



Institute for
Development Impact



Conditions for Voluntary Adoption of Best Management Practices

Research Report



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Executive Summary

The Amazon Basin is a unique asset to its nations and is valued by the world as home to 33 million people, including 1.6 million indigenous people and as host to one third of the world's known species of plants and animals. Within the context of rapid economic growth and significant political and social change in South America, large parts of Amazonia continue to experience high poverty levels and Amazonian countries all face significant environmental problems, in part due to large-scale infrastructure investments, mining (large and small scale) and petroleum extraction, among others. High-impact infrastructure projects are multiplying throughout the developing world and are expected to continue to expand in the coming years.

Best management practices (BMPs) are those that minimize the negative environmental, social, and/or economic impacts that stem from the use of typical practice in such investments. Voluntary adoption of BMPs has been documented around the world, but comparative analyses of the drivers of voluntary adoption are scarce. On behalf of USAID/Peru, the Institute for Development Impact (I4DI) undertook a mixed-methods study to answer the question, "Under what conditions have private industries and investors become voluntary adopters of best management practices in hydropower, oil and gas, large-scale industrial mining, and road projects?" With a particular focus on private industries working in Amazonia, Latin America, and/or areas pertinent to tropical forests, this study examined BMPs applied across various aspects of project development and implementation and developed a model that helps predict the conditions under which private industries and investors become voluntary adopters, and that thus could be implemented in the coming high-impact projects within the Amazon region.

I4DI's BMP study consisted of two phases: 1) a systematic literature review and 2) case studies derived predominantly from primary data collection and analysis among a sample of voluntary adopters in the private sector. Once the cases were selected, I4DI's research team invited a group of respondents to participate in a brief quantitative survey designed to elicit basic information about the decision-making and implementation process for the BMPs. In addition, I4DI conducted 22 key informant interviews (KIIs) with decision makers and implementers from the business firms as well as with external influencers, to develop detailed case descriptions of the voluntary BMP decision-making process, implementation, and outcomes. This desk study took place from January-July of 2017.



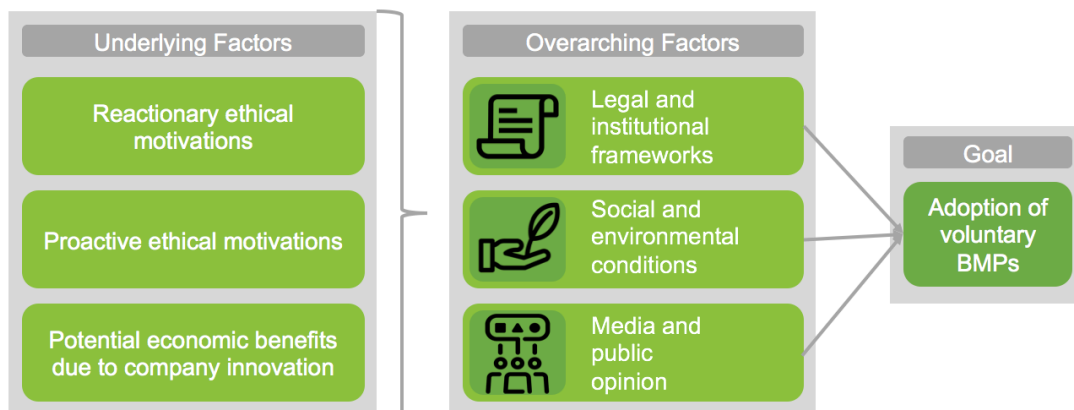
Overall conclusions:

There is a consolidated paradigm shift in place towards sustainability, which has permeated the public and scientific arenas, as well as the business sector, worldwide. This trend, supported by an increasing number of legal and institutional frameworks, compels private firms to develop more socio-environmentally responsible approaches. Importantly, ESG factors (environmental, social and corporate governance) have become a global trend for investors and sustainability reports.

To analyze what motivates BMP adoption, I4DI developed a predictive model that includes a "sustainability maturity concept", which we adapted from a concept coined by the International Council for Mining and Metals (ICMM) -- "the maturity conservation context". This concept has relevant criteria for considering the likelihood of a company to behave in certain ways and extends the reach of conventional analyses regarding environmental impact

assessments. The sustainability maturity context follows on the work of Schaltegger and Burritt (2015) regarding ethical motivations for Corporate Social Responsibility (CSR) and corporate sustainability, and incorporates ICMM recommendations from the “maturity conservation” concept. In sum, the “sustainability maturity concept” refers to context factors that influence the adoption and implementation of BMPs on a voluntary basis, going well beyond a firm’s or financing agency’s immediate decision-making process.

The overarching factors that might determine the adoption of voluntary BMPs are as follows: 1) legal and institutional frameworks; 2) social and environmental conditions of the project’s area of influence; and 3) media and public opinion. Underlying these overarching factors, we identified seven more specific drivers, which we grouped into three motivational categories of a) reactionary ethical motivations, b) proactive ethical motivations, and c) potential economic benefits due to company innovation.



Following a literature review and based on a subsequent survey and key interviews, I4DI developed BMP case studies to test our initial predictive model, resulting in this sustainability maturity concept and the identified motivating factors. Case-specific findings include the following drivers for BMP adoption:

- Organizational leadership and commitment to local communities was seen as the main driver for the BMPs implemented in our mining sector case study.
- Conditionalities of the multilateral funding source were the determining factor in the infrastructure case (road construction).
- The oil/gas case seems to be a hybrid, in that the implementing firm was required by the financing agent to implement certain aspects of the offshore-inland model and to monitor biodiversity impacts, but the firm went beyond these minimal requirements and made further investments to ensure BMP success.
- Visibility to the public eye, be it institutional or from the local community, was reputed as a major game changer for the implementing companies, as is evident in the cases pertaining to the mining and oil & gas sectors. This may be of considerable value for the Amazon Basin, since institutional presence in this region is deficient and companies might perceive less pressure (in terms of responsible behavior towards the environment and trust to be gained from the local communities).
- Even though the adoption of voluntary BMPs is gaining prevalence, we found that most BMPs are adopted in contexts where regulatory frameworks or financing agents demand their implementation. For example, the San Francisco-Mocoa highway and Camisea oil/gas cases confirmed that when environmental and social safeguards policies of multilateral banks are more rigorous than those required by national standards, such safeguards are a key factor for governments and businesses to conduct more robust environmental assessments, apply stricter compensation schemes and develop better biodiversity conservation practices. In these cases, project implementers met the minimal requirements and made further, voluntary, actions for the BMPs considered in our study.

Throughout the case studies, multiple context factors jointly determine BMP adoption. For example, the attitude of mid-rank government officials was a crucial factor for the BMP in the infrastructure sector. Or purely economic reasons are often merged with environmental friendly actions, such as the hydropower BMPs, and the initiatives from the beverages industry.

As an example of the influence of the sustainability maturity context, the BMPs implemented by the beverages sector proved that the presence and support of the state and its institutions is a relevant factor that benefits the active involvement of private actors in the implementation of BMPs. Specifically, the proactive stance of environmental agencies in promoting cross-sector dialogue was a key factor in the resulting private public alliance that generated the BMPs in question. The beverages industry proved to be the most dynamic and keen on assuming market leadership based on sustainability motives, which could mark some guidelines for the extractive and/or infrastructure sectors.

As the infrastructure sector is driven largely by states and public policies, we note the importance of longer-term state policies and overarching infrastructure plans by national governments that could include BMPs and other incentives for improved practices. Our case study for this sector noted that private contractors do not feel any pressure, nor do they receive any incentives for adopting BMPs voluntarily.

Long-term planning was also relevant at the project level regarding lessons learned in implementing BMPs. Our mining case study provides a relevant opportunity for high-impact projects: the importance and utility of establishing long term plans from the initial phases up to the termination of the projects. This can be extended to all sectors, to more easily manage compensation and remediation costs and, in particular, foster cyclical BMP planning and implementation.

Finally, the mining and oil & gas sectors in our case studies show the degree to which BMPs can also serve to avoid or abate conflict. Involving local communities in project monitoring and building new skills and capacities that improve socio-economic conditions were successful examples in this regard. As part of the design and implementation process of these BMPs, companies established cooperation agreements with the local communities including negotiations that resulted in clear goals and local benefits.

We found three key institutional and methodological dynamics that were important in assessing the voluntary nature of BMP adoption.

- *Private sector willingness to share information:* Despite having initial positive responses to information requests, many firms exhibited various delays and even resistance to providing information and testimony on the process and results of the BMP. In general, respondents with a higher academic level or those responsible for sustainability sectors within the companies tended to be more interested in providing I4DI with information and interviews.
- *Internal consistency in commitment to BMPs:* Related in part to the firm's openness to discuss their BMP adoption, we also found leadership and clarity within the firm to be key. Our interviews with mid-level employees demonstrated that their understanding of CEO support for BMPs and more responsible investments was a critical requirement for sustainable interventions with local communities. Firms that demonstrate greater consistency between CEO and mid-level coordinators appear to be more likely to implement BMPs, while the case where this coherence was not confirmed by I4DI (the San Francisco-Mocoa road) shows a clear uncertainty regarding the commitment to and continuity of the BMP.
- *Unwillingness or inability to proactively communicate BMP experiences:* A limitation found during this study was that companies are not used to documenting their processes and experiences. Many respondents, particularly in the Oil/Gas sector case study, noted that good storytelling and proactive public relations could greatly enhance the positive visibility of both the firms involved and the results of their BMPs. However,

concerns of negative public criticism leads companies to avoid such risks. Also, staff rotation and loss of institutional memory can detract from opportunities to document and strategically share such experiences. For example, very few respondents were part of the early stages of decision-making and planning of the targeted BMPs. This underscores the necessity of documenting the processes and BMPs from the beginning of their life cycle in order to analyze thoroughly and communicate effectively about BMPs

This study found interest in and utility for promoting shared learning, dialog and alliance building regarding BMP design and implementation. As part of the ongoing paradigm shift toward sustainability, discussion clusters or thematic/sector gatherings could benefit from industry leadership by the CEOs or other staff with BMP experiences such as those in the current study. Support for public-private alliances can be critical in promoting effective BMPs. Community representation and local NGO participation are essential in successfully framing and implementing BMPs within determinant political, social and economic contexts. Recognizing the maturity of this sustainability context and understanding the motivations for voluntary adoption of BMPs, including shifts in the relative importance of drivers over the life-span of high impact projects, will be important factors in ensuring that the negative impacts of traditional practice are avoided.



Introduction

On behalf of USAID/Peru, the Institute for Development Impact (I4DI) undertook a mixed-methods study to examine the conditions under which private industries become voluntary adopters of best management practices (BMPs) in hydropower, oil and gas, large-scale industrial mining, beverages, and road projects. With a particular focus on private industries working in Amazonia, Latin America, and/or areas pertinent to tropical forests, this study examined BMPs applied across various aspects of project development and implementation, including environmental assessments, siting, design, operation, and closure. The findings from this study inform the development of a model that predicts the conditions under which private industries and investors become voluntary adopters.

USAID defines best management practices as those that minimize the negative environmental, social, and/or economic impacts that stem from typical practices (USAID, 2016). BMPs may be used during environmental impact assessments, siting, project design and operation, and project closure, and are intended to reduce the deleterious impacts produced by typical practices. BMPs, either adopted and enforced by financing entities and/or voluntarily adopted by the self-financing private firms that implement high-impact development projects, can result in a variety of benefits for the private sector, including risk reduction, improved operational efficiency, and reduced governmental regulatory and enforcement burdens. Although BMPs can be adopted as the result of legal requirements by host governments, industries can also voluntarily adopt BMPs. Voluntary adoption of BMPs can often yield much faster returns than typical regulatory processes.



This report serves several functions in this regard. This study will contribute to the design of USAID’s forthcoming Amazon regional environmental strategy, which will focus on reducing the negative impacts from large-scale infrastructure projects, extractive activities, and climate change on Amazonian forests, waters, and indigenous peoples (USAID 2016b). As such, I4DI presents a series of situational and contextual factors that benefit the adoption of a voluntary practice by private actors, and the ways in which these BMPs generate positive impacts to the local communities of the influence areas and positive gains for the environment. I4DI also critically examines some situations in which impacts were not as positive as expected. We further present a predictive model for BMP voluntary adoption, which could be tested and validated in related forthcoming efforts by USAID in the Amazon region.

