Projects in Ecuador, Peru, and Bolivia



INDEX:

DAMS — ***ECUADOR:*** A. Normandía (IIC); B. Delsitanisagua (CDB); ***PERU:*** C. El Carmen and 8 de Agosto (IIC); D. Chaglla (IDB); E. Yarucuya (IIC); F. La Virgen (CAF); G. Hidrocañete (IIC); H. San Gabán III (CDB); ***BOLIVIA:*** I. Misicuni (IDB); J. San José (CAF); K. Rositas (CHEXIM).

HIGHWAYS — ***ECUADOR:*** 1. San Gabriel - Puente Chamizo (IDB); 2. Piquiucho - Vic. de Pusir (IDB); 3. San Rafael - Monteolivo (IDB); 4. Sigsipamba - Urbina (IDB); 5. S. Bernardo - Urbina (IDB); 6. Tulabug - Gualgalan (IDB); 7. Guamote - Guantug (IDB); 8. V. Fátima - Taura (IDB); 9. Naranjal - Jesús María (IDB); ***PERU:*** 10. Paita - Yurimaguas (CAF, IADB); 11. Lima - Canta - Unish (IDB); ***BOLIVIA:*** 12. Puerto Rico - Porvenir (CAF); 13. Porvenir - Chive (China TDB); 14. Chive - Ixiamas (China TBD); 15. Ixiamas - San Buenaventura (WB); 16. Charazani - Tumupasa (China TBD); 17. Riberalta - Rurrenbaque (CHEXIM); 18. Trinida - Ustarez (China TBD); 19. Puerto Guayaramerín - Río Mamoré (China TBD); 20. San Borja - San Ignacio de Moxos (CAF); 21. Trinidad - Puerto Varador (WB); 22. Cocota - Trinidad - San Javier (WB); 23. Santa Rosa - Piso Firme (China TBD); 24. Achacachi - Escoma (IDB); 25. La Paz - El Alto (IDB); 26. Nazacara - Santiago de Machaca (IDB); 27. Santiago de Machaca - Hito IV (IDB); 28. Confital - Bombeo (CAF); 29. Colomi - Villa Tunari (CHEXIM); 30. Tarata - Toro Toro (CAF); 31. Espinaza - Comarapa (CAF); 32. Puente Yapacani – Puente Ichilo (CAF, IDB); 33. Montero - Yapacani (IDB); 34. Okinawa - Los Troncos (IDB); 35. La Palizada - Villa Granado (CAF); 36. Mairana - Bermejo (IDB); 37. Santa Cruz - Warnes (CAF); 38. San Jose - San Ignacio (WB); 39. Tarabuco - Padilla (CAF); 40. Padilla - El Salto (CAF); 41. Monteagudo - Ipati (CAF); 42. El Espino - Boyuibe (CHEXIM).

OTHER - ***ECUADOR:*** E1. Quito Metro (CAF, EIB, WB); ***PERU:*** P1. FETAB Rail (China TBD); P2. Lima Metro (AFD, CAF, IDB, WB); P3. FETRAS Rail (China TBD); ***BOLIVIA:*** B1. Rurrenbaque Airport (WB).

Source: Ray (2018). Note: DFIs shown here include only international DFIs, excluding national development banks operating domestically.

Section 5: LIMITATIONS OF ESRM FRAMEWORKS IN ANDEAN AMAZON INFRASTRUCTURE PROJECTS

Despite the de jure ESRM approaches and safeguards illustrated in Tables 3 through 5, our work show that ESRM has not been sufficiently well implemented to prevent environmental degradation and social conflict. Through case studies in Ecuador, Peru, and Bolivia, we find three core limitations that have led to this outcome:

- Inadequate stakeholder engagement,
- Environmental impact assessments (EIAs) that come late in the process and do not incorporate all aspects of projects or all types of risks, and
- Project governance that is lacking in transparency and accountability.

Nonetheless, we also find evidence that positive efforts in these three areas can mitigate social and environmental costs, and that projects where international DFIs and national governments actively worked to avoid these pitfalls were generally characterized by better outcomes. For example, prior consultation protections for affected indigenous communities appear to be associated with significant mitigations of project-related deforestation.

5.1 Stakeholder engagement

By 2015, all three of the national governments studied here—and about half of the DFIs studied here—required prior consultation with affected indigenous communities. A few of the international DFIs have also instituted requirements for free, prior, and informed consent (FPIC) of affected indigenous people, though too few projects have been completed under that framework in the Andean region to compare their results to other projects across the board. However, infrastructure stakeholder consultation extends beyond the confines of prior consultation between central governments and indigenous communities: active engagement of local communities—indigenous or not—can be crucial to avoiding later conflict, as the Ecuadorian Coca-Codo Sinclair dam project (discussed below) shows. Furthermore, the existence of stakeholder engagement requirements does not guarantee that the process is conducted in such a way as to discover unforeseen risks or ensure that affected communities' concerns are adequately incorporated into project design. As the IADB itself notes in a recent publication, effective engagement requires not only information sharing but also the opportunity for stakeholders to impact project design and implementation (Kvam, 2017). For this reason, we find that when a project's DFI and its national government both have stakeholder engagement requirements , these two bodies can serve as a mutually reinforcing network of support, insuring against either entity's inability to ensure an adequately open process.

Peru's Southern Interoceanic Highway (CVIS for its initials in Spanish) serve as a stark example of the risk of inadequate stakeholder consultation when only one party requires it. CVIS segments 2 through 4 were approved in 2005, after Peru ratified International Labor Organization Resolution 169, enshrining the rights of indigenous communities to have a voice in projects that affect them. However, they were approved before Peru enacted its 2011 Consulta Previa law, which codified access to the rights laid out in ILO 169 with a formal seven-step process. The CVIS highway project received financing from CAF, which follows an ESRM strategy of national recognition with capability enhancement: it deferred to Peru's national standards and could offer concessional financing to help reach those standards.

IMAGE 1: Deforestation around the CVIS Highway, Peru

Source: Dammert Bello (2018). Credit: Diego Pérez.

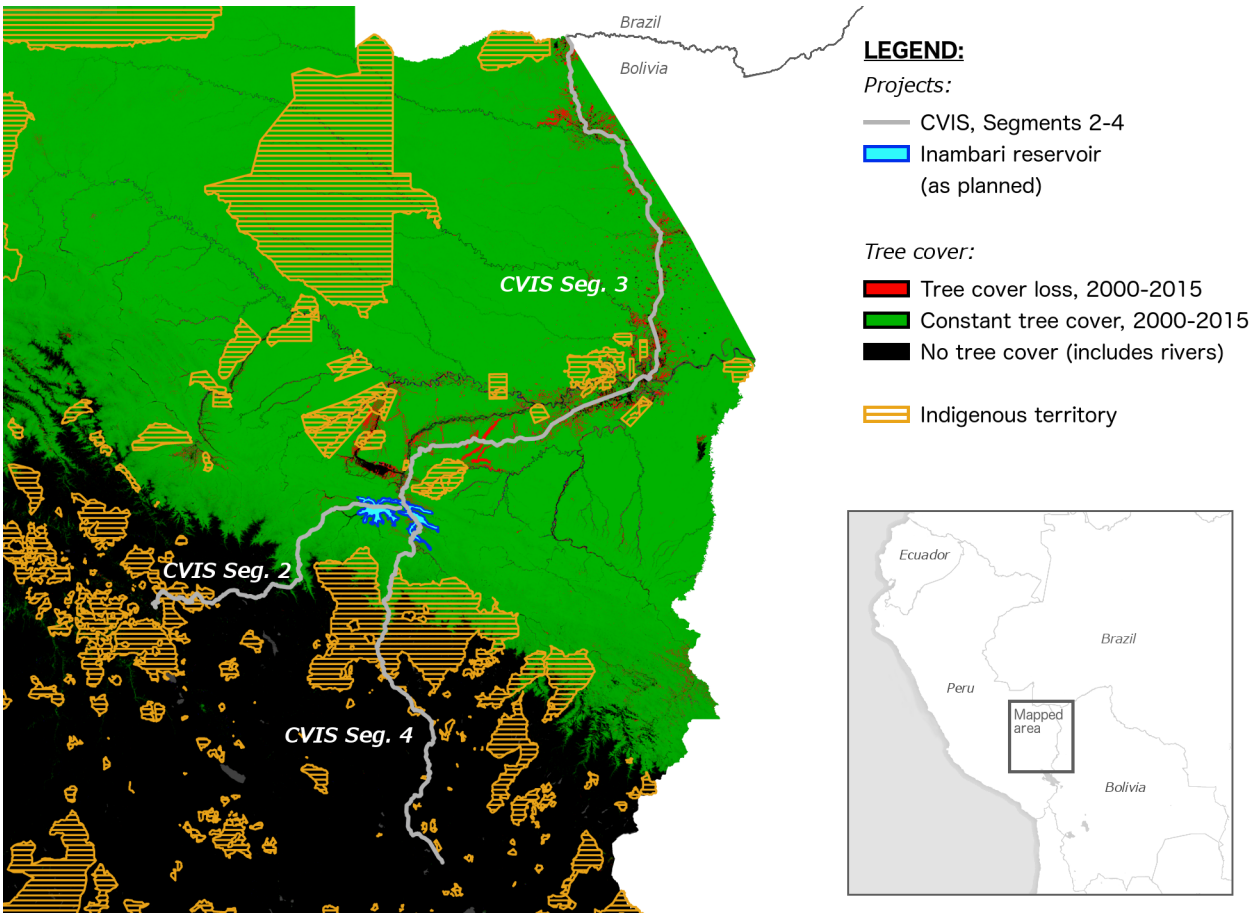
Note: the CVIS highway extends from the top left to the center right. The cleared swaths extending perpendicularly from the highway in both directions show mining territory and other deforested areas.