Since the focus of the study is the voluntary nature of adopting BMPs, it is important to note the targeted nature of our selection of case studies and informants, as opposed to seeking a representative sample of respondents across issues and examples of BMPs in general. Rather, we consider the main drivers for the voluntary adoption of BMPs in a series of selected case studies and compare them *vis-à-vis* a preliminary model designed by I4DI before the commencement of the study. We thus hope to increase understanding of the motivating factors that encourage a company or a project to act above the minimal requirements and voluntarily adopt additional or innovative BMPs. By the same token, this study is not intended to assess corporate behavior, but rather is more concerned with the life cycle of the selected BMPs, irrespective of the overall performance of the implementing organizations.

The study was implemented from January to July of 2017 and consisted of two phases. First, I4DI conducted a systematic literature review to identify potential BMPs and case studies, and refined an initial methodology. With

USAID's approval of the first phase products, I4DI then selected a number of BMP case studies for which we gathered and analyzed primary and secondary data across a sample of voluntary adopters in the private sector. After analyzing our interviews and survey results, I4DI refined the predictive model identifying the motivating drivers for voluntary adoption of BMPs.

In the next section of this report I4DI presents the background of the BMPs selected for the study, followed by the methodology employed by the research team. The final section presents the findings and conclusions of the study and I4DI's overall conclusions.

Background

Following is a description of the BMPs identified during the research activity's literature review phase and later validated with the implementing actors during the subsequent case study phase. I4DI presents the selected BMPs by sector.

a. Oil and Gas Sector

I4DI identified two interrelated projects for the Oil & Gas sector, both implemented in Peru, each with relevant BMPs. First are the Camisea hydrocarbon fields along the Urubamba River in a biodiversity 'hotspot' of extreme environmental value and cultural diversity in Peru's Amazon region. The BMP selected for this research report is the offshore/inland model implemented by Pluspetrol and *Transportadora de Gas del Peru* and involves the gas fields, the natural gas plant at Las Malvinas, and a section of the pipeline from the plant.

i. The offshore-inland "roadless" model

This best management practice seeks to minimize forest clearing by avoiding the construction of access roads to drilling platforms and elsewhere in the hydrocarbon field. Specifically this BMP includes: "1) no new access roads, processing facilities, or permanent camps beyond the banks of navigable rivers, and 2) transport of people, materials, and equipment [must be] by air or river (with controls on size and frequency of movements). In other words, companies must operate as if at sea..." (Finer, Jenkins, & Powers, 2013, pág. 4). The hypothesized effect would reduce social conflict and mitigate localized negative environmental and social conditions with local communities as a result of hydrocarbon exploration. The model also seeks to result in much less deforestation than typical hydrocarbon practices in similar tropical forest environments. Certain techniques within this broader BMP were implemented voluntarily while others were required by financing agencies over later stages of this complex project.

The second project is a 408-km pipeline constructed and managed by Peru LNG in partnership with Hunt Oil, which goes from the upper jungle of Ayacucho to the Pampa Melchorita Plant in the Cañetana coast, traversing the Andes regions of Ayacucho y Huancavelica. The BMP identified for this project was:

ii. Biodiversity monitoring and community environmental monitoring

This BMP involved two complementary but distinct monitoring programs designed to provide higher quality, more comprehensive and more frequent biodiversity indicator data regarding the impact of the pipeline and recuperation of disturbed areas than typical monitoring, as required by the Environmental Impact Assessment. Both BMPs also seek to build more local capacity and engagement than would typically occur in traditional monitoring programs. The first is the Biodiversity Assessment, Monitoring and Conservation Program (BAMCP) implemented by the Smithsonian Institution's Conservation Biology Institute's Center for Conservation and Sustainability (CSS) in partnership with Peru LNG/Hunt Oil and a plethora of local researchers and community members over the course of the pipeline down to the coastal plant. The second is the Community Environmental Monitoring Program (Programa de Monitoreo Ambiental Comunitario)

implemented by Peruvian NGO Pronaturaleza with communities in the Upper and Lower Urubamba and supported by Hunt Oil.

b. Mining Sector

I4DI selected three BMPs in this sector in Peru and Colombia:

i- Conservation agreements and voluntary projects that address biodiversity

In 2003, Conservation International (CI), The Mountain Institute (TMI), Asociación Ancash (AA), the Association of Andean Ecosystems and Antamina agreed to a joint venture promoting the conservation and protection of the Polylepis forests (a shrub and tree forest endemic to mid-high elevation ranges) in southern Conchucos within Peru's central Andes. The proposed tool was conservation agreements that would allow the local communities to become involved in caring for Polylepis areas, protecting existing forest and managing grasslands to avoid over-grazing. At the project outset, conservation agreements were very new and the work proposed in Conchucos constituted a pilot experience and training to understand how and if conservation agreements were an appropriate tool to achieve conservation and to improve the well being of local communities.

ii- Wildlife management plan

Cerrejon Coal in Colombia implemented a sophisticated wildlife management and conservation plan that seeks to conserve biodiversity by establishing regional geographical corridors between the Sierra Nevada Santa Martha and the *Serranía Perijá* (Colombian Andes), thus connecting Colombia's Caribbean region with the Orinoco and Amazon regions to the south. The main goal of the BMP is to integrate ecosystem-level connections across these various regions of Colombia, which entails going well beyond the direct area of influence of the mining operations. Using the jaguar as a key indicator of success, the BMP's biodiversity management plan shows success in conserving this threatened species, as the jaguar passes through and even resides within the mining pit.

iii- Water management

Cerrejon Coal has also installed an integrated water management system in this water-scarce region of Colombia. This BMP consists of continuous management over the previous eight years with the active participation of the local communities, the majority of whom are of Wayuu indigenous ethnicity. Using a knowledge sharing system designed by the company, communities participate in this BMP that values their traditional knowledge combined with the integrated water management plan.

c. Hydropower

Within the hydropower sector one project was selected in Ecuador, which includes a series of relevant BMPs for the research study. The Pucará-Pisayambo hydropower plant is located in the central mountain range of the Andes, in a lacustrine area 35 km from Pillaro, Tungurahua Province. The project's dam is located within the Llanganates National Park. I4DI presents two BMPs, one each in the construction and operation phases.

i. Taking advantage of the natural conditions to minimize environmental impacts (construction phase)

The hydropower plant was designed to take advantage of a lacustrine area, meaning that no artificial lake was built to serve as a reservoir. Instead, the Pisayambo Lake was increased and reinforced, to become the reservoir of the plant. Additionally, a penstock sluice was built within the mountain to take advantage of the natural slopes, and likewise the powerhouse was located inside the mountain, out of view.

ii. Usage of turbine water for irrigation purposes (operation phase)

The operation was designed in a way that, after passing through the turbine, the water could be used for irrigation. A water intake pipe was built to supply the channel that carries the water to the area under irrigation in the canton of Pillaro.

d. Road Infrastructure

I4DI selected one BMP in southern Colombia related to risk management throughout the construction of a road within the Amazon basin. The San Francisco-Mocoa road is the sole example of Colombian infrastructure that has developed more sophisticated risk management than that required in mandatory environmental impact assessments. This risk management strategy was designed and implemented, in part, due to the financing agent's (IADB's) new environmental safeguards and to the poor impact assessments previously conducted in the same region under the IIRSA initiative. Although this road corridor is only 46km long, it is important for this research study, as it is part of the broader IIRSA infrastructure enterprise that seeks to integrate the South American continent by constructing connecting infrastructure across the Amazon from the Pacific to Atlantic coastal ports. I4DI notes that this BMP is implemented by a government agency with multilateral funding. Thus, it is not an example of voluntary adoption by a private firm, but rather is evidence of an important BMP within a public and complex, multi-stage road construction program with blended external and national financing that is typical of most road projects in the Amazon today.

i.A sophisticated risk management strategy and environmental impact assessment

In a highly protected area rich in biodiversity, a series of environmental impact assessments were conducted which sought to install stronger environmental safeguards, going above and beyond those required in Colombian regulations. The San Francisco-Mocoa road, which is currently under construction by INVIAS (Instituto Nacional de Vías), was the first project in Colombia and the region to take into account a strategic regional environmental assessment. As evidence of this BMP's impact, the project requested that the Mocoa river protection boundaries be extended as an *ex ante* measure, indicating how this BMP aims to compensate cumulative impacts at an earlier stage in road construction, thus avoiding the standard practice of attempting to remediate negative impacts *post facto*.

e. Beverages

Due to the lack of representative BMPs from the hydropower sector in the Amazon region, I4DI considered that an additional sector could be included in the study, in order to strengthen the analysis and validation of the driver's model regarding BMPs implemented in the Amazon region. Therefore, although the beverages sector was not initially thought of as one of the industries to be analyzed, I4DI considered that this study could benefit from the analysis of BMPs from the beverages sector. Thus, two projects were identified by I4DI for this sector and are presented here, along with their selected BMPs.

i. The recovery of degraded lands in the Peruvian Amazon

This project was developed by Backus Peru - a subsidiary company of SABMiller – as an integral model of environmental management, the main purpose of which is to better use brewery by-products generated in the San Juan plant and thus reduce operational impacts while improving local environmental conditions. The Ecoparque project is located in Pucallpa in the Amazonian department of Ucayali. The project consists of an area of 248 hectares, to be reforested with more than 275,000 high-value native Amazonian trees in order to achieve three goals: 1) recover degraded soils; 2) improve environmental conditions, and 3) preserve local biodiversity. Along with the reforestation practice, the project also includes building local capacity for the recovery of degraded lands through three activities: 1) research on innovative technologies, 2) payment for environmental services, and 3) training and technical assistance in forest management to over 500 local residents.

ii. The preservation and sustainability of biodiversity and ecosystem services

This project is a private-public partnership between the AJE beverage company and the *Iniciativa Peruana Biodiversidad y Empresas* (ByE) of Peru's Ministry of Environment. The main purpose of this project is to conserve the ecosystem services of four Ramsar Areas of Peru: 1) Abanico del Pastaza [Loreto], 2) Lucre – Huacarpay [Cusco, 3), Lake Titicaca [Puno] and 4) Manglares de San Pedro de Vice [Tumbes]. AJE wants to support sustainability, creating new beverages that improve the value chain with new products that use Amazonian fruits and Andean grains, in particular ungurahui, camu camu and aguaje. AJE is also developing new means for the sustainable management of solid waste, in areas called *Islas* that intake and retain waste. The first *Isla* established by the partnership is in Machu-Picchu, which has served for eight years to manage solid waste. In alliance with the ecotourism company Inkaterra, local municipalities and ByE, AJE installed a recycling plant that helped solve the problem of accumulated waste and installed a new system of solid waste collection. Lastly, AJE is currently working on a project to preserve one of the Ramsar Areas, with the public component to be developed.



Methodology

The main purpose of the research study was to respond to the research question posed by USAID,

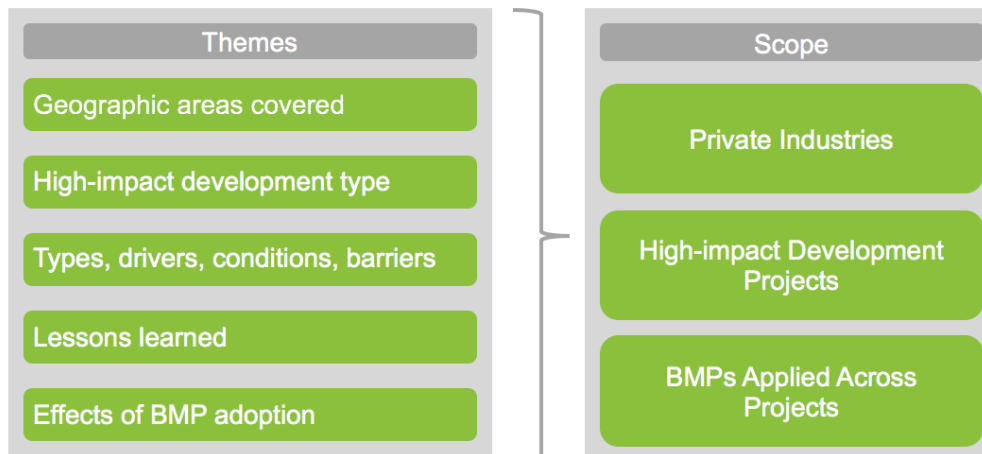
“Under what conditions have private industries and investors become voluntary adopters of best management practices in hydropower, oil and gas, large-scale industrial mining, and road projects?”

In turn, I4DI presented a preliminary model of voluntary adoption of BMPs, which was tested and refined based on the findings of the study and is included in this final report. As presented in the research methodology approved in an earlier stage of the project by USAID, the methodology consists of two main parts: i) the literature review and ii) a comprehensive case study.

a. The Literature Review Process

The focus of the literature review included the following: i) private industries and investors operating at the international and national level; ii) high-impact development projects including hydropower, large scale industrial mining, oil and gas, and road building; and iii) BMPs applied across all aspects of project development and implementation, including environmental assessments, siting, design, operation, and closure.

This process began with establishing criteria for document selection (see Annex 1) that helped to identify conditions and drivers of BMPs and formed the basis for case study selection. Key thematic areas were informed by this phase, and included: i) geographic area covered; ii) high-impact development project type; iii) types, drivers, conditions and barriers to BMPs, iv) lessons learned; and v) effects of BMP adoption on biodiversity, local communities and private companies.



Over a hundred documents were identified, including: books, peer reviewed articles, manuals of best practices, and case studies, among others. Most of the documents were geographically focused on the Amazon region. Although the type of projects primarily covered were oil and gas, large-scale industrial mining, hydropower, and road infrastructure, relevant information was also found in sectors such as beverages, sustainable production, cosmetics, and tourism. A list of BMPs for biodiversity conservation and management were identified, including: biodiversity offsets, private conservation areas, wildlife management plans, off-shore inland technology, canopy bridges, participatory environmental and social monitoring programs, run-of-river schemes for hydroelectric power, and biodiversity balance score cards. (See Annex 2: “Best Management Practices identified during I4DI’s Literature Review Process” for the complete list of BMPs by industry sector and a brief description of each).

Based on the BMPs found, I4DI's research team identified 15 possible cases. Chart 1 lists the cases and the BMPs for each. (See Annex 3 for a more detailed description of the initial sample of these potential cases).

Chart 1. List of possible case studies after literature review

Project	Company	Country. Location	Type of Project	BMP implemented
1) Camisea	Pluspetrol and Transportadora de Gas del Perú	Peru	Oil & Gas.	<ul style="list-style-type: none"> The "offshore-inland"/ "roadless" model
2) Perú LNG	Hunt Oil	Peru	Oil & Gas.	<ul style="list-style-type: none"> A robust stakeholder engagement process A systematized grievance mechanism Local hiring and purchasing procedures A Rural Andean Community Management Strategy The Participatory Environmental and Social Monitoring Programmes (PESMP)
3) Villano Oil	Agip Oil Ecuador (Eni's subsidiary)	Ecuador	Oil & Gas	<ul style="list-style-type: none"> Open dialogue engagement with different stakeholders Thinking about whole landscapes Following the mitigation hierarchy
4) Antamina	Compañía Minera Antamina S.A	Perú	Mining	<ul style="list-style-type: none"> Conservation agreements and voluntary projects that address biodiversity were developed with local communities The Business and Biodiversity Offset Program
5) QMM Madagascar/ La Granja/Porto Trombetas/ San Luis (Alumar)	Rio Tinto	Madagascar/Perú/Brasil	Mining	<ul style="list-style-type: none"> No Net Loss/Net Positive Impact on biodiversity
6) Cerrejón Coal	Carbones del Cerrejón	Colombia	Mining	<ul style="list-style-type: none"> Wildlife Management Plan
7) Pasto-Mocoa Road	INVIAS	Colombia	Road Infrastructure	<ul style="list-style-type: none"> A more sophisticated risk management than usual mandatory environmental impact assessments.
8) Pucara-Pisayambo Hydroelectric Power Plant	Hidroagoyan	Ecuador	Hydropower	<ul style="list-style-type: none"> Using a natural, high elevation mountain lake as a reservoir Powerhouse located inside the mountain and out of view. Turbine water used also for irrigation purposes
9) Water and Development Alliance –WADA	USAID and Coca-Cola	Africa	Water	<ul style="list-style-type: none"> They provide water access, hygiene and sanitation services.
10) SABMiller/TNC partnership	SABMiller and TNC	Perú, Colombia and Ecuador.	Water	<ul style="list-style-type: none"> They source funding from water users to conserve ecosystems that regulate water supplies for all.
11)	AB inBev	Brazil.	Water	<ul style="list-style-type: none"> A watershed restoration program
12) Ecoparque	Backus	Perú	Water	<ul style="list-style-type: none"> A project for the recovery of degraded lands in the Peruvian Amazon
13)	Aje and the Iniciativa de Biodiversidad y Empresas	Perú	Water	<ul style="list-style-type: none"> A private-public partnership for the preservation and sustainability of biodiversity and ecosystemic services
14)	Natura Cosméticos	Brazil	Personal products/Cosmetics	<ul style="list-style-type: none"> Water, packaging and carbon offset practices Use of the fair trade model
15)	Minerva Foods	Brazil		<ul style="list-style-type: none"> It has developed good practices for not exposing livestock in the forest.

During the literature review, the team discussed whether the drivers/factors that lead a company to adopt BMPs (ethical motivations) were the main focus of the study, or whether it was the identification of concrete No Net Loss/Net Positive Gains (NNL/NG) in terms of biodiversity, irrespective of these ethical motivations. The team concluded that this research exercise should lead to the creation of a practical tool for motivating companies for the

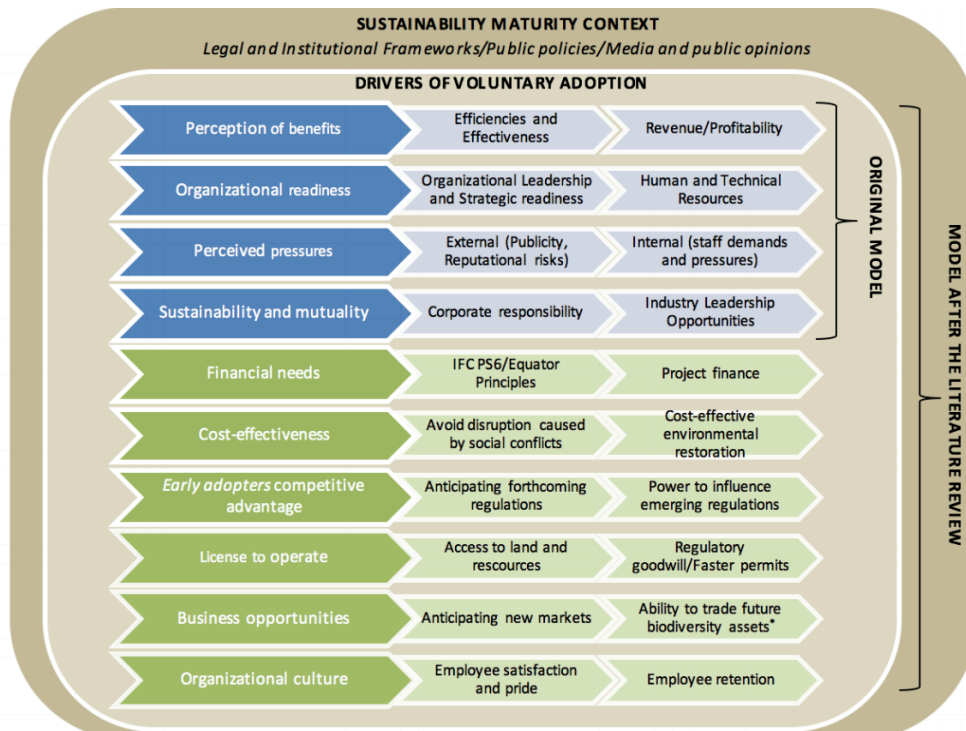
adoption of BMPs in the Amazon. However, the team also concluded that the fact of just identifying BMPs with NNL/NG results would not be as desirable as the analysis on the main (contextual) conditions that favor the adoption of BMPs.

Another issue of concern was the qualitative criterion of voluntariness. Analyzing the factors that lead companies to adopt BMPs on a voluntary basis should lead one to think in more detail about the legal (national) frameworks. The best way to determine the voluntary nature of BMP adoption requires understanding whether or not this practice is mandatory according to national legislation or regulation. The issue of voluntariness was analyzed in depth by the team, given that most of the companies publicly depict their best practices as being voluntary commitments with their stakeholders.

I4DI's research team gathered secondary data based on the preliminary model presented under the approved methodology in order to analyze and synthesize available evidence about conditions that favor voluntary adoption of BMPs. In the end, the team found that there is a consolidated paradigm shift in place towards sustainability, which has permeated the political (multilateral organizations) and scientific arenas, as well as the business sector, worldwide.

As such, I4DI developed a Sustainability Maturity Context that varies across countries. In some countries, this context is reflected in robust legal and institutional frameworks compelling companies to develop a more socio-environmentally responsible approach. In others, regulations exist but are not properly enforced and/or laws and policies are in the initial stages of implementation and enforcement. Regardless of the stage of development, this context exerts pressures on the business sector to pursue good social and biodiversity stewardship. In tandem with this context, and also as an expression of it, drivers lead companies to put implement biodiversity best management practices. Thus, after the literature review the original model of voluntary adoption of BMPs – shown in blue – was adjusted by adding new inputs – in green – as presented in Graph 1. This model was tested during the case study phase.

Graph 1. Drivers for the adoption of BMPs. I4DI's Initial Model



*e.g. ecosystem services, biodiversity offsets

Sources: (Benabou, 2014; Grigg, 2007; Madsen, Carroll, & Moore Brands, 2010; Ten Kate, Bishop, & Bayon, 2004; Doswald, Barcellos Harris, Jones, Pilla, & Mulder, 2012)

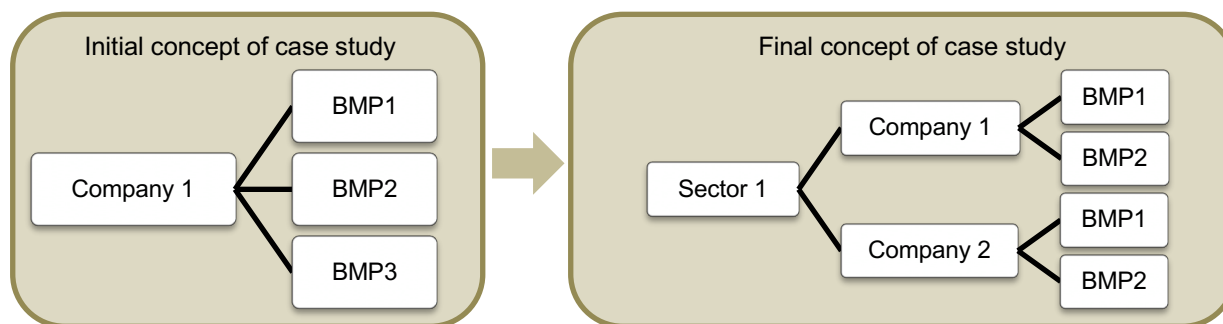
b. The Case Study Phase

The case study phase was completed in June 2017 and examined a sample of voluntary adopters in the private sector with one public sector case. The timetable for this phase included selection of the cases by mid-May with a mid-July delivery of the final report. Although this phase was designed to commence with an in-depth document review for the selected cases, I4DI found that several of the related firms and organizations were less than willing to share information beyond what was already publicly available. The research team thus moved into interviews with key informants, which established a trusting environment and facilitated sharing of some organizational documents. In sum, the case study phase was comprised of four sub-phases: case study selection, quantitative survey, key informant interviews (KIIs) with decision-makers and document review. Each sub-phase is explained as follows.

i. Case study selection

Preliminary data gathered through the literature review phase yielded a list of 15 possible case studies. As the research study further developed, the team refined the concept of “case study” to encompass a set of BMPs adopted in a single industry, either among multiple companies or across multiple country sites. After consultation with USAID, the team agreed on this refinement, given that more robust cases would better answer the research question. Each case, comprised of various experiences from the similar firms in the same sector, facing common management challenges, had greater potential to reveal similar responses from the companies and inform the motivations for voluntary BMP adoption. Additionally, more BMPs per case would yield a greater amount of information and a wider pool of potential interviewees. The case study evolution is shown in Graph 2 below.