Given that Peru had committed itself to the principle of prior consultation but had not yet enacted national legislation carrying it out, it might have been reasonable to expect CAF to assist with concessional financing for institutional capacity building to create a prior consultation mechanism. In fact, CAF did assist the government of Peru with institutional capacity, in several different areas. For example, CAF funded the highway segments' EIAs, supported the Ministry of Transportation and Communication in its development of an General Office for Social and Environmental Affairs, and also supported the creation of the Commission for the Formalization of Informal Property within the Housing, Construction, and Sanitation Ministry, in order to mitigate the potential for a massive displacement of existing communities as the highway made these territories more easily accessible to newcomers. However, CAF did not have a formal standard for prior consultation, and so assisting Peru with establishing such a mechanism or building institutional capacity to oversee it did not find a home among these many demands for concessional finance associated with the CVIS road segments.

The resulting highway segments, shown in Figure 5, did not go through the prior consultation process that Peru requires today. Instead, project planners routed the CVIS in such a way as to mostly avoid indigenous territory. Despite the efforts of Peru and CAF to establish safeguards against displacement of existing communities, Figure 5 shows (in red) the dramatic deforestation along Segment 3. This deforestation is directly related to new migration to the area, fueled by informal gold mining. The gold mining, in turn, has led to contamination of rivers and groundwater from the heavy metals (especially arsenic and mercury) used in informal gold mining. While the highway itself mostly avoids indigenous

territory, there is no guarantee that rivers and groundwater will do likewise. Indigenous communities, who were not included formally in project planning, are already beginning to bear the health hazards associated with its environmental costs.

FIGURE 5: Deforestation and Indigenous territory near Peru's CVIS Highway 3 and the proposed Inambari Dam



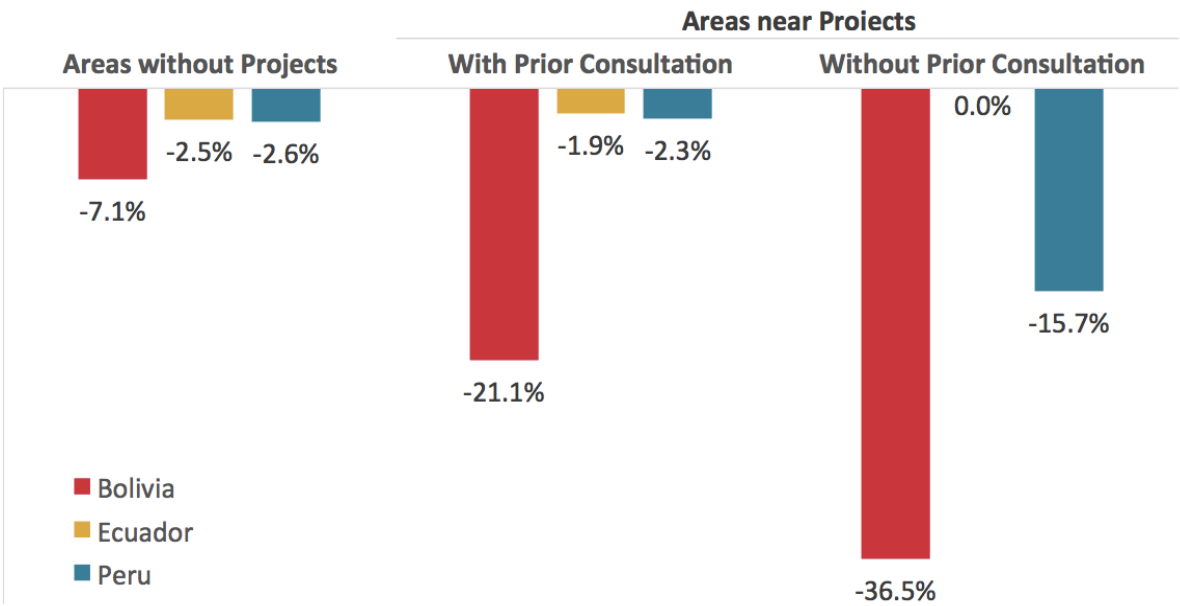
Source: Compiled from Dammert Bello (2018), Hansen et al. (2013), and LandMark (no date).

The failed Inambari dam project in Peru also shows the importance of full community engagement. As mentioned above, Inambari was to be the first of five dams financed and overseen by a Bilateral Energy Agreement between Peru and Brazil, with the expected cooperation of BNDES and both governments, resulting in electricity generation for both countries' markets. However, plans for Inambari did not adequately take into account social and environmental impacts, and local civil society successfully challenged the project. The remaining dam projects were then delayed indefinitely. If project planners had adequately engaged with stakeholders before finalizing the plans for Inambari, the bilateral agreement may have been salvaged.

Despite these cautionary tales, there is reason for hope in the significant power of effective community engagement. Across all of the infrastructure projects approved and completed between 2000 and 2015 in Ecuador, Peru, and Bolivia, our work shows substantial evidence that incorporating indigenous voices can help limit environmental damage. Additional findings from the statistical work on deforestation around infrastructure projects (shown in Figure 3) shows that when national governments enact

formal processes for prior consultation with indigenous communities affected by projects—or when DFIs require nations to carry out these processes in order to secure financing—those projects are associated with significantly less deforestation. Figure 6 shows the average tree cover change rates around infrastructure projects approved and completed between 2000 and 2015 in Bolivia, Ecuador, and Peru, with and without prior consultation protections. Particularly in Bolivia and Peru—where most of the projects took place—projects that took place within a regulatory framework that required prior consultation with affected indigenous communities had significantly less tree cover loss. A statistical analysis of these results shows that they are significant even when taking into account differences in types of projects, years, the DFIs involved, and whether the prior consultation protections originate from the DFI requirements, national government laws, or both (Ray, 2018). In other words, banks and national governments form mutually reinforcing networks when they both pursue high-level ESRM, insuring against any difficulty in the other's application of its own safeguards.

FIGURE 6: Tree Cover Change around International DFI-Financed Infrastructure Projects with and without Prior Consultation Protections, and in the Rest of Ecuador, Peru, and Bolivia, 2000-2015



Source: Ray (2018).

BOX A: A New Paradigm in Brazil? The Fundo Amazonia's empowerment of affected communities

In addition to the case studies shown in Table 3, which each triggered significant social conflict, parallel research in Brazil (Klinger, 2018) shows that indigenous communities are not limited to consideration as an afterthought or complication in the project design and approval process. Rather, it is possible for them to take on leadership roles and determine the direction of projects under their supervision.

The Brazilian government, in cooperation with the United Nations Framework Convention on Climate Change established the Fundo Amazonia in recognition of the importance of the Brazilian Amazon in global carbon sequestration, and BNDES manages its operations within Brazil. It accepts applications for concessional financing from Amazonian communities for projects that they themselves have designed and planned. Klinger (2018) profiles one such project, the Stonipë Ioway ecotourism plan conceived by the Yanomami people in and around the Pico de Neblina National Park. As Figure B1 shows, Pico de Neblina—the highest mountain peak in Brazil—resides within Yanomami territory. However, the Yanomami have no traditionally benefitted from the ecotourism associated with the mountain but have had to contend with the use of local resources by the tourists themselves. The Stonipë Ioway project may change this scenario. After three years of community meetings, its funding has been approved and work is beginning to bring it to reality. It is far too soon to say whether it will meet its objectives of creating a more environmentally and socially sustainable approach to local ecotourism. But the evidence to date shows that indigenous communities are capable of not just participating in projects, but directing them. This finding is consistent with a new comprehensive assessment by the IFC and others that locally designed stakeholder-led financial arrangements may be the most optimal for the Amazon region (GVF-IFC, 2017).