Graph 2. Evolution of the concept of case study



This maturation of the concept led I4DI to select five case studies, one for each sector: oil & gas, hydropower, large scale mining, road infrastructure and beverages. The list of the final five cases selected, including their related BMPs is shown in Chart 2 below.

Chart 2. Final Case Studies

Industry Sector	Projects	Company	BMPs Implemented
Case 1. Oil & Gas	Camisea	Pluspetrol	1) The "offshore-inland"/ "roadless" model
	Gasoducto, Planta de Licuefacción. Sur de Perú	Perú LNG	1) A robust stakeholder engagement process 2) The Participatory Environmental and Social Monitoring Program (PESMP)
		Perú LNG/Smithsonian Institute	
		Perú LNG/ Pronaturaleza	
	Hunt Oil		
Case 2. Mining	Antamina	Compañía Minera Antamina S.A	1) Private conservation agreements and voluntary projects that address biodiversity

			2) Biodiversity offsets through Polylepis conservation
	Cerrejón Coal	Carbones del Cerrejón	1) Wildlife management plan, 2) water management
Case 3. Hydropower	Pucara-Pisayambo	Hidroagoyan	1) Earthen dam to increase and reinforce a high elevation lake 2) Powerhouse located inside the mountain and out of view
Case 4. Road Infrastructure	San Francisco-Mocoa Road	INVIAS	1) A risk management strategy that exceed the mandatory environmental impact assessment standards
Case 5. Beverages	Ecoparque	Backus	1) Ecoparque, for the recovery of degraded lands in the Peruvian Amazon
	Water Funds	SABMiller	1) Water funds to conserve ecosystems that regulate water supplies for all
	Jaguari and Jundiai watershed conservation	AB inBev	1) A watershed restoration program to ensure a clean and steady supply of water for all stakeholders in the Jaguari and Jundiai watersheds
	Private-Public Partnership to conserve four ecosystems and promote sustainable solid waste management	Aje	1) A private-public partnership for the preservation and sustainability of biodiversity and ecosystem services

For the case studies selected, the research team conducted a rapid search and review to consider if national and international laws and regulations require the best management practices under consideration, which would obviate the voluntary nature of their adoption. Annex 4 presents a brief review of country legal frameworks related to the BMPs identified¹.

ii. Quantitative survey.

For each case study, a group of respondents was invited to participate in a brief, quantitative, on-line survey designed to elicit basic information about the decision and implementation process for the BMPs explored, as well as opinions about conditions affecting voluntary adoption of BMPs and the consequences of adoption, noting that actual number of individuals meeting eligibility criteria per organization may vary² (See Chart 3 below for response rates). The eligibility criteria included organization staff members familiar with any of these factors: decision-making or implementation, funding or legal information or having being influencers (Annex 5 presents the eligibility criteria and Annex 6 contains the structure of the Quantitative Survey, while Annex 9 presents a list of those who responded to the survey).

The online survey was to be open for two weeks, with an every-other-day reminder email sent to individuals who had not yet completed the survey. However, it is notable that I4DI had to considerably extend this process. Team members spent a significant (and unanticipated lengthy) amount of time and effort in contacting representatives from the organizations to in turn obtain responses from them. In several cases it took much longer than anticipated to secure board or leadership clearance for staff to participate in the survey and/or be available for a Key Informant Interview (KII). While we were unable to reach certain firms after persistent attempts, we are confident that our survey responses and KIIs provide a solid basis for the BMPs that I4DI selected and included in the sectorial case studies.

Whenever possible, I4DI accelerated the response rate and the timing of the responses (e.g. BMPs from Aje and Antamina) by using intermediary contacts to put us directly in touch with our intended targets. However, since the response rate and the timing of the responses were much different than expected (thus limiting the quantity of

¹ Is it important to highlight that this was not intended to be an exhaustive analysis of legal frameworks, as that is beyond the reach of the main objective of this research study.

² From all the invitations sent out, just one, Río Tinto, answered back saying that neither the staff had the time availability required to answer the survey, nor had the BMP identified been implemented in the geographic area of interest yet.

information to be analyzed, as well as reducing considerably the time available for data analysis) the team decided to focus strategically on certain key informants. As such, the team focused on respondents with a higher rank and/or hierarchy within their organizations, as decision-makers, in order to obtain better quality information. Although others were still eligible, I4DI targeted the use of this rank to more efficiently reach respondents.

One common answer received by the team during the initial contacts was that the respondent required company permission from higher authorities and/or the board prior to participating in the survey. Directly contacting higher ranking authorities generated three benefits: 1) access to strategic information regarding the decision-making process, which was not always available to the technical personnel involved in the BMP implementation; 2) guidance on additional contacts within the companies and; 3) faster and more open responses from other staff once I4DI could reference that a higher ranking colleague within the company had already been contacted. In addition, top positions within the firms are more visible and easier to contact.

The team used diverse methods to identify relevant company contact information, including the review of: websites, sustainability and communications reports, organization directories publicly available, public social networks profiles (*i.e.* LinkedIn, Facebook and twitter), and through the professional network of contacts of I4DI's research team. The outreach process included: standardized emails with a formal letter from I4DI, phone calls either from one of the research team members or from an intermediary, and even a case of tweeting that generated an initial contact. Effectively contacting people³ was one of the most challenging and time consuming activities throughout this research study.

In total, forty-three survey invitations were sent out, with the expectation that I4DI would reach additional contacts through snowballing (and thus leading to a robust sample as described in the Approved Methodology report). The survey had a 55% survey response rate (n=24). There are two noteworthy aspects of the survey performance: 1) the 24 respondents did not necessarily answer all of the survey questions, leaving us with incomplete information and; 2) some of the implementing organizations (*e.g.* Aje, Hunt Oil and Antamina) decided internally that only one person from the firm would participate in the survey, thus reducing the number of anticipated responses.

iii. Key Informant Interviews (KIIs) with decision-makers.

For the BMPs included in the study, 22 key informant interviews (KIIs) were conducted with related decision makers and implementers from associated firms (in addition to external influencers). From these interviews, I4DI developed detailed case descriptions of the voluntary BMP decision-making process, implementation, and outcomes. The interview eligibility criteria were similar to the quantitative survey and included organization staff members and external stakeholders familiar with the following: decision-making/implementation, funding/legal information and experience having been an influencer. (Annex 7 present the detailed eligibility criteria, Annex 8 contains the KII guide, and Annex 10 presents a list of stakeholders interviewed).

potential sources of information were planned to be identified through organizational document review and recommendations made in the quantitative survey, giving priority to key informants whose names were provided by more than one respondent in the quantitative survey and whose role in decision-making had face validity following the organizational document review. Likewise, after these initial criteria were satisfied, I4DI planned to incorporate a diverse range of key informants with regard to position and level within the company. This approach naturally adapted during the research study for two main reasons: 1) priority was given to key respondents who were more readily open to discussing the issues regarding the BMPs under consideration, and 2) as with the documents, interviewees felt more comfortable providing I4DI with new names after having had a personal conversation. Due to time constraints the team's ability to continue with interviews further along the contact chain was limited. This left some important potential interviewees out of the research study who could potentially be considered for follow-on studies (*e.g.* TNC, SABMiller, GTZ and local municipalities in Peru regarding the water funds; Inkaterra for the

³ By effective contact we mean willingness to participate translated into actual survey and/or interview completely responded

Machu Picchu solid waste project; Hidroabanico, Ecuadorian Rivers Institute, among others). The survey and interview response rates are described in Chart 3.

Case sector	NOC ⁴	TOC ⁵	NPC ⁶	NPICS ⁷	NPCS ⁸	NPIC ⁹	NPCI ¹⁰	Positions of the Respondents
Oil & Gas	5	3 Private Companies 2 NGO's	14	7	4	10	7	General managers, Environmental managers, Directors of monitoring programs, External stakeholders (influencers)
Mining	2	2 Private Companies	15	13	8	8	3	Biodiversity Coordinator, Director of the System of Foundations, Environmental Manager
Road Infrastructure	1	1 Public institution	17	13	10	5	4	INVIAS' environmental coordinator of the project, Former environmental controller of the contract, Former expert from the independent body financed by the IADB; Former environmental advisor to the INVIAS
Hydropower	1	1 Public Company	10	2	1	1	0	Central Chief
Beverages	5	4 Private Companies 1 Public Institution	8	3	1	5	4	Director of project, Sustainability and Communications Manager, Directors of Project within the public institution

During this stage of the research study two new BMPs were suggested by the team, one for *Cerrejon Coal* (Colombia) related to water management and the other for the Ecuadorian Rivers Institute that recommended inclusion of the Hidroabanico project. Since these BMPs had not been considered previously, I4DI carefully assessed their respective scope and usefulness for the overall study. In the end, the water management BMP was included as an additional BMP, which is further discussed in the report's findings and conclusions section. The Hidroabanico project did not respond in the available timeframe as set forth by the research team and was therefore excluded.

iv. **Organizational document review**

During the data gathering process, a few interviewees (e.g. Pronaturaleza, Hunt Oil, San Francisco-Mocoa road), shared organizational technical documents related to the implementation of the BMPs and additional contact names relevant to inform the cases. Nevertheless, most of the documents for the analysis were found by the team on the Internet, complementing the original literature review with, for example, project brochures, technical reports (*i.e.* theses, academic papers, presentations, forum reports, legal frameworks, public planning reports, etc.), and media notes related to BMP implementation.

⁴ Number of organizations contacted

⁵ Type of organizations contacted

⁶ Number of persons contacted

⁷ Number of persons invited to complete de survey

⁸ Number of persons who completed the survey

⁹ Numbers of persons invited to complete de interview

¹⁰ Number of persons who completed the interview

Findings and Conclusions

Here I4DI presents the findings and conclusions for each sector, organized by three main considerations: 1) general findings for the selected sector's BMP(s); 2) drivers for the adoption of the BMPs, and; 3) conclusions and lessons learned. At the end of this section, I4DI presents overall conclusions.

a. Oil and Gas

II. General findings for the selected BMPs

Offshore/roadless model:

Interviews and related documents both indicate the success of this BMP in avoiding forest clearing at a significantly higher rate than typical practice and at a higher rate than other land use practices in the Peruvian Amazon. For example, the Independent Advisory Panel on Development Issues in South-Central Peru (Panel) compared deforestation rates across five Peruvian Amazon study areas, each with distinct principle land uses (hydrocarbons; cattle ranching; artisanal mining; oil palm). The Panel found that, by far, oil and gas extraction in the northern Amazon resulted in the lowest levels of forest loss at 0.17% annually when compared to these other economic activities (see Castro et al 2014). Within this finding, the Panel further concluded that the BMP of 'roadless' or 'inland offshore' sites exhibited the lowest loss of forest coverage, at an annual rate of 0.001% in the Camisea gas fields 56 and 88 (ibid). Evidence of the BMP's success can also be gauged through the recuperation of impacted areas along the pipelines and minimal footprint of the drilling platforms.



The voluntary nature of this BMP shifted over time as financing from other sources blended with private investment. In particular, ExIm Bank's 2003 decision not to provide a loan guarantee for the Camisea exploration that in turn led to the IADB's environmental and social requirements being associated with subsequent project financing. Thus, what in part had originally been a voluntary BMP (of the offshore model) became part of a regulated requirement as the project expanded with additional pipelines and a related coastal LNG processing plant. Several interviewees noted what they saw to be a dominant motivating factor at the project's outset—the interest and commitment of the firm's leadership to 'do the right thing' by seeking to mitigate negative environmental and social impacts. Other sources, in contrast, noted the overriding political forces that determined funding for certain aspects of this complex project over time and also highlighted the key role of the bank in imposing such conditions as part of the financing package. When asked about the relative costs of the offshore model vs. traditional practice, respondents could not

reply with certainty as such cost-benefit figures and analyses are of the firm's proprietary. Still, it is important to note sources indicated that the firm sought to significantly reduce the environmental footprint of exploration/transport and that the firm intends to continue implementing this BMP in future fields.

I4DI makes note of the strong criticisms levied against this hydrocarbon project, notably for earlier spills (when exploration began at these lots), the ongoing poverty conditions, and the poor health and education levels of local and indigenous communities in the area (cf Castro et al 2014)¹¹. The Camisea project has generated significant wealth and given the canon agreement that distributes oil/gas revenue to local authorities at the source, it has led to the exponential growth in revenue transfer to the Echarati (and now the new Megantoni) districts within the project area. I4DI's interviews and document research emphasized the disparities between these high revenue levels and local socio-economic conditions, particularly of indigenous communities who lack access to clean drinking water and many other basic services. Many respondents highlighted the urgent need to build the public administration capacity of local governments, so that oil/gas revenues are equitably and effectively applied for the wellbeing of local residents in the Camisea area. In so doing, many noted that Peruvian government services (or the lack thereof) are at the root cause of the challenges faced by indigenous communities and that such conditions fall beyond the strict purview of the hydrocarbon project.

Biodiversity Monitoring:

I4DI included two monitoring programs as best practices within this sector's case study:

- The BMAP (Biodiversity Assessment and Monitoring Program) implemented by the Smithsonian Conservation Biology Institute (SCBI), focused on the Peru LNG pipeline and plant impacts.
- The PMAC (Programa de Monitoreo Ambiental Comunitario) implemented by Pronaturaleza with local community members along the pipeline.

Both programs are implemented with resources and support from Peru LNG/Hunt Oil. Both programs voluntarily exceed the minimal EIA monitoring requirements. Selected findings of keys to success include the following:

Comprehensive coverage and related leadership support

The BMAP works in fifteen landscapes or "ecological landscape units" (ELU) along the pipeline, covering over 400km across three ecological regions from Andean forests in Ayacucho down to the coast¹². The BMAP is much more comprehensive than traditional practice and the minimal standards required by the project's EIA. Thus, BMAP invested in longer time horizons, studying distribution, abundance and ecological functions, going well beyond the typical species checklists of EIAs (cf Castro *et al* 2014).

Adaptive management: From 2009-2012 the monitoring was solely terrestrial, focused on the upper areas of the pipeline, and then later incorporated marine species, particularly as the Andean sites indicated full recuperation from the pipeline installation and transport and those species monitoring protocols were closed. The project anticipates closing the terrestrial protocols by 2019 when the recuperation is to be completed or well on that path. Marine monitoring will continue for 20 years. An interviewee noted the principle factor of the firm's decision to implement the monitoring, not as a legal requirement or in order to meet governmental or investor environmental standards, but rather because the various benefits of biodiversity monitoring are seen as positive, including for internal management within the firm. Initial perceptions of the monitoring program expenses were offset by the positive benefits seen at the mid-term.

¹¹G. Castro de la Mata, M. Santillana, G.H. Shepard Jr. & R.C. Smith (2013-2014) —Independent Advisory Panel on Development Issues in South-Central Peru – 2012-13 Report. Lima: Independent Advisory Panel on Development Issues in South-Central Peru / Centro de Sustentabilidad Ambiental, Universidad Peruano Cayetano Heredia Available at: http://www.southperupanel.org/files/reports/2013/gshepard_social1_health_fish.pdf Also see, for example, Hill, David (2016) "Pioneer Gas Project Fails Indigenous Peoples". The Guardian: 3 June 2016. Available at: <https://www.theguardian.com/environment/andes-to-the-amazon/2016/jun/02/pioneer-gas-latin-america-indigenous-peoples>

¹² Castro de la Mata G., M. Santillana, G.H. Shepard, and R. Ch. Smith. 2014. "Camisea: Emerging Lessons in Development." Independent Advisory Panel on Development Issues in South-Central Peru. CSA-UPCH, Av. Armendariz 445, Lima 18, Peru. Available at: <http://www.southperupanel.org/html-us/downloads/consolidated-report-2010-2014.pdf>

Capacity building: The PMAC program has trained over 50 community monitors, many of them young indigenous people who now have enhanced scientific and technical experience on top of their community leadership experience. Capacity building combined with outreach of the program and hands-on environmental management activities are important results for these youth, several of whom were recognized recently by the Ministry of Environment for their [initiative to recycle batteries within their communities](#) and others who [debated environmental issues in a public forum](#) for World Wildlife Day.

Similarly, the BMPA has trained generations of Peruvian scientists. As of 2014, the program had trained 110 principal scientists, of which 104 were Peruvian, thus making an impressive contribution to national technical expertise (cf Castro *et al* 2014).

Communication factors: I4DI's research yielded several important findings on the importance of communication, challenges encountered and potential opportunities.

- i. Communication between engineers/economists and biologists (regarding the importance, function and findings of the monitoring program) has been a challenge in the biodiversity monitoring program. In particular, reconciling the interest of the engineers to make quick and decisive actions vs. the reticence of the biologists to make decisions without further information.
- ii. Communication with the public: It has proven to be somewhat easier for the Smithsonian to communicate with the public and academic/scientific community (their traditional audiences) as compared to communicating/collaboration with the firms' engineers and economists.
- iii. Communication and engagement with local communities: This BMP has proven effective in that the monitoring programs act as intermediaries (with variations between the two programs) between the companies and the communities, thereby diffusing tension and enhancing communication and awareness of the hydrocarbon program.¹³

III. Drivers for the adoption of the BMPs

Offshore/inland:

I4DI's document review and interviews indicate that risk management, public perception, investor pressure and requirements, and leadership commitment and organizational readiness were the main factors in adopting this BMP. Many interview respondents noted the interest of the firm's leadership to comply with investor requirements in order to secure funding, but more notable was the willingness to embrace the requirements and go beyond them.

Monitoring:

- i. All of those interviewed and surveyed concurred that a key driver for the adoption of both monitoring programs stems from the firm's leadership commitment to doing business well by doing the right thing. This motivated the firm to comply with the minimal standards of monitoring in the EIA and to go well beyond this by supporting more comprehensive and longer-term monitoring protocols.
- ii. Communication and public recognition of the BMP performance further motivated investment in the BMP. Specifically, direct communication between executive leaders and scientific leadership on this BMP in the case of the Smithsonian project was identified as critical to sharing information and garnering support for the monitoring as the value of the monitoring was shared, applied and communicated widely with the public and scientific community.

IV. Conclusions and lessons learned

A key lesson learned is the impact that leadership interest and commitment has on industry practice, as respondents in the study attributed a good part of the success (of the offshore model and the biodiversity and impact monitoring

¹³ IPIECA. 2012. "Indigenous Peoples and the oil and gas industry: Context, issues and emerging good practice" London. Available at: <http://www.ipieca.org/resources/good-practice/indigenous-peoples-and-the-oil-and-gas-industry-context-issues-and-emerging-good-practice/>

programs) to executive leaders' willingness to recognize the importance of the practices and, in particular to adaptively manage according to monitoring data (i.e. regarding pipeline placement).

Flexibility and adaptive management: The biodiversity monitoring started with 19 protocols and reduced them to seven, as monitoring indicated that there were not negative impacts on emblematic species. As emerging impacts were identified and quantified, adaptive management was needed to reduce these impacts along the way. This flexibility allows SCBI to communicate the monitoring results and recommendations to Hunt Oil so that adjustments can be made.

The independence of the biodiversity monitoring organization (Smithsonian Conservation Biology Institute) was a key conclusion for this BMP. Hunt Oil paid for the monitoring but agreed that all data would be the intellectual property of SCBI.

Room for improvement: Along with its noted positive results, the participatory BMP monitoring could do a better job of social monitoring and engagement, leadership development, and engaging non-indigenous communities.¹⁴

Communication: It was noted that the monitoring program could and should do a better job of reaching the public in general, complementing its impressive scientific publication record. One respondent suggested that the BMAP might make better use of (or gain greater access to) Pluspetrol's public relations resources and outlets (Facebook fan page, e.g.) to better share their work with wider and more varied audiences. Others noted the reticence of private firms in the oil/gas and hydropower sectors to trumpet what might be considered success stories

b. Mining

I. General findings for the selected BMPs

A set of three BMPs were included for this sector: (1) conservation agreements and voluntary projects that promote conservation and protection of the Polylepis forests in southern Conchucos (Ancash, Peru); 2) a wildlife management plan to conserve endangered jaguars (Guajira, Colombia) and; 3) water management with the active participation of the local communities in the water-scarce region of Guajira, Colombia.



The BMPs selected for the mining sector have been implemented by companies that develop high impact projects of importance for the economy of their host countries and the immediate influence area, generally inhabited by impoverished communities. Amongst the mining operational conditions that were integrated with the BMPs, it is important to highlight the legal obligations related to the mining closure plan and to environmental compensation plans. In both cases the BMPs developed institutional arrangements with the communities and local and

¹⁴ For example, see Vásquez Indacochea, Pedro (2016) "Análisis del programa de monitoreo ambiental comunitario del bajo Urubamba (PMAC-BU) del proyecto Camisea como mecanismo de participación ciudadana desde el inicio de sus actividades hasta la actualidad". M.S. thesis PUCP. Available at <http://tesis.pucp.edu.pe/repositorio/handle/123456789/6477>

international NGOs for the implementation of certain measures with an allocation of resources notably beyond the requirements from national legislations and the compromises taken via EIAs.

Here, the presence of the state and its institutions strengthens the implementation of BMPs. In the case of Antamina, important lessons were learned as business opportunities from biodiversity activities were identified through the involvement of the *Biodiversidad y Empresas* initiative, supported by the Ministry of the Environment. With regard to the case of Cerrejon, the practice of monthly meetings between the environmental authorities and company directors was identified as an autonomous and genuine *ex ante* accountability exercise which can anticipate the supervisory and monitoring tasks of said agencies, as explained by the company's Biodiversity Coordinator during the key informant interview (KII) phase¹⁵.

The implementing companies had previous experience adopting BMPs, which may be interpreted as a factor that benefits the adoption of voluntary BMPs. According to the respondents from Cerrejon via the online survey, some other voluntary BMPs previously implemented by the company, including some that are ongoing, are as follows: i) land rehabilitation; ii) integral management of hydrological resources; iii) the United Nations Guiding Principles on Business and Human Rights; iv) the Extractive Industries Transparency Initiative (EITI) standards, and; v) the implementation of a management system under the PMI methodology. Mandatory best practices have also been implemented, such as the application of social and human rights standards from the *Corporación Financiera Internacional*; the IFC standard on human resettlements; and encapsulation of carbon conveyor belts in PBV¹⁶.

Although previous experience with BMPs does benefit further adoption of similar practices, I4DI encountered conflicting evidence through its KIIs. For example, when the Biodiversity Coordinator of Cerrejon was asked about the unanticipated negative consequences of the implementation of the BMP, he stated, "the jaguars have caused some incidents. Jaguars have allegedly killed some chivos (goats) for their own subsistence. As a reprisal, some indigenous individuals have killed jaguars. This fact has implied that, during the process, some anti-predator measures have been taken"¹⁷. To date, Cerrejon affirms that the jaguars have their own meat/flesh for their nourishment, in order to avoid social conflict. Antamina, to the contrary, claimed that no conflict arose during the BMP's decision-making or planning phase¹⁸.

When asked about possible constraints to the implementation of the identified BMP, I4DI encountered reticence on the part of the legal department and other colleagues who exhibited "their inability to accept organizational change and to see sustainability as a cost-efficient enterprise"¹⁹. He affirmed that, "to the contrary, the mere reforestation and land purchases related to the environmental license would have implied social conflicts with the local communities"²⁰. This constraint was also corroborated by some of the respondents of I4DI's online survey, particularly when asked to describe conflicts presented during the decision making and/or planning phases of the BMPs²¹.

II. Drivers for the adoption of the BMPs

Both in the Antamina and Cerrejon cases, the public commitment of the companies (to leaving behind a positive legacy in the communities of the influence area) was reputed as a main driver for the adoption of voluntary BMPs. According to the Director of the Cerrejon's System of Foundations, "the company's foundations are focused on promoting economic development and leaving a legacy for the Guajira region, which goes beyond socio-environmental impact management measures from the EIAs, given that the foundations are the operational arm of the strategic vision of the company"²². This marks quite a significant change from previous and historical environmental losses caused by mining companies in both Peru and Colombia. Environmental losses have been a significant obstacle in terms of health and development for the local communities, as well as for the social construction of trust *vis-à-vis* mining activities.