Figure A1: Indigenous Territory and Protected Lands in Northwest Brazil

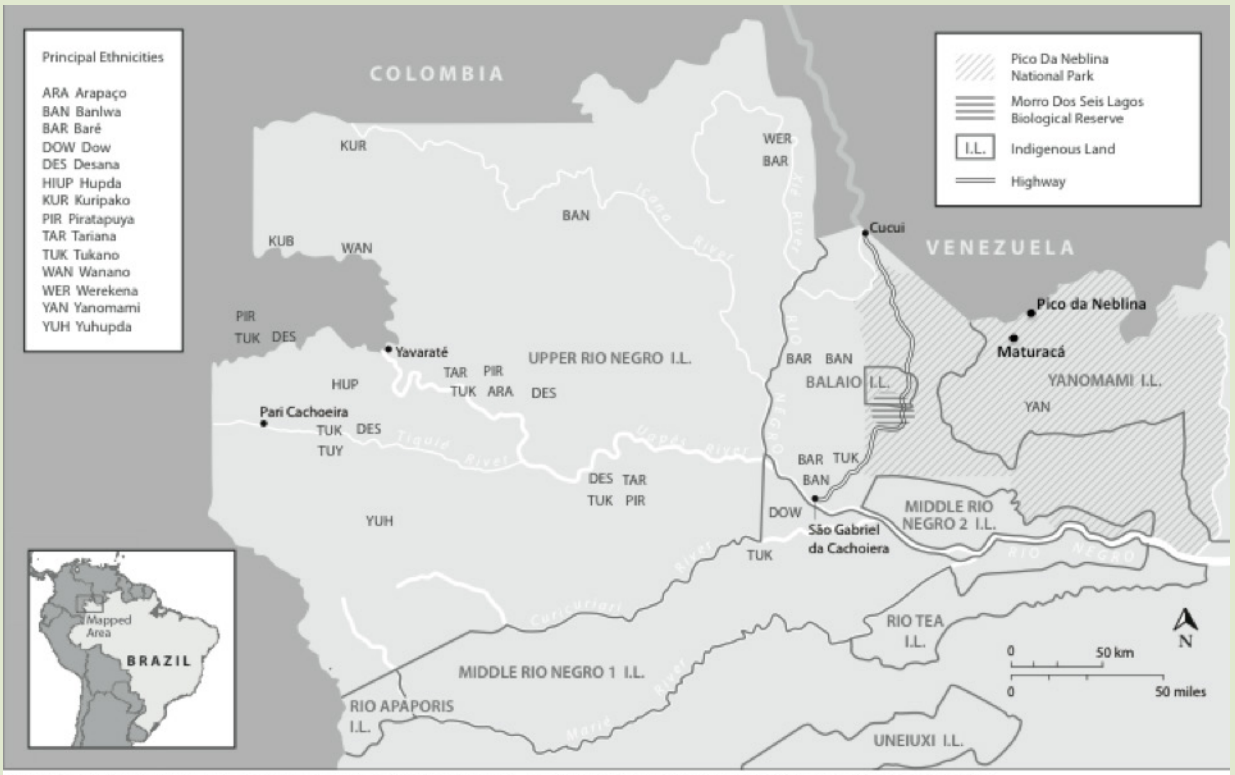


Image from Klinger (2017) Rare Earth Frontiers. Cornell University Press. Cartography by Molly Roy. Adapted for use in this article by author.

5.2 Comprehensive EIAs

As Table 3 shows, every major international DFI active in the Andean Amazon requires EIAs before projects can be approved. Nonetheless, most of the projects studied in our case studies experienced significant environmental degradation, including deforestation, water contamination, and affected nature preserves. Table 7 shows these cases, along with two additional projects that could not be considered among the case studies because—although the DFIs in question cancelled their participation due to environmental concerns—they are currently under construction without DFI support. These two additional projects are Bolivia's Rurrenbaque-San Buenaventura bridge and a highway through Bolivia's Isiboro Sécure National Park and Indigenous Territory (TIPNIS, for its Spanish acronym). Both of these proposals lost their DFI financing due to environmental conflicts, but the Bolivian government has pressed forward with them. As of this writing the full extent of the environmental damage from them has yet to be determined.

TABLE 7: Environmental Impacts from Case Studies and DFI-Cancelled Projects

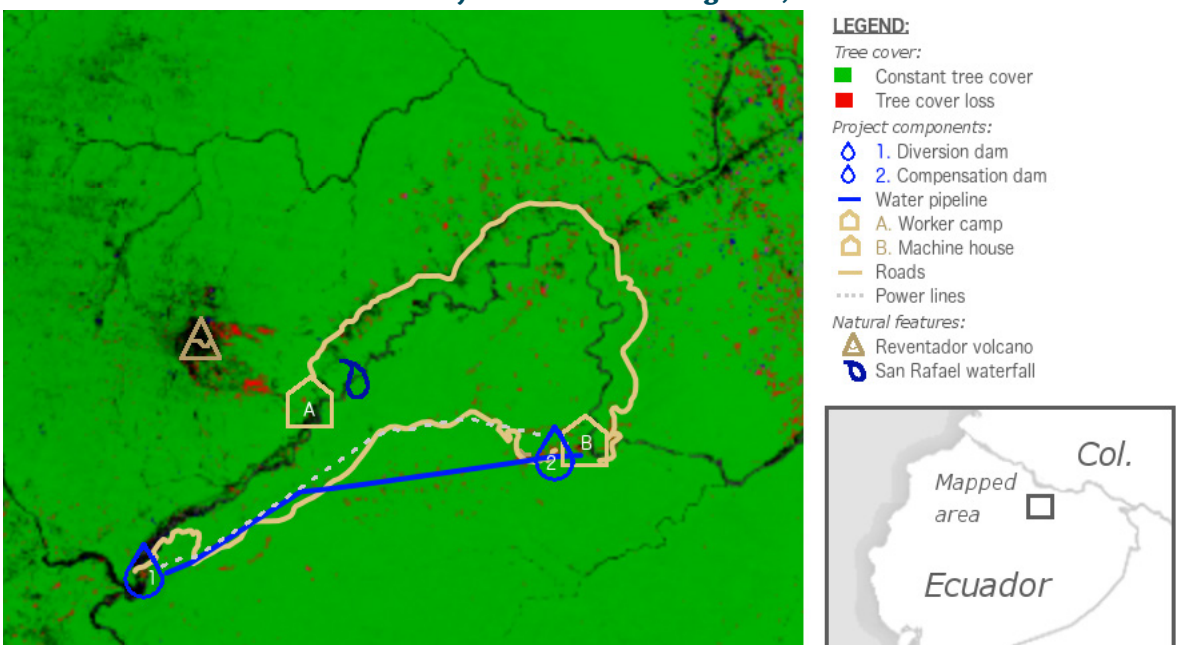
Country	Project	Environmental Damage
Region-wide	All projects	Tree cover loss at a rate of four times that of surrounding territory (see Figure 3)
Ecuador	Baba Multipurpose Dam	Elevated heavy metal reservoir contamination from nearby plantation runoff and affected fish stocks, both to an unknown extent as studies ceased despite a continued mandate for them
	Coca-Codo Sinclair Dam	Sedimentation, reduced water flow, and reduced fish stocks downstream, including at the San Rafael waterfall
Peru	CVIS highway	Widespread deforestation and water contamination from informal mining settlements enabled by the road
	Inambari Dam	Project cancelled amidst protests regarding heavy expected deforestation and community displacement
Bolivia	Rurrenbaque - San Buenaventura bridge	IADB participation cancelled after a formal grievance was filed alleging an inadequate EIA
	Montero - Yapacaní highway	Uncontrolled deforestation, despite specific IADB requirements for a flora census and relocation of affected fauna
	TIPNIS highway	BNDES participation cancelled amidst protests regarding its impact on nature preserves

One reason why infrastructure projects continue to have adverse environmental impacts despite EIA requirements is that they do not necessarily require those EIAs to be comprehensive, taking into account the direct and indirect risks of entire projects. EIAs can also be quite limited in scope, with different project segments receiving scrutiny separately. This distributed approach to EIAs can result in missed environmental risks, and also allow for a "race to the bottom" of environmental standards among DFIs. When risky projects have comprehensive EIAs, the environmental risks and costs of the entire project should become obvious, precluding the involvement of the DFIs with the highest standards. Without those DFIs' involvement, large inter-connected projects may not be able to go forward. However, by segmenting these projects and pursuing partial EIAs for segments separately, DFIs with high standards can take the safest segments, leaving those DFIs least equipped to oversee risk with the segments most in need of oversight. The "race to the bottom" effect is an indirect one: DFIs whose missions ordinarily prevent them from participating in environmentally costly projects can end up enabling those very projects, by taking on the least risky segments and boosting overall financing.

Peru's CVIS segments 2 thorough 4, discussed above, fall into this category of environmentally risky project made possible by segmented EIAs. In addition to CAF, the IADB also financed the CVIS project, through other segments not entering the Amazon.[3] In contrast, DFIs with more deferential ESRM frameworks took the remaining segments, including the CAF-financed Segments 2 through 4 shown in Figure 5, above. As long as DFIs differ in their levels of ESRM, pursuing comprehensive EIAs are necessary to prevent the riskiest sections of projects moving forward with financing from the DFIs least prepared to handle the risks involved.

Comprehensive EIAs can also alert planners to the ways in which risks in one part of a project can affect other parts of the project. In Ecuador, the IADB planned to finance the construction of the Coca-Codo Sinclair dam but pulled out after consideration of how the Reventador volcano (near the dam) could affect the structural integrity of the dam, and in turn, the planned power lines. After the IADB withdrew, CHEXIM took on both parts of the project through separate loans with separate EIAs. Interacting risks between different parts of a project can be disregarded, even when all of the relevant parts receive financing from the same source, in cases such as this one. Instead of a mutually-reinforcing network, the relationship between national government and lender formed a mutually-*enabling* network in this case. CHEXIM enabled Ecuador's pursuit of the project without having to take into consideration all of its environmental risks, and Ecuador enabled CHEXIM to take on unnecessary reputational and relationship risks in its work in Ecuador.

FIGURE 7: Coca-Codo Sinclair Project and Surrounding Area, Ecuador



Source: Compiled from Vallejo, Espinosa, and Venes (2018), and Hansen et al. (2013).

[3]The IADB-financed, non-Amazonian segments of the CVIS do not appear in the project maps in Figures 1 and 2 because they were approved before 2000. CVIS is part of the region-wide Initiative for the Integration of the Regional Infrastructure of South America (IIRSA, for its Spanish acronym) plan, but the IADB-financed segments occurred before IIRSA was established, so they do not appear in IADB records as IIRSA-related projects. This situation reflects a danger for DFIs with more deferential ESRM approaches: low-risk projects often secure financing long before riskier, complementary projects do so, leaving newcomers vulnerable to being left with less-desirable, riskier projects. It also reflects an inadequate level of information sharing across related projects associated with broader integration plans like IIRSA, as EIAs are not performed for entire networks of projects.

As Figure 7 shows, the Coca-Codo Sinclair hydroelectric project is situated in the Ecuadorian Amazon, in a heavily forested area on one of the key watersheds feeding into the Amazon River. It is also located near two major natural landmarks: the Reventador volcano and the San Rafael waterfall. Reventador is an active volcano that has been undergoing a continuous eruption for the last ten years, characterized by seismic activity, ash plumes, and lava flows from 2008 through the beginning of 2018 (Smithsonian, n.d.), as indicated by the red deforested areas around the volcano in Figure 7. The IADB cancelled its participation in the project after this current eruption began, and the environmental risks became clear. The San Rafael waterfall is the largest in Ecuador, at 150 meters high and 14 meters wide. It carries importance not only as a cultural landmark but also as an important ecotourism draw. Given the serious risks that Reventador can pose to the project, or that the project can pose to the San Rafael waterfall, it is vital for risks to be assessed as thoroughly as possible.

Finally, comprehensive EIAs *can* take into account indirect as well as direct causes of environmental degradation. For example, the World Bank-financed highway between the towns of Ixiamas as San Buenaventura in the Bolivian Amazon does not pass through or even border protected territory, negating any possible directly-caused deforestation. However, it does pass close enough to the Madidi National Park (coming to within 5km), that additional traffic and in-migration could cause indirect deforestation. Thus the project EIA takes into account the "induced future" expected to be brought about by the project, and laid out a plan to mitigate these impacts.

5.3 Transparency and Accountability

A final way in which DFIs and national governments can form mutually-reinforcing networks is through working to increase coherence throughout the project cycle. In every infrastructure case study examined in this project, transparency and accountability mechanisms either faltered or were absent, leading to the social conflicts listed in Table 6, above. Many of the cautionary examples cited here show government actors torn between conflicting incentives of expediting projects and managing their risks. Those incentives become better aligned when projects have sufficient transparency—so that all stakeholders are aware of commitments and have the same expectations—and greater accountability to those commitments.

Neither of these goals is possible without the active participation of international DFIs, national governments, and civil society. DFIs' large international portfolios give them unparalleled institutional capacity for incorporating lessons learned into future project design. But national governments and local communities ultimately interface daily with projects and have deep institutional knowledge of local conditions. Thus, it is crucial for international DFIs, national governments, and communities to be clear about their goals at the outset of project planning and establish transparent monitoring processes to ensure that these goals are met.

Unfortunately, too often, project plans and commitments have been kept out of reach of affected communities. Furthermore, in the majority of the case studies examined here, team researchers encountered significant resistance in their searches for EIAs, community consultation results, and project performance—information that should be public if stakeholders are to effectively hold each other accountable. In other cases, researchers discovered that information legally required to be made public was inaccessible. For example, the results of environmental audits of the works associated with the Coca-Codo Sinclair hydroelectric project were restricted, contrary to transparency requirements, and the information that was made public—on water

flow and hydrological balances for the affected watershed—were out of date to the point of being uninformative.

Regionally, inadequate incorporation of transparency into infrastructure projects has led to a major, still-unfolding corruption scandal (known as *lava jato*—car wash—for its money laundering aspects) across Latin America. The *lava jato* scandal centers on Brazilian state-owned oil company PetroBras and major Brazilian construction firms including Odebrecht, the region's largest infrastructure contractor and the main contractor in the Peruvian highway routes studied here. Allegations of illicit dealings with Odebrecht have led to the resignation of Peruvian President Pedro Pablo Kuczynski, and the criminal prosecution of former Brazilian President Luiz Inácio Lula da Silva and former Peruvian President Ollanta Humala. In some cases, allegations included bribes for contracts and contract budget inflation, hurting national government coffers and denying communities the possible benefit of competition and fair contractor selection. While the MDBs studied here require competitive bidding for contractors, the same cannot be said for national development and policy banks operating abroad, such as BNDES, the CDB, and the China ExIm Bank. In those cases, for the sake the communities who depend on national budgets and the final quality of the infrastructure itself, national commitments to transparency are crucial.

The benefits of transparency are evident in the case study of the Bolivian highway from La Paz to Oruro, which was expanded with CAF financing. During the construction, pre-Inca, Inca, and colonial era artifacts were uncovered. Before work could continue, an archeological dig was established. During this process, community members were present and incorporated into the proceedings, presenting offerings to Pachamama according to custom. However, it is important to note that this accomplishment was not due to cooperation between CAF and the Bolivian government in establishing a transparent process. In fact, interviews with staff at the Ministry of Culture's Archeology and Museums Unit show that this level of attention and diligence is highly unusual during highway construction in Bolivia, and in this case, it was due in no small part due to the heavy media attention that this project had already received. The artifacts were preserved by the good fortune of public scrutiny, but good fortune is not a strategy to ensure similar results in the future, and no substitute for mutually-reinforcing networks between bank staff and public officials.

The Ecuadorian Coca-Codo Sinclair dam, discussed above for its inadequate environmental impact assessment, also shows the danger of insufficiently transparent commitments. Although no formal FPIC process occurred—as the nearby communities are not indigenous—project representatives did carry out a "socialization" process of sharing plans with local stakeholders. Interviews with residents in the surrounding communities show that the socialization process gave a near-universal impression of promises of local employment as well as opportunities for local small businesses to supply food, lodging, and other services to the dam construction workforce. However, no precise commitments were made regarding these expectations. Significant social conflict later erupted around the fact that "local" employment was defined in such a way as to include Ecuadorian workers from other parts of the country (in contrast to Chinese workers), rather than expanding employment opportunities for workers from the immediate vicinity or even the greater Amazonian region of Ecuador. Furthermore, many community members relied on expectations from the "socialization" process and borrowed heavily to establish or expand catering or restaurant businesses or to expand their houses to rent out rooms, but were later excluded from opportunities to sell these services to construction workers.