¹⁵ Interview conducted on July 5th, 2017 via Skype with the Biodiversity Coordinator of Cerrejon.

¹⁶ Questions No. 10 and 12 of the online survey.

¹⁷ Interview conducted on July 5th, 2017 via Skype with the Biodiversity Coordinator of Cerrejon.

¹⁸ Interview conducted on July 7th, 2017 via Skype with the Environmental Coordinator of Antamina.

¹⁹ Interview conducted on July 5th, 2017 via Skype with the Biodiversity Coordinator of Cerrejon.

²⁰ *Ibid.*

²¹ Question No. 5 of the online survey. 3 out of 5 respondents mentioned organizational difficulties by the time of decision making.

²² Interview conducted on July 6th, 2017 via Skype with the Director of Foundations of Cerrejon.

This legacy aim was validated by all four interviewees from *Cerrejon* and further validated in the online survey when 6 out of 8 respondents from *Cerrejon* considered the decision to implement the BMPs as compatible with the organizational objectives, organizational leadership and corporate responsibility. These were cited as the main reasons why the organization decided to adopt the BMP. Interestingly, when asked to rate from 1 to 5 their level of agreement with the statement “In general, organizational practices that are designed to protect the environment, reduce profits”, all of the 8 respondents from *Cerrejon* scored 1 and 2, which reflects a marked conviction about the benefits of sustainable solutions. Finally, the company CEO was mentioned by 5 of 8 respondents as a key influencer in deciding to implement the BMPs.

Furthermore, the economic dimension of the activities delivered by both implementing companies makes public visibility a challenge to their performance. This was supported by the Biodiversity Coordinator of *Cerrejon* during the KII, who stated, “Maybe in the Amazon you would not find so much visibility; visibility moves companies to intervene voluntarily with actions beyond the minimal legal requirements. In *Cerrejon* you can find so many eyes on you, given the strategic geographical position of the Guajira region. That has led the company to validate every technical conclusion with external experts”²³. Therefore, public visibility becomes a game changer for these companies.

In the same line, local and national institutional presence and support are a key factor for the adoption of BMPs, which was also validated during the KII with the Environmental Coordinator of *Antamina*²⁴. The construction of a positive corporate reputation (thanks to responsible social and environmental management) is the only comparative advantage for mining companies to assure their market presence, as was conveyed during the KII phase²⁵. That is to say, market presence and the achievement of comparative advantages were explicitly mentioned as relevant drivers for the adoption of BMPs.

III. Conclusions of the sector and lessons learned

The biodiversity conservation initiatives undertaken in all the BMPs were integral both to mining operations and to activities related to local and indigenous communities. Moreover, the BMPs fostered a change within the implementing companies and the targeted communities towards a better understanding of biodiversity and the environmental services they provide in order for their goals to be achieved.

In the case of the local communities, their value creation perspectives were integrated within the conservation agreements and forest harvesting initiatives, where tangible economic benefits and improvements to their living standards were met. The reforestation and conservation activities of the corridors have resulted in ongoing improvements in promoting cultural and generational changes that enjoy community consensus. This, in turn, can be seen as a conflict prevention tool at the influence area through the promotion of capacity building and a *local entrepreneurial spirit*. In fact, when asked about anticipated positive consequences with the implementation of the BMP, the Biodiversity Coordinator of *Cerrejon* stated that “*Cerrejon* is anticipating social conflicts after the mine closure; it is a major source of job creation. The company seeks to develop a process of communal capacity building”²⁶.

Specifically, the joint venture among NGOs, *Antamina* and local communities resulted in establishing 322,000 hectares of *Polylepis* forests between the Huascarán National Park and the Reserve of the Huayhuash Range (Peru). In addition, 450 hectares of improved pastures due to the BMP now have minimized pressure on these forests. Furthermore, in 2010 the CMA financed the creation of a Private Conservation Area (767 hectares) under the management of the Huasta community, for a period of ten years, thus extending environmental and community benefits, using innovative conservation mechanisms.

Similarly, *Antamina* is by far the largest source of job creation in the Ancash region. In fact, during the KII, the Environmental Manager of *Antamina* stated that the project was awarded the Sustainable Development Prize –

²³ Interview conducted on July 5th, 2017 via Skype with the Biodiversity Coordinator of *Cerrejon*.

²⁴ Interview conducted on July 7th, 2017 via Skype with the Environmental Coordinator of *Antamina*.

²⁵ The *Cerrejon*'s Biodiversity Coordinator mentioned this issue several times during the key informant interview (July 5, 2017).

²⁶ Interview conducted on July 5th, 2017 via Skype with the Biodiversity Coordinator of *Cerrejon*.

given by the Peruvian Ministry of Energy and Mines in 2006—for the innovative joint venture of Antamina, CI, ECOAN, TMI and the communities²⁷. The project was renowned by the Business and Biodiversity Offset Program as a pioneer initiative that demonstrated the potential to create biodiversity offsets in Conchucos. In May 2009, then Minister of the Environment, Antonio Brack, announced the discovery of four species new to science, which were found in Conchucos by the ECOAN team and protected by the communities thanks to the conservation agreements.

One of the most important vehicles through which Cerrejon develops inter-ethnic dialogues is the local water committees or “*comités locales del agua*”. These committees represent an axis of governance and stakeholder engagement. During the KII phase, the Director of the System of Foundations of Cerrejon claimed that community engagement through capacity building is a crucial lesson learned from the water management BMP²⁸. According to the 2016 Sustainability Report of the Cerrejon’s System of Foundations, under the figure of the *comités locales*, a training process has developed, aimed at building capacities for project formulation and planning. Therefore, water investment projects can be presented to the local authorities to be financed by the National Royalties System. Currently 22 projects are in the formulation stage, most of them focused on water management, agriculture and income generation. As a lesson learned from the BMPs under analysis, envisaging the mine closure without capacity building of the community would be a high risk for the company’s strategic goals.

According to the Biodiversity Coordinator of *Cerrejon*²⁹, the Colombian legislation has improved in terms of biodiversity offsetting and compensations, but still has visible loopholes that the legal departments of some companies use to their advantage. The importance of clear and strong legislation was also mentioned at the online survey stage, when all the respondents from Cerrejon agreed with the statement “*In general, the best way to control negative environmental impacts is through enforcement of strict regulations*”, providing a score of 4 and 5 to the statement (from 1 to 5), being 5 “*I totally agree*”³⁰. This marks an interesting difference with respect to the perception of law as a tool for promoting environmental conservation seen in the infrastructure case study.

During the KII, the Director of Cerrejon’s System of Foundations affirmed, “the biggest problem of the mining sector has been its inability to communicate. There is a contention with several stakeholders and interest groups that the mining sector has not interpreted in a strategic manner. Several years ago, the company had turned its back on the local communities and had a vision of the locals as passive recipients of aid. Some years ago, Cerrejon re-oriented its organizational mindset and local communities are actually their main validators, far beyond the mandatory requirements from environmental authorities and the proper payment of taxes and royalties. The timely and adequate communication of the social and environmental initiatives can always be conducted in a better way. However, neither of these can happen without the joint participation of different public and private actors. This is still an issue that the mining guild has not understood entirely”³¹.

As an additional lesson learned and opportunity for replication in terms of biodiversity conservation in the region and similar regions in the world, the team identifies the importance of establishing long term plans from the initial phases up to the mine closure of the project, so that compensation and remediation costs can be identified and managed more easily. This long-term understanding of mining projects could pave the way for cyclical BMP planning and implementation, with the active participation of both public and private actors.

c. Hydropower

i. General findings of the BMP

The first BMP identified within this sector took advantage of a series of natural conditions and avoided the need to construct a reservoir, as a natural lake (Pisayambo) was expanded and reinforced to serve as the plant’s reservoir. Additionally, the powerhouse was built out of view within the mountain, resulting in no alteration to the visual scape. According to Kimbrough & Kumar (2015), “Ecuador’s Pucará hydroelectric project offers an example of an existing

²⁷ Interview conducted on July 7th, 2017 via Skype with the Environmental Coordinator of Antamina.

²⁸ Interview conducted on July 6th, 2017 via Skype with the Director of the System of Foundations of Cerrejon.

²⁹ Interview conducted on July 5th, 2017 via Skype with the Biodiversity Coordinator of Cerrejon.

³⁰ See Question No. 44 of the online survey.

³¹ Interview conducted on July 6th, 2017 via Skype with the Director of the System of Foundations of Cerrejon.

small dam with very minimal impact that generates up to 71 MW of electricity” (p.1). The second BMP seeks to optimize water usage by channeling water, after passing through the turbines, into irrigation channels for nearby agricultural communities.

This was the most challenging industrial sector for the research team, both in terms of the scarcity of BMP cases in Amazonian hydroelectric operations and in difficulties finding quality information on this selected case. The Pucará-Pisayambo Central was built during the 1960s and began operations in 1977. Operations were suspended in 2011 following damages due to an earthquake. Subsequent repairs conducted by Odebrecht have generated significant controversy³². Furthermore, we note the eutrophication of the Pisayambo reservoir and resulting methane gas emissions found during an ex-post environmental impact assessment³³, in violation of the plant’s Environmental Management Plan, which includes the requirement of avoiding eutrophication³⁴. The respondents identified by the research team could not provide information on the planning construction phases of the project, as neither was involved with the plant at the time. Thus, the information related to these BMPs was mainly extracted from secondary sources.

ii. Drivers for the adoption of the BMP

As Pucará-Pisayambo is a public project, the main driver for its implementation stems from Ecuador’s national electrification plan. The *Instituto Ecuatoriano de Electrificación* (INECEL)’s 1966 initial plan sought to construct mainly large central hydraulic plants to “incentivize hydroelectricity in the country, for the purpose of minimizing the consumption of fossil fuels in the thermal centrals, given the high costs of the latter” (Carpio Montero, 1988, pág. 3). The Pucará-Pisayambo Hydropower Central was the first of these planned hydropower projects to be constructed. In addition to economic criteria (with hydropower being cheaper than thermal power), the technical siting was important: “With the majority of the projected works being underground, the investment benefits from the highest safeguards, even in the case of earthquakes, as the underground siting considerably decreases risks inside a rocky formation” (Ayala Andrade, 1974, pág. 52). Thus, the main driver for the construction of Pucará as a hydropower plant, taking advantage of the natural lacustrine conditions, was the search for cost-effectiveness to satisfy a pressing national social need.

Regarding the second BMP, the Pucará-Pisayambo Hydropower Plant was designed as a hybrid to provide both electricity and irrigation, including the construction of the Pillaro Irrigation Channel (PIC), which was a component of the initial plans in 1968. Even though the plant and the channel were not built until 1980 and 1982, respectively, these dual motives remain as the main drivers.

iii. Conclusions of the sector and lessons learned

There have been several conflicts during the PIC life span due to unsatisfied demands from local communities, and changes in at least three interrelated areas: public institutions, public policies and legal frameworks. During and after the literature review phase of this study, the research team acknowledged the difficulties for this sector in relation to our studies’ goals. There is no register of reliable cases in the hydropower industry that have implemented voluntary BMPs, especially for the environmental losses caused by high-impact hydropower projects in the region. The Pucará-Pisayambo Central remained as the only available case study with BMPs worthy of inclusion. This is in itself a conclusion and lesson learned from this study, i.e. the necessity of providing hydropower projects with more robust tools so that BMPs can be adopted on a voluntary basis.

d. Road Infrastructure

³² See, for example, these two press reports: <https://www.odebrecht.com.ec/reparacion-de-tunel-pucara/>, <http://www.eluniverso.com/noticias/2017/03/03/nota/6070411/odebrecht-plantea-dos-temas-mantenerse-ecuador>

³³ M. Paucar Samaniego (2014 pp. 52) “Estudio de Emisiones de Metano Producidas por Embalses en Centrales Hidroeléctricas en Ecuador”. M.S. thesis Pontificia Universidad Católica de Chile. Available at: <http://repositorio.educacionsuperior.gob.ec/bitstream/28000/1492/1/T-SENESCYT-00625.pdf>

³⁴ See pg 9 of https://www.celec.gob.ec/hidroagoyan/phocadownloadpam/AMBIENTAL/PMA_Pucar_.pdf

i. General findings of the BMP

I4DI selected one BMP in southern Colombia related to risk management throughout the construction of a road within the Amazon basin. The San Francisco-Mocoa road is the sole example of Colombian infrastructure that has developed more sophisticated and rigorous risk management than that required in mandatory environmental impact assessments. The risk management strategy for the road, currently under construction in the Colombian Amazon, is the [Plan de Manejo Ambiental y Social Integrado y Sostenible \(PMASIS\)](#). As evidence of this BMP's impact, the project requested that the Mocoa river protection boundaries be extended as an *ex ante* measure, indicating how this BMP aims to compensate cumulative impacts at an earlier stage in road construction, thus avoiding the standard practice of attempting to remediate negative impacts *post facto*.