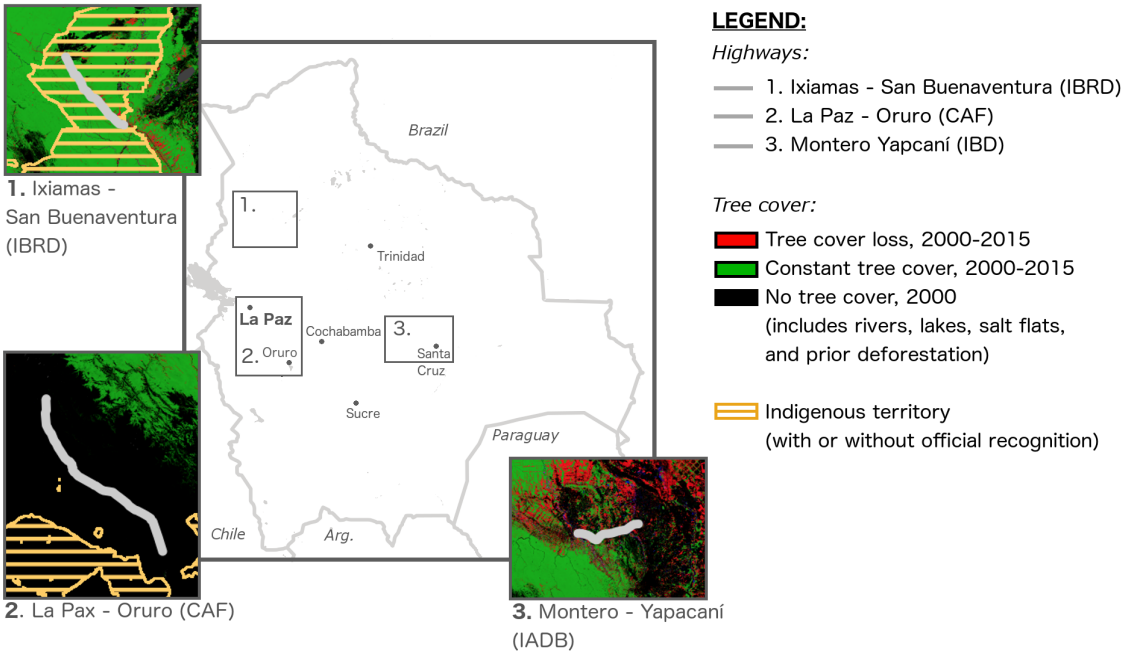
Once clear commitments and expectations have been established, enforcement of those commitments is crucial—and requires the participation of all parties. In case studies associated with this project where performance commitments were clearly stated at the outset of projects, gaps in accountability measures still allowed these commitments to be unmet. As Fox (2007) and Daniel et al. (2016) point

out, DFI accountability measures often lack specific sanctions for unfulfilled commitments or require communities to navigate complex layers of bureaucracy embedded in formal grievance mechanisms, leaving stakeholders with few options in cases of conflict.

Here again, the Coca-Codo Sinclair dam serves as a cautionary example. From 2009 to 2011, the project's environmental monitoring occurred through a specially-organized municipal oversight committee. But midway through construction, that monitoring was folded into the contractor's responsibilities, and public access to related environmental reports diminished significantly. Accountability to stakeholders was effectively supplanted by self-regulation.

The three case studies in Bolivia also illustrate this point. As Figure 8 shows, these three projects occurred in a variety of environments and were financed by DFIs with a variety of ESRM approaches. The two highways in the Amazon basin (the Ixiamas – San Buenaventura highway in northwest Bolivia and the Montero – Yapacaní highway outside of Santa Cruz in central Bolivia) were both financed by DFIs that follow an ESRM strategy of conditional harmonization with capability enhancement. In other words, the two highway projects that posed the greatest environmental and social risks were financed by the DFIs with the greatest oversight. The remaining project, the La Paz – Oruro, was financed by CAF and is located outside of the Amazon basin, in an open desert environment.

FIGURE 8: Location of Case Study Roads and Tree Cover Change in Bolivia



Source: Compiled from Andersen, del Granado, Medinaceli, and Roca (2018), Hansen et al. (2013), and LandMark (n.d.).

Nonetheless, regardless of the differing ESRM strategies and levels of environmental and social risks, all three projects failed to be completed according to their original plans. Two contractors abandoned the projects altogether, leaving subcontractors and workers unpaid, and one finished the project but cut corners on safety and quality measures, leading to dangerous and sometimes fatal results.

The Montero – Yapacaní highway (project 3 in Figure 8) received IADB financing, and with it, high-level standards meant to potect affected ecosystems, communities, and employees. The IADB allowed for two years prior to approving the loan for the Technical, Economic, Social, and Environmental Assessment (TESA) to be completed. Unfortunately, however, within two years of the project's approval, the contractor (the Mexican firm Tradeco) had already been removed from the project for failing make adequate progress, completing only 3% of the committed work within the first 16 months of the project. Interviews with project laborers show that the departure left many without pay, but none are willing to bring a formal complaint for fear of losing the opportunity to work with the next contractor, the Chinese firm Sinohydro. These stakeholders have effectively been removed from the relevant redress processes because of the lack of transparent accountability mechanisms and contractor monitoring.

The refurbishment of a second highway—connecting the Amazonian towns of San Buenaventura and Ixiamas (project 1 in Figure 8)—received IBRD financing in 2011 after four years of pre-investment studies. Prior consultation processes were carried out with indigenous communities and civil society groups, and their feedback was incorporated into the project plans. However, none of these preparations could ensure a successful project, because the contractor (the Spanish firm Corsán-Corviam) abandoned the project in 2017, without warning the state or the bank, and without paying local subcontractors, many of whom had taken on significant debts in order to open or expand their businesses to work on this project. The government received indemnification in the form of a performance bond payment, and has announced that it will consider assigning the remaining work to one of the firms who lost the initial bidding process, but has not announced, as of this writing, any relief for subcontractors. A group of about 20 representatives of those awaiting payment brought a complaint to the World Bank, but were not given relief, as the World Bank has no jurisdiction over contractor-subcontractor conflicts. Thus, while the World Bank requires transparency in contractor selection, even those safeguards have not been able to help prevent significant labor problems without an equivalent commitment from the national government.

IMAGE 2: Unifinished Work on the San Buenaventura - Ixlamas Highway, Bolivia

Source: Andersen et al. (2018).

Finally, the refurbishment and expansion of the highway between La Paz and the southern city of Oruro (project 2 in Figure 8), financed by CAF in 2009, was successfully completed—at the cost of quality and safety. Transparency and accountability failures throughout the project cycle have led to a counterproductive outcome: instead of improving the safety and quality of the road, the upgrading project resulted in a highway plagued with problems in those two areas. The loan was granted before the TESA was completed, and the contracting process set a price ceiling on any bids received. Thus, cost took a primary role in decision-making. Furthermore, an inadequate stakeholder engagement process failed to include measures for the contractor (the Bolivian firm Brabol) to acquire gravel from local sites. Taken together, these two problems meant that when the price of asphalt rose in 2011, Brabol could not complete the assigned work. The contract was rescinded and reassigned to Corsán-Corviam, the same firm that has abandoned the Ixiamas – San Buenaventura highway discussed above. Corsán-Corviam was able to complete the project, but not on time or to the agreed-upon quality. Most notably, facing increased costs, the contractor and government agreed to a revised engineering plan that omitted several onramps and a significant portion of the required safety signage. These changes were more than simple technical tweaks: insufficient transparency in the process of changing the plans has created a public safety hazard in which drivers frequently enter the highway in the wrong direction, leading to an increase in collisions. Whereas the refurbishment project was intended to improve driver safety, a lack of contractor oversight allowed for the creation of new hazards instead.

As all three of the Bolivian case studies show, international DFI-financed infrastructure projects often involve large contractors that work on infrastructure projects in many countries. Ensuring accountability and retaining institutional memory of commitments—met and unmet—may require the use of international fora such as COSIPLAN (the South American Council of Integration and Planning, comprised of ministers of planning and/or integration from UNASUR countries), which oversees the IIRSA integration projects including Peru's CVIS. Alternately, international DFIs themselves have an international reach of operations and thus have an advantage in forming and maintaining mutually-reinforcing platforms for information sharing. International DFIs and fora like COSPLAN carry institutional knowledge about the past performance of national governments and contractors, while national governments only have institutional knowledge of DFIs and contractors when they have worked in local projects. This is not to say that DFIs have a monopoly on the knowledge necessary for project monitoring. As the following section shows, the local knowledge of communities and national legal systems are also crucial in accountability and monitoring. Thus, while international DFIs are well-positioned to establish information-sharing platforms, they must be mutually-reinforcing systems that incorporate local voices.