This case is similar to the trend throughout the region for road construction and high-impact infrastructure projects of state initiatives that are supported by multilateral banking. The blending and timing of national and multilateral funding within one project can create significant risks for the continued implementation of BMPs as multiple construction contracts may be executed over the life of the project, with gaps in between as continuous funding streams may fall through. The potential success of San Francisco-Mocoa BMP in this case rests in part on a number of contractual obligations and the staying power of the original donor (IADB), which is no longer party to the contract. This dynamic has generated several unanticipated issues for the parties to the San Francisco-Mocoa road contract and the local communities. When asked about major constraints and unanticipated impacts of this BMP, the current *Instituto Nacional de Vías* (INVIAS) environmental coordinator for this contract, noted that the complexity of this contract has generated major difficulties in practice³⁵. The project is implemented by the Colombian government through INVIAS, the operational arm of the Ministry of Transport and Infrastructure, but was promoted by the IADB, a partial funder of the project³⁶. The contract for the road has been suspended and thus construction is on until the Colombian government provides further funding. As the IADB is no longer a party to this contract, it is unknown whether this could change the power relations inherent to this project and implementation of the BMP. Even though INVIAS has to comply with the environmental license³⁷, former members of the environmental team, indicate that, as of today, no political will can be assured for the adequate completion of the works³⁸. Thus, with shifting funding streams over the course of an infrastructure project such as this, the potential success of related BMPs relies on consistent enforcement of environmental guidelines which, in turn, are a factor of political will.

Still, there are positive outcomes for this BMP. Although explicit conflicts emerged with territorial entities and communities in the setting up of toll booths to finance investments in the improvement of the service levels of the roads,³⁹ the former environmental coordinator of the project's supervisory firm, pointed out that "in general local communities are positive about the project and the validity of the BMP"⁴⁰. Also, the former environmental coordinator of the road contract stated, "it is very important to acknowledge that since the Amazon is a rainy region, this BMP prevented several negative impacts such as unintended river sedimentation, and higher deforestation in the project area"⁴¹.

³⁵ Interview conducted on July 6th, 2017 via Skype with the current INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract.

³⁶ The IADB issued a credit for the Colombian Government for the construction, which is being paid by Colombia with the corresponding rates of interest. The IADB provided the budget for the elaboration of the environmental assessments as non-refundable expenses. Since 2016, the IADB is no longer providing resources for the project.

³⁷ Interview conducted on July 6th, 2017 via Skype with the current INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract.

³⁸ The three interviews conducted with persons not belonging to the INVIAS coincided in this fact: Interviews conducted on July 3th, July 4th, and July 6th, 2017, via Skype with the former INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract; the former environmental coordinator of the project's supervisory firm; and the former member of the CATI, respectively.

³⁹ Question No. 5 of the online survey, responded on June 30th.

⁴⁰ Interview conducted on July 4th, 2017 via Skype with the former environmental coordinator of the project's supervisory firm.

⁴¹ Interview conducted on July 4th, 2017 via Skype with the former environmental coordinator of the project's supervisory firm.

ii. Drivers for the adoption of the BMP

We identified four drivers that motivated the BMP's adoption over the course of our interviews and research:

Donor expectations: The former INVIAS environmental coordinator for the road contract, affirmed that “one of the definite drivers for the adoption of this BMP is the expectation from multilateral banks such as the Inter-American Bank (IADB), the CAF and the World Bank for the countries of the region to adopt responsible practices concerning environmental impacts in order to build a new institutional culture. Environmental management guidelines and protocols were created for infrastructure projects, as well as the figure of strategic environmental assessments”⁴². INVIAS adopted those guidelines and made an effort in training its mid-ranked professionals, in order to improve the quality of the projects and to recognize the work done by multilateral banks.

National government political will: The current INVIAS environmental coordinator of this public works contract, contended that “although the IADB conditioned the financial and technical aid to the undertaking of more sophisticated environmental impact assessments (EIA), it is true that the Colombian government could have rejected these conditions”⁴³. She affirmed that “by the time of the negotiations, the political will and the enthusiasm of mid-rank officials from the Colombian government were also factors that benefited the adoption of the BMP”⁴⁴.

Indigenous community demands for the road: KII respondents pointed out the historical demands from the local communities, some of which belong to the *Inga* and *Kamentsá* indigenous ethnicity, as a factor that prompted the Colombian national government to push for the construction of the road itself, not necessarily for the adoption of the BMP. The former INVIAS environmental coordinator of the San Francisco-Mocoa road explained that “the only available road in that area over the last eight decades is called *the death trampoline* because cars and trucks that go to and from Pasto drive on the edge of an abyss; many people have died passing the death trampoline. When it rains, the conditions of the terrain worsen considerably”⁴⁵.

Protected area regulations: Lastly, all four interviewees coincided in the fact that, since 60% of the road design is within a forestry reserve, the location of the project in a designated sensitive area in the Amazon region made it necessary to devise more robust environmental safeguards. These physical specificities can be reputed as clear factors that prompted the implementation of the BMP.

iii. Conclusions of the sector and lessons learned

The status of the San Francisco-Mocoa road project as of today is a paradox. On the one hand, this is the first infrastructure project ever in Colombia and in the region with a replicable program of compensations and strategic regional assessments. On the other hand, this project has suffered from the uncertainties of politics and is currently suspended, with only 30 % of the road constructed. We present these more extensive conclusions for this BMP, given the potential to inform future infrastructure investments.

One likely explanation could be insufficient governmental political support for BMPs, which seem to be exacerbated by asymmetries between mid-level and higher-rank officials that affect decision-making processes in the long-term. When asked about the difficulties found during the implementation of the BMP, all of the interviewees responded that high-ranking officials from the Government, e.g. technical directors of the projects, still see infrastructure projects “only through engineer's eyes”⁴⁶. A former member of the Comité Asesor Técnico Independiente (CATI),

⁴² Interview conducted on July 3th, 2017 via Skype with the former INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract.

⁴³ Interview conducted on July 6th, 2017 via Skype with the current INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract.

⁴⁴ *Ibíd.*

⁴⁵ Interview conducted on July 3th, 2017 via Skype with the current INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract.

⁴⁶ The four interviewees coincided in this perception: Interviews conducted on July 3th, July 4th, and July 6th, 2017, via Skype with the former INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract; the former environmental coordinator of the project's supervisory firm; the former member of the CATI; and interestingly, the current INVIAS environmental coordinator of the San Francisco-Mocoa road's works public contract, respectively.

an independent technical advisory committee established by INVIAS and the IADB as an additional safeguard mechanism, stated that “high-ranked officials are reluctant to change and to understand the implications of deficient environmental risk assessments and management; they feel that the increase in implementation measures is just an increase in costs”⁴⁷. In fact, half of the respondents of the online survey were not convinced that the decision of implementing the BMP was compatible with the organizational objectives⁴⁸. We thus conclude that political commitment from the National Government is a *sine qua non* requirement for the success of these high-impact projects.

Interviewees also agreed on another point as stated by one respondent that “private contractors from the infrastructure sector do not have drivers other than profit motives; the fewer the regulations and compensations to be made, the better; this impedes securing their commitments when it comes to quality EIA design”⁴⁹. One interviewee even suggested “multilateral banks should be present for ten more years, so that private contractors would not be allowed to do what they want”⁵⁰. He contended that “the tip of the iceberg in this project was to convince the private contractor and even the Colombian government to enter the forest reserve by a different route; this turn caused a rupture with the IADB because the bank needed to assure sustainability”⁵¹.

This issue can be seen as a lack of a holistic and strong *sustainability maturity context*, which makes it possible to align private and public interests, wherein political changes could not deviate from meeting the needs of local communities and ensuring positive impacts from such projects for the region. According to one of the former members of the CATI, “the public institutions still find it hard to understand that high impact road projects need to be implemented jointly and are not an isolated responsibility of the infrastructure agencies”⁵². Public perception and visibility are a key component of this context and can determine how governments and companies act, depending on the visibility of their actions. According to one of the former members of the CATI, “governments are driven by public visibility objectives and that is a possible reason why the San Francisco-Mocoa road is suspended; public visibility is necessary for these projects to carry on”⁵³.

Along these same lines, when asked to think retrospectively about what aspects could have been done differently, two interviewees responded that these BMPs should be documented from the very beginning. The former INVIAS environmental coordinator of the San Francisco-Mocoa road added that, “regrettably, the success of this BMP has to do with the individuals who were responsible for the PMASIS design, and not with the quality of the processes. The lack of process management jeopardizes the continuous improvement lens with which these contracts need to be seen”⁵⁴. That leads us to suggest that BMP documentation is crucial from the very beginning of the process, even before the decision-making phase.

The former environmental coordinator of the supervisory firm noted that “the *veedurías ciudadanas* were a relevant figure to assure accountability; local communities demanded monthly reports from the supervisory firm. The World Wildlife Fund supported and provided technical assistance to the local communities”⁵⁵. This interaction between private and public actors with the accompaniment of NGOs proved to be a useful tool for promoting trust and accountability. This effort was reputed as a lesson learned from this BMP⁵⁶.

Although not mentioned in the online survey phase by any of the respondents, one of the KII interviewees who was part of the INVIAS team at the planning stage was of the opinion that over-regulation is a negative incentive for

⁴⁷ Interview conducted on July 6th, 2017 via Skype with the former member of the CATI.

⁴⁸ Question No. 47 of the online survey.

⁴⁹ Interview conducted on July 6th, 2017 via Skype with the former member of the CATI. Also, but with different words, both the former and current INVIAS’ Environmental Coordinators of the San Francisco-Mocoa road project coincided with this perception.

⁵⁰ Interview conducted on July 6th, 2017 via Skype with the former member of the CATI.