BOX B: Progress and Reverses in Social and Environmental Protection at the National Level

Our work shows important gains in national protections across the Andean region since the turn of the millennium. For example, during the planning for the CVIS highway system in Peru, CAF assisted the national government in establishing oversight bodies for infrastructure projects (Dammert Bello, 2018). Furthermore, in 2008, Peru's Environment Ministry was established, creating an institutional platform for project oversight (Lanegra, 2014). Ecuador ratified a new constitution enshrining the rights of nature, meaning in practice that anyone can represent Pachamama (Mother Nature) and sue polluters (Tanasescu, 2013). All three countries have enacted prior consultation protections for indigenous communities, codifying their ratification of ILO Convention 169 on Indigenous and Tribal Peoples (Ray, 2018).

However, these protections create considerable tensions in countries whose economies are heavily concentrated in mining, oil, and gas projects, which are often located in environmentally sensitive and/or indigenous territories (Lalander, 2015; Martínez Alier, 2015). Indeed, Andean governments have faced intense pressures to roll back these protections in the wake of the end of the most recent commodities supercycle. In Ecuador, for example, this tension between codified environmental rights and a drive to expedite new oil development was manifested in limits placed on environmental NGOs, culminating in the forced closure of the nation's largest environmental organization, Fundación Pachamama in 2013 (Appé and Barragán, 2017). In Peru, government officials anxious to accelerate investment have tried to avoid granting the right to prior consultation of communities regarding proposed extractive and infrastructure projects in their territories, either by questioning their indigenous identities, or arguing that concessions were already granted to investors before the Law of Prior Consultation came into effect (Pozo, 2012; Sanborn et al 2016). All three countries' governments have lessened the limits on development in parks and other protected zones (Ballón et al., 2017).

This rapid fluctuation of environmental and social protection levels is intrinsically linked to the Andean nations' dual identities as extractive countries and democracies. However, it underlines the need for mutually-reinforcing partnerships with DFIs during infrastructure planning and execution. National protections reflect not only the will of the voters, but also the governmental priorities at different points in business and commodity price cycles. International DFIs have the capacity—if properly put into action—to be active partners in the oversight of infrastructure projects in sensitive territories.

Section 5: DISCUSSION AND RECOMMENDATIONS: the Importance of Mutually-Reinforcing Networks

Infrastructure is by definition the foundation of economic activity. It can support—or impede—national goals of directing economic activity toward more sustainable, inclusive economic models. Given the unique characteristics of this region, integrating the tropical Andean Amazon through large-scale infrastructure projects should be advanced via inclusive and transparent multi-stakeholder platforms. The analyses in this study show that development banks, national governments, and local communities should each have a say in infrastructure design and direction, regarding the extent to which infrastructure advancement in the Andean Amazon is in the interest of long-run economic development that is consistent with the Sustainable Development Goals and the Paris Climate Agreement. Perhaps the key question is: to what extent does a series of processes contribute to the long-run sustainable economic development of the nation and region, in a manner that is less carbon-intensive and more socially inclusive, with special attention to the need of the region to engage in a process of structural transformation toward economies that are more complex, diversified, relatively less carbon intensive, and more socially inclusive?

Our work shows that these conditions are more likely to be met when international DFIs, national governments, and local communities can form mutually-reinforcing networks. Where either DFIs or national governments have forfeited their role in overseeing the conditions of infrastructure lending, it introduces the possibility for those conditions to be neglected. These gaps mean that effective oversight networks may require the use of international fora such as COSIPLAN for information sharing about the relative risks of projects and the performance of actors involved in them. However, while the ministers who comprise COSIPLAN stand to benefit from such information sharing, they may also face contrary incentives to facilitate and expedite infrastructure despite these risks, as is discussed below. In that case, international DFIs themselves may be wise to consider the establishment of high-level platforms for information sharing regarding related networks of projects, such as those comprising IIRSA. Regardless of the institutional context of this information sharing, it must not be limited to participation from one type of actor or another: it must also inputs on national laws from government officials and the contributions of affected communities to prevent environmental degradation and social conflict.

Our work also shows that the mere existence of standards is not sufficient to guarantee positive outcomes. The case studies examined here reveal three key reasons why government ministries and regulators—who oversee daily project operations—can sometimes fail to implement those standards because of the conflicting incentives they face: facilitating and expediting investment while following their own social and environmental protections. These failures can be triggered by a perceived need to save *time*, to save *money*, or to save *face*. The case of the CVIS highway in Peru shows an example of saving *time*, as a Supreme Decree exempted the project from some of the usual feasibility study requirements transportation projects. The Bolivian highway connecting La Paz and Oruro suffered from efforts to save *money*, as an inability to adapt to rising asphalt prices led to shortcuts on road safety and quality. Finally, particularly ambitious "showcase" projects such as Ecuador's Coca-Codo Sinclair dam can create strong temptations to save *face*, by falling short of transparency requirements such as the mandate to publish relevant environmental audits to enable stakeholders to monitor the project's progress and impacts.

However, while inadequate project planning and oversight may be driven by a desire to expedite infrastructure completion, it often results in the opposite: delays, cost overruns, and project cancellations. As Table 8 shows, many of the projects in the case studies discussed here ultimately

brought complications for the DFIs involved due to inadequate planning or collaboration with national governments. Perhaps most striking is the case of the Inambari dam. As mentioned above, this project was to be the first of five dams supplying energy to both Peru and Brazil. Due to serious weaknesses in the environmental and social considerations of the project plan, it was met with community opposition that successfully challenged the project. The remaining four projects have been shelved indefinitely. As BNDES never formally participated in the project—because it was cancelled before any construction services would merit the involvement of an export credit agency like BNDES—it avoided becoming ensnared in an embarrassing failure. Nonetheless, the cancellation of the five-dam project series ultimately cost BNDES a significant portion of its share in the regional infrastructure market. Given the current overall infrastructure surge in the region, it is unlikely that any international DFI would want to repeat that experience.

TABLE 8: Difficulties for DFIs and National Governments Due to Inadequate Collaboration and Oversight

Country	Project	Difficulty
Ecuador	Baba Multipurpose Dam	Project had to be re-designed after a successful legal challenge to its environmental license.
Peru	Inambari Dam	This project was cancelled – and four others shelved – amidst protests regarding inadequate social and environmental planning
Bolivia	San Buenaventura - Ixiamas highway	Paralyzed project because the Bolivian government has not held the contractor accountable for their debts upon leaving, nor found a replacement
	Montero - Yapacaní highway	Unsatisfactory progress due to an inability to renegotiate the budget for rising materials cost

Ecuador's Coca-Codo Sinclair (CCS) dam offers a sobering example, in which all oversight fell to the state, although sharing information between DFIs, contractors, and local governments could have prevented significant social conflict. The project received financing by the Export-Import Bank of China, which practices an extremely deferential approach to ESRM, in 2010, but by 2011, workers had already filed 26 official labor complaints with the Ecuadorian government. One major theme of these complaints was the lack of adequate attention to worker safety, which contributed ultimately to the deaths of 13 workers (10 Ecuadorian and 3 Chinese workers) when a work platform collapsed. Another problem involved the quality of water provided for worker hydration and showers at the camp, which health personnel blamed for typhoid fever and bacterial infections among project staff. After these formal complaints and health problems, as well as multiple strikes, national Labor Minister Francisco Vacas visited the worksite to resolve these recurring problems. Fieldwork interviews with project workers show that after Min. Vacas' visit, conditions have improved dramatically. Water quality has ceased to be a concern, and workers even mentioned their appreciation for workplace perks such as free internet and a volleyball court. Clearly, intervention by the national government helped address serious workplace concerns. But the absence of a proactive lender with their own standards, and without collaboration between the lender and the national government to ensure that standards were being met, that compliance took unnecessary years and cost lives.

The same can be said for situations in which a DFI has sufficient capacity and institutional will, but the national government does not. The other Ecuadorean case study covered by this project, the Baba Multipurpose Project (a dam with the goal of electricity generation, flood control, and irrigation), shows this all lesson too clearly. The IADB financed the pre-investment studies for this project and approved it in 2007, with conditions including community relocation and alternative livelihood development for affected households. Later that same year, though, the IADB cancelled its participation in the project. The project continued with national government funding, but without the IADB's support in coordinating the safeguard implementation. In this case, the affected communities found partial relief by filing a complaint with the Constitutional Guarantee Tribunal, which found in their favor in 2008, leading to a reformulation of the project to displace only 43 households instead of 240. Households that were not displaced, however, still felt the impact of the project through changes in the water table, requiring deeper wells for household water use.

A more positive example emerges from the Peruvian CVIS highway, discussed above. When that loan was approved, Peru did not have the institutional capacity to oversee the social and environmental risks of such a project. CAF's assistance to Peru in establishing oversight offices shows that DFIs and countries can accomplish better results when they share an understanding of the possible risks from the outset of the project, and approach those risks together. Although the CVIS highway project ultimately brought other, significant social and environmental problems beyond what Peru's new institutions could manage, the fact remains that CAF showed itself to be able to assist national governments in addressing gaps in regulatory oversight.

Thus, as infrastructure boom continues in the Andean Amazon, projects must take these risks into account if they are to avoid the repetition of past problems. Specifically, we recommend the following guiding principles:

STAKEHOLDER ENGAGEMENT early in the project cycle. This includes not only guaranteeing the right of free, prior, and informed consultation or consent regarding already-planned projects, but also incorporating local voices into project design and maintaining engagement throughout the project cycle. The example of the Inambari dam in Peru shows that neglecting to take into account local voices in the planning process can result in untenable project designs, endangering not only specific projects, but also development banks' reputation, so dramatically as to jeopardize their project pipelines. The example of Brazil's Fundo Amazonia, in contrast, shows that indigenous communities are capable of participating fully in—and even leading—project design.

COMPREHENSIVE UPSTREAM AND DOWNSTREAM ENVIRONMENTAL IMPACT ASSESSMENTS, which take into account not only environmental risks associated directly with each separate loan application, but with the entire project. As the Peruvian CVIS highway case study shows, the environmental impacts of a project can still be significant even if they are indirect, brought about by new migration and economic patterns enabled by a project. The approach of planning for the "induced future" brought about by the San Buenaventura-Ixiamas highway in Boliva shows an example of how the scope of EIAs can be expanded to take into account these indirect impacts. Special upstream attention should go toward designing infrastructure projects that unlocks the region's dependence on extractive industries and commodities that are characterized by the boom and bust cycles that have proven to plague long run growth prospects and endemically accentuate social conflict and environmental degradation.

INSTRUMENTS FOR TRANSPARENCY AND ACCOUNTABILITY to be incorporated into project plans and commitments beginning early in the project cycle. Without public access to appropriate environmental reports, stakeholders cannot effectively gauge project risks or participate fully in

community consultations. Where contractor obligations are not set forth clearly, and where a lack of transparency prevents civil society from monitoring outcomes, performance can easily fall short of commitments, leaving communities with unmet needs in employment, safety, and even access to infrastructure itself.

In order to address all of these potential gaps in project planning and oversight, it is imperative for international DFIs and national governments to form mutually-reinforcing networks of support. Given that international DFIs are almost by definition intermediaries between governments, private sector contractors, and local communities, DFIs are uniquely poised to host platforms where all stakeholders can formulate and voice their preferences and concerns, and broker projects that maximize the benefits and minimize risks for all parties involved.

REFERENCES

Andersen, Lykke E., Susana del Granado, Agnes Medinaceli, and Miguel Antono Roca. (2018, forthcoming). "Salvaguardando el Desarrollo Sostenible en Bolivia: Lecciones extraídas de tres proyectos carreteros con financiamiento de la CAF, el Banco Mundial, y el BID." Boston: BU Global Development Policy Center Working Paper.

Appe, Susan and Daniel Barragán. (2017). "Policy Windows for CSOs in Latin America: Looking Outside Legal and Regulatory Frameworks." Voluntas 28:4 (August), 1812-1831. doi: 10.1007/s11266-015-9666-z

Asamblea Constituyente de Bolivia. (2009). "Nueva Constitución Política del Estado." Accessed 20 November 2017. http://www.mindef.gob.bo/mindef/sites/default/files/nueva_cpe_abi.pdf.

Asamblea Nacional del Ecuador. (2010). "Ley Orgánica de Participación Ciudadana." Registro Oficial Suplemento 175, 20 Apr. 2010. Organization of American States. Accessed 20 November 2017. http://www.oas.org/juridico/PDFs/mesicic4_ecu_org6.pdf.

Ballón, Eduardo, Raúl Molina, Claudia Viale, and Carlos Monge. (2017). "Minería y Marcos Institucionales en al Región Andina: El Superciclo y Su Legado, o las Difíciles Relaciones Entre Políticas de Promoción de la Inversión Minero-Hidrocarburífera y las Reformas Institucionales." Lima: Natural Resource Governance Institute. https://resourcegovernance.org/sites/default/files/documents/giz-reporte-version-10.pdf.

Barber, C. P., Cochrane, M. A., Souza Jr, C. M., & Laurance, W. F. (2014). "Roads, deforestation, and the mitigating effects of protected areas in the Amazon." Biological Conservation, 177, 203-209. https://doi.org/10.1016/j.biocon.2014.07.004.

Barros, Nathan, Jonathan J. Cole, Lars J. Tranvik, Yves T. Prairie, David Bastviken, Vera L. M. Huszar, Paul del Giorgio & Fábio Roland. (2011). "Carbon Emissions from Hydroelectric reservoirs linked to Reservoir Age and Latitude. Nature Geoscience, 4:9, 593-596. doi:10.1038/ngeo1211

Benítez-López, A., Alkemade, R., & Verweij, P. (2009). "The impacts of roads and other infrastructure on mammal and bird populations: a meta-analysis." Biological Conservation, 143, 1307-1316. https://doi.org/10.1016/j.biocon.2010.02.009.

Blanton, Thomas. (2007). "The Struggle for Openness in International Financial Institutions." The Right to Know, Ann Florina, Eds. New York: Columbia University Press.

CAF (Development Bank of Latin America). (2010). "CAF's Environmental Strategy." Consulted 9 March 2018 from http://publicaciones.caf.com/media/1407/estrategia_ambiental_eng.pdf.

CHEXIM (Export-Import Bank of China). (2016). "White Paper on Green Finance." Consulted 9 March 2018 from http://cms.eximbank.gov.cn/upload/accessory/20172/20172201624516937087.pdf.

Congreso de la República. (2011). "Ley del Derecho a la Consulta Previa a los Pueblos Indígenas u Originarios, Reconocido en el Convenio 169 de la Organización Internacional del Trabajo (OIT)." El Peruano. Accessed 20 November 2017 from http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/88881/101786/F114786124/PER88881.pdf.

Dammert Bello, Juan Luis. (2018, forthcoming). "Salvaguardas ambientales y sociales en el financiamiento de proyectos de infraestructura en la Amazonía peruana." Boston: BU Global

Development Policy Center Working Paper.

Daniel, Caitlin, Kristen Genovese, Mariëtte van Huijstee, and Sara Singh. (2016). "Glass Half Full? The State of Accountability in Development Finance." Amsterdam: Centre for Research on Multinational Corporations (SOMO). https://www.somo.nl/wp-content/uploads/2016/03/Glass-half-full.pdf.

Eckholm, Erik. (1984). "World Bank Is Urged to Halt Aid to Brazil for Amazon Settlement." New York Times, 17 October. Accessed 4 December 2017 from http://www.nytimes.com/1984/10/

17/us/world-bank-is-urged-to-halt-aid-to-brazil-for-amazon-settlement.html.

Fearnside, P.M (2015), "Emissions from Tropical Hydropower and the IPCC," Environmental Sciences & Policy 50, 225-23. https://doi.org/10.1016/j.envsci.2015.03.002.

Fearnside, P.M. (1997). "Greenhouse-gas emissions from Amazonian hydroelectric reservoirs: the example of Brazil's Tucuruı´ Dam as compared to fossil fuel alternatives." Environmental Conservation. 24, 64–75, http://dx.doi.org/10.1017/S0376892997000118.

Fearnside, P.M., Pueyo, S. (2012). Underestimating greenhouse-gas emissions from tropical dams. Nat. Climate Change 2, 382–384, http://dx.doi.org/10.1038/nclimate1540.

Fox, John. (2007). "The Uncertain Relationship Between Transparency and Accountability." Development in Practice 17:4-5, 663-671. https://doi.org/10.1080/09614520701469955.

Gallagher, Kevin and Fei Yuan. (2017). "Standardizing Sustainable Development: A Comparison of Development Banks in the Americas." Journal of Environment & Development 26(3), 243-271. doi: 10.1177/1070496517720711

GITPA (Groupe International de Travail pour les Peuples Autochtones). (2005). "Amérinds de Guyane." Severne. http://www.gitpa.org/Peuple%20GITPA%20500/gitpa500-2-GUYANEfiche.pdf.

Grieg-Gran, Maryanne. (2008). "The Cost of Avoiding Deforestation: Update of the Report Prepared for the Stern Review of the Economics of Climate Change." London: International Institute for Environment and Development. http://pubs.iied.org/pdfs/G02489.pdf.

GVF-IFC (Getulio Vargas Foundation-International Finance Corporation) (2017), Large Scale Projects in the Amazon: Lessons Learned and Guidelines, Washington: International Finance Corporation.

Hansen, M.C., P.V. Potapov, R. Moore, M. Hancher, S.A. Turubanova, A. Tyukavina, D. Thau, S.V. Stehman, S.J. Goetz, T.R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C.O. Justice, and J.R.G. Townshend. (2013). "High-Resolution Global Maps of 21st-Century Forest Cover Change." Science 342: 6160 (15 Nov), 850-853. Updated database consulted November 15, 2017 from http://earthenginepartners.appspot.com/science-2013-global-forest.

Heck, Egon, Francisco Loebens, and Priscilla D. Carvalho. (2005). "Amazônia Indígena: Conquistas e Desafios." Estudos Avançados 19:53 (April). http://dx.doi.org/10.1590/S0103-40142005000100015.

INE (Instituto Nacional de Estadística). (2011). "Resultados Población Indígena." Caracas. http://www.ine.gov.ve/documentos/Demografia/CensodePoblacionyVivienda/pdf/ResultadosBasicos.pdf.

INEI (Instituto Nacional de Estadística e Informática. (2016). "Población indígena de la Amazonía peruana supera los 330 mil habitantes." Press Release, consulted 9 March 2018. https://www.inei.gob.pe/prensa/noticias/poblacion-indigena-de-la-amazonia-peruana-supera-los-330-mil-habitantes-9232/.

IADB (Inter-American Development Bank) (2017), Four Decades of Infrastructure Related Project Related Conflicts in Latin America and the Caribbean, Washington: Inter-American Development Bank.

Ickowitz, Amy, Erin Sills, and Claudio de Sassi. (2017). "Estimating Smallholder Opportunity Costs of REDD+: A Pantropical Analysis from Households to Carbon and Back." World Development 95: 15-26. http://dx.doi.org/10.1016/j.

IIC (Inter-American Investment Corporation). (2013). "IIC Environmental and Social Sustainability Policy, Effective Date: September 1, 2013." Consulted March 9, 2018 from http://www.iic.org/environmental-and-social-sustainability-policy.pdf.

IFC (International Finance Corporation). (2012). "IFC Performance Standards on Environmental and Social Sustainability, Effective January 1, 2012." Consulted March 9, 2018 from https://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES.

Kambel, Ellen-Rose. (2007). "Indigenous Peoples and Maroons in Suriname." Washington: Inter-American Development Bank. https://publications.iadb.org/bitstream/handle/11319/4331/Indigenous%20Peoples%20and%20Maroons%20in%20Suriname.pdf?%20sequence=1.

Kimerling, Judith. (2008). "Transnational Operations, Bi-National Injustice: Indigenous Amazonian Peoples and Ecuador, ChevronTexaco, and Agunda v. Texaco." L'Observateur Des Nations Unies 24: 207-274.

Kvam, Reidar. (2017). "Meaningful Stakeholder Engagement." Washington: Inter-American Development Bank. http://dx.doi.org/10.18235/0000776#sthash.vEQiTXlu.dpuf.

Klinger, Julie. (2018). "Safeguarding Sustainable Development: BNDES, Fundo Amazonia, and Sustainable Development in the Northwestern Brazilian Amazon." Boston: BU Global Development Policy Center Working Paper.

Kvam, Reidar. (2017). "Meaningful Stakeholder Consultation." Washington, DC: Inter-American Development Bank. https://publications.iadb.org/bitstream/handle/11319/8454/Meaningful-Stakeholder-Consultation.pdf?sequence=3&isAllowed=y.

Lalander, Rickard. (2015). "Entre el Ecocentrismo y el Pragmatismo Ambiental: Consideraciones Inductivas sobre Desarrollo, Extractivismo y los Derechos de la Naturaleza en Bolivia y Ecuador." Revista Chilena de Derecho y Ciencia Política 6:1 (Jan-Apr), 109-152. doi: 10.7770/RCHDYCP-V6N1-ART837

LandMark. (no date). "Indigenous Lands." Online database, consulted 1 March 2018. http://www.landmarkmap.org.

Lanegra, Iván. (2014). "Institucionalidad Ambiental Peruna." In Agenda de Investigación en Temas Socioambientales en el Perú: Una Aproximación desde las Ciencias Sociales, Gerardo Damonte and Gisselle Vila, Eds. Lima: Ponti cia Universidad Católica del Perú.

Larsen, Gaia and Athena Ballesteros. (2013). "Striking the Balance: Ownership and Accountability in Social and Environmental Safeguards." Washington, DC: World Resources Institute. http://pdf.wri.org/striking_the_balance_ownership_and_accountability_in_social_and_environmental_safeguards.pdf.

Laurance, W. F., Miriam Goosem, and Susan G. W. Laurance. (2009). "Impacts of roads and linear clearings on tropical forests." Trends in Ecology and Evolution, 24:12, 659-669. doi: 10.1016/j.tree.2009.06.009

Laurance, William F., Anna Peletier-Jellema, Bart Geenen, Harko Koster, Pita Verweij, Pitou Van Dijck, Thomas E. Lovejoy, Judith Schleicher, Marijke Van Kuijk (2015). Reducing the global environmental impacts of rapid infrastructure expansion. Current Biology, 25, R259-262. https://doi.org/10.1016/j.cub.2015.02.050.

Martínez Alier, Joan. (2015.) "Ecología Política del Extractivismo y Justicia Socio-Ambiental." Interdisciplina 3:7, 57-73.

Nolet, Gijs, Willem Vosmer, Matthijs de Bruijn, and Isabelle Braly-Cartillier. (2014). "Managing Environmental and Social Risks: A Roadmap for National Development in Latin America and the Caribbean." Washington: Inter-American Development Bank. https://publications.iadb.org/handle/11319/6437?locale-attribute=en&.

Pozo, Erik. (2012). "¿De campesino a indígena?" Ideele 221 (July), Accessed 4 December 2017 from http://revistaideele.com/ideele/content/¿de-campesino-ind%C3%ADgena.

Ray, Rebecca. (2018). "The Co-Benefits of Stakeholder Engagement: Environmental and Social Safeguards, Infrastructure Investment, and Deforestation in the Andean Amazon, 2000-2015." Boston: BU Global Development Policy Center Working Paper.

Renshaw, Jonathan. (2007). "Guyana: Technical Note on Indigenous Peoples." Washington: Inter-American Development Bank. https://publications.iadb.org/bitstream/handle/11319/5974/Guyana%3A%20Technical%20Note%20on%20Indigenous%20Peoples%20.pdf;sequence=1.

Reyes, Juan Fernando and Mónica Amparo Herbas. (2005). "La Amazonía Boliviana y los Objetivos de Desarrollo del Milenio." La Paz: Herencia Interdisciplinaria para el Desarrollo Sostenible. http://www.avina.net/avina//wp-content/uploads/2012/09/odm-final-Bolivia-copia.pdf.

Rich, Bruce. (1994). Mortgaging the Earth: The World Bank Environmental Impoverishment, and the Crisis of Development. Boston: Beacon Press.

Sanborn, Cynthia A., Verónica Hurtada, and Tania Ramírez. (2016). La Consulta Previa en Perú: Avances y Retrocesos. Lima: Universidad del Pacífico Press.

Seymour, Frances and Jonah Busch (2016), Why Forests? Why Now? The Science, Economics, and Politics of Tropical Forests and Climate Change, Washington: Center for Global Development.

Shephard, Jr., Glenn H., Klaus Rummenhoeller, Julie Ohl-Schacherer, and Douglas W. Yu. (2010). "Trouble in Paradise: Indigenous Populations, Anthropological Policies, and Biodiversity Conservation in Manu National Park, Peru." Journal of Sustainable Forestry 29: 253-301. doi: 10.1080/10549810903548153.

SIAT-AC (Sistema de Información Ambiental Territorial de la Amazonía Colombiana. (no date). "Población." Bogotá. Website, consulted 9 March 2018. http://siatac.co/web/guest/poblacion.

Smithsonian Institution Global Volcanism Program. (no date). "Reventador: Weekly Reports – Index." Online database, consulted 9 March 2018 from http://volcano.si.edu/volcano.cfm?vn=352010&vtab=Weekly.

Survival International. (no date). "The Uncontacted Frontier." Website, consulted 9 March 2018.

https://www.survivalinternational.org/tribes/amazonuncontactedfrontier.

Tanasescu, Mihnea. (2013). "The Rights of Nature in Ecuador: The Making of an Idea." International Journal of Environmental Studies 70:6, 846-861. http://dx.doi.org/10.1080/00207233.2013.845715.

U.S. Government. (2013). "Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis." Washington: Interagency Working Group on the Social Cost of Carbon. https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf.

Vallejo, María Cristina, Betty Espinosa, and Francisco Venes. (2018, forthcoming). "Salvaguardar el desarrollo sostenible: análisis de proyectos hidroeléctricos en el Ecuador." Boston: BU Global Development Policy Center Working Paper.

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