⁵¹ *Ibid.*

⁵² *Ibid.*

⁵³ *Ibid.*

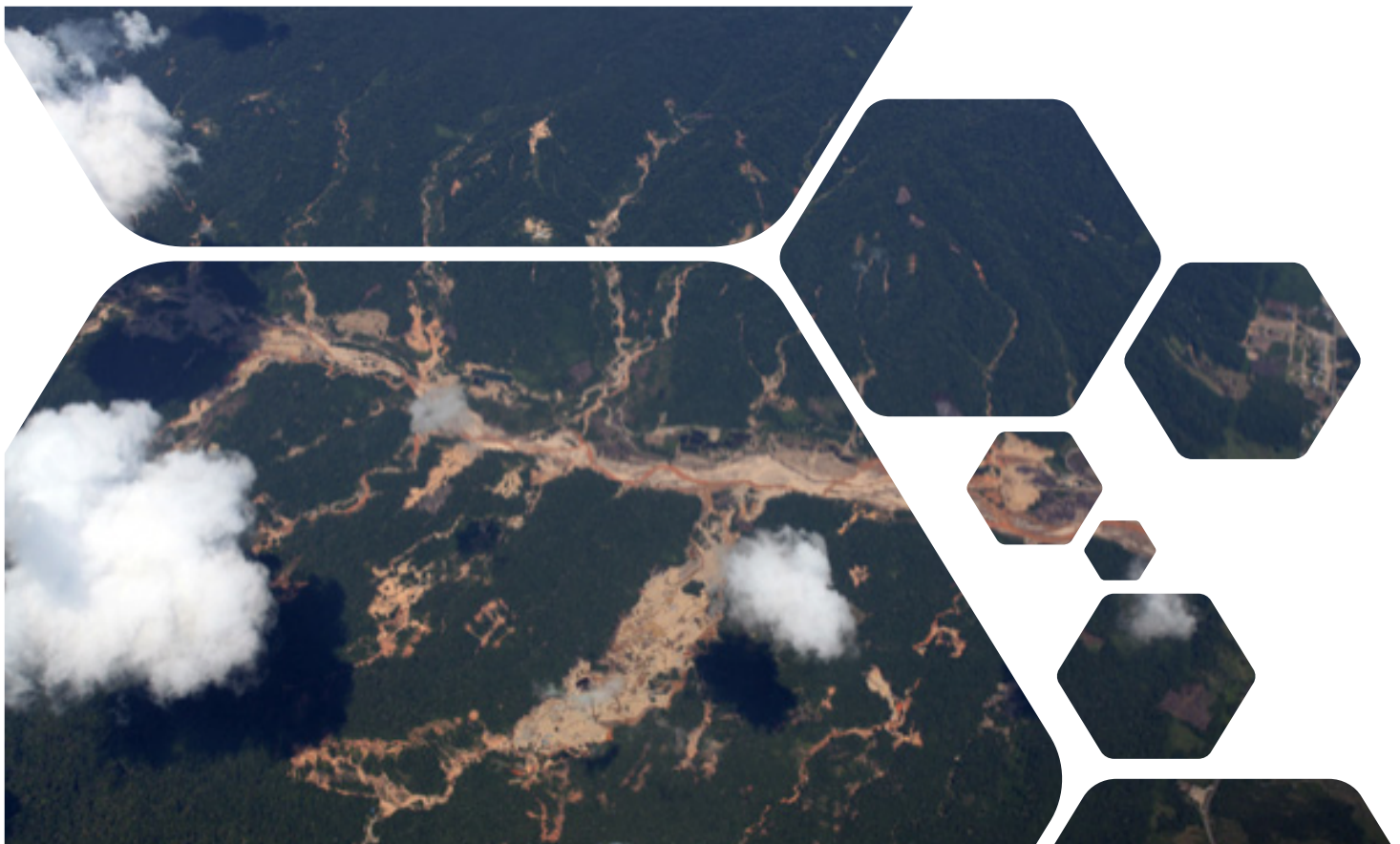
⁵⁴ Interview conducted on July 3th, 2017 via Skype with a former member of the INVIAS responsible for the environmental aspects at the BMP’s planning stage.

⁵⁵ Interview: the former INVIAS environmental coordinator of the San Francisco-Mocoa road’s works public contract (July 3, 2017).

⁵⁶ *Ibid.*

private actors in the infrastructure sector⁵⁷. According to her, “users are confused and discouraged by legal requirements, thus they prefer not to invest in this country. Therefore a more profound analysis of the meaning of the environmental licensing process would generate positive outcomes for Colombia”⁵⁸. She contended that, “current licensing legislation causes microanalysis from rather small roads thus no prospective vision can be developed towards *paramos*, basins, wetlands, etc.”⁵⁹. On the other hand, another interviewee –also from INVIAS– affirmed that more strict regulation was needed⁶⁰. This dilemma with the legal system was supported by the data in the online survey in which 10 respondents scored the following statement on a scale of 1-5 with a 3 “*in general, the best way to control negative environmental impacts is through the imposition of strict regulations*”. The relationship between law and business remains unsolved, at least in this case, as opposed to the case of Cerrejon Coal, where the majority of survey respondents agreed on the validity of said statement.

In the end, a strategic environmental assessment like the one adopted for the San Francisco-Mocoa road is seemingly insufficient for this project to be completed. The road is 30% completed; the IADB is no longer a contractual player; the Mocoa river basin still represents a constraint for the construction of the road; no budget has been allocated by the Government for the contract to resume; and apparently, current political will has decreased. A key question for future research is this: “Why is it that a BMP without precedence in the infrastructure sector has not been sufficient to ensure completion of a crucial project?” In the meantime, the communities of the influence area still wait for this long-anticipated public service.



⁵⁷ Interview: former member of the INVIAS responsible for the environmental aspects at the BMP’s planning stage (July 3, 2017).

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

⁶⁰ Interview: INVIAS’ current Environmental Coordinator of the San Francisco-Mocoa road project (July 6, 2017).

e. Beverages

i. General findings from the BMPs

The BMPs identified as related to the beverages sector are i) the recovery of degraded lands in the Peruvian Amazon, by means of a program called Ecoparque, developed by Backus, and ii) the preservation and sustainability of biodiversity and ecosystem services, carried out by Aje, in partnership with *Iniciativa Biodiversidad y Empresa* (ByE) of the Peruvian Ministry of Environment.

The information collected for the BMPs of the beverages industry makes it difficult to provide quantitative data, as there was only one respondent to the online survey. Our findings are based on the analysis from the information of said survey and the data collected during the four key informant interviews, as primary data along with complementary secondary data.

According to the interviews and the online survey, the decision-making and planning processes for both BMPs were carried out very fast, *i.e.* in less than one year. In fact, the conversations for the Aje-ByE partnership started in December 2015 and the agreement was signed in March 2016⁶¹. Regarding the surrounding conditions, none of the respondents mentioned the emergence of conflicts that could have affected the implementation of the BMPs. However, one of the organizational documents of the Ecoparque mentions a latent risk of land invasion over the 248 hectares of Backus property – where the Pucallpa plant is located – that until 2010 remained underused by the company.

In terms of outcomes, the Ecoparque project has contributed to the development of a market for local products – sawdust, rice husk, and farmyard manure – formerly disposed in the municipal dump. According to company metrics, annually 267,000 tons of these products had been disposed without proper environmental considerations, but have now become resources for the Ecoparque. Moreover, in social terms the project has created employment opportunities and capacity building processes have developed the wellbeing of Ucayali’s young population. Overall, the Ecoparque as a BMP has had positive outcomes in the environmental, social and economic local spheres.

According to Aje’s Chief of Marketing and Sustainability, “from the beginning, as part of Aje’s commitment with sustainability, the company started to implement some changes in its functioning activities, in order to reduce the hydrological and carbon footprints”⁶². Although no public metrics were available for this study in this regard, the internal perception within the company was positive in terms of cost-effectiveness. Regarding the external outcomes, the experience of sustainable management of solid waste in Machu Picchu allowed the collection of eight years of accumulated solid waste in a period of just six months. The company aims to replicate this experience in other geographic areas where the company operates.

ii. Drivers for the adoption of the BMPs

The BMPs in the beverage study case were not mandatory in legal terms, but were considered to be required for doing good business. In particular, regarding the recovery of degraded lands in the Peruvian Amazon, there were a series of environmental factors that company leadership found to be important opportunities, *i.e.* the lack of a local market to commercialize the by-products of the brewery process (yeast, pulp label and filtration sludge); the lack of municipal infrastructure for the proper disposal and sustainable management of these wastes; and local practices with negative impacts over the natural environment, such as: deforestation, overgrazing and garbage burning. To avoid the possible risks related to these factors, Backus contracted an assessment by Reforesta Peru. This organization identified strong potential for transforming the brewery by-products into organic compost, which is a critical component in recovering degraded soils and increasing their aptitude for forestry production. By doing so, the company had the opportunity to improve natural environmental conditions.

⁶¹ Interview former Coordinator of the *Biodiversidad y Empresa* (ByE) initiative.

⁶² Interview conducted on July 6th, 2017 via Skype with the Chief of Marketing and Sustainability of Ajé Peru.

Aje's Chief of Marketing and Sustainability observed in our interview a great opportunity to develop a leading position within the Multilatinas and the business sector more generally. He contends that, "the forest stewardship role – for the reduction of global warming and biodiversity preservation - cannot be exclusively entitled to the state. The business sector has a central role to play and the earlier the companies assume it, the better chances they will have to survive in the market"⁶³. Special consideration has to be made to this respondent, for his leadership during the decision-making process of the BMP. In his own words, he is "personally convinced on the protagonist role that corporations have to play regarding the reduction of carbon emissions and the conservation of biodiversity. Just after I understood the correlation between tropical countries and climate change, I considered it mandatory to assume a leading position amongst the companies in the beverage industry in Latin America, seeking to preserve forests conserve biodiversity"⁶⁴.

For both BMPs the business sustainability department was reported to be the most important internal influencer for implementation. In the case of Aje, the four interviewees – internal and external to the business – agreed on the fact that the other internal influencer was the business owners' commitment to sustainability, along with organizational leadership, for translating such commitment into concrete actions. As mentioned in the interviews, the company leadership has a sense that the sustainability paradigm has become institutionalized in the business sector. Hence transnational corporations, such as Unilever, are setting trends towards sustainability and exerting an influence over food and beverages companies.

On the other hand, the Chief of Marketing and Sustainability of Aje stated that, "the Millennials --the biggest market client for us, are demanding more evidence of sustainable values from the business end"⁶⁵. Additionally, the ByE as a dialog space aimed at bringing together diverse social actors around sustainability is attracting more businesses to become actively involved.

One last influence mentioned throughout the Aje-ByE partnership interviews was the confluence of both i) the internal interest of the company for supporting projects that foster the value chain with new products from Amazonian fruits and Andean seeds – *ungurahui*, *camu camu* and *aguaje* – and ii) the favorable perception of some indigenous organizations regarding new proposals for indigenous economies⁶⁶. An important factor for the active involvement of private sector companies was noted by the former director general of biodiversity of the Ministry of the Environment of Peru, in that the companies need to see the government taking necessary steps to create a space for dialogue that integrates the various social stakeholders in these cases.

However, this also warns us that a significant barrier to expanding these BMPs is related to the legality or illegality of the concessions that communities have with respect to the Amazonian fruits, especially given that the company only purchases products that are legal. In the case of Ecoparque, the most important external influence mentioned was the interest and openness of the local communities.

iii. Conclusions of the sector and lessons learned

One of the most important challenges identified by Aje for the effective implementation of sustainability projects is the lack of regulatory frameworks that incentivize reforestation and discourage deforestation. This is an interesting perception about the role of law as a tool for mobilizing actions in favor of environmental conservation. In this case, Aje affirms that the legal system can clarify investment decisions and, in this respect, incentivize the development of BMPs.

The case of the BMP developed by Aje shows that benchmarking exercises encourage the adoption of BMPs, in order to obtain market presence. The sustainability paradigm has become institutionalized in the business sector, and some companies such as Unilever are reputed to be at the forefront. Hence, transnational corporations are setting trends towards sustainability and exerting an influence over food and beverages companies.

⁶³ Interview conducted on July 6th, 2017 via Skype with the Chief of Marketing and Sustainability of Ajé Peru.

⁶⁴ Interview conducted on July 6th, 2017 via Skype with the Chief of Marketing and Sustainability of Ajé Peru.

⁶⁵ Interview conducted on July 6th, 2017 via Skype with the Chief of Marketing and Sustainability of Ajé Peru.

⁶⁶ Interview conducted on July 6th, 2017 via Skype with the Chief of Marketing and Sustainability of Ajé Peru.

Finally, the beverage sector presents a relevant factor that benefits the active involvement of private actors in the implementation of BMPs, i.e. the presence and support of the state and its institutions, especially the environmental agencies, which promote public-private dialogue, as was mentioned by the former coordinators of the ByE initiative, in reference to their alliance with Aje.

f. Overall Findings and Conclusions

There is a consolidated paradigm shift in place towards sustainability, which has permeated the public and scientific arenas, as well as the business sector, worldwide. There are an increasing number of legal and institutional frameworks compelling companies to develop a more socio-environmentally responsible approach. In particular, ESG factors (environmental, social and corporate governance) have become a global tendency for investors and sustainability reporting. The case of the San Francisco-Mocoa road confirmed that multilateral banks still struggle to persuade governments in the region as to the advantages and necessity of conducting more robust environmental assessments and implementing strict compensations schemes. Note, however that, although the adoption of voluntary BMPs is becoming sounder and more prevalent, most BMPs currently are adopted due to mandatory regulatory frameworks.

After the literature review, the I4DI team worked with a concept coined by the International Council for Mining and Metals (ICMM) --“the maturity conservation context”—and adapted this for our analysis of what motivates BMP adoption. This concept has relevant criteria for considering the likelihood of a company to behave in certain ways and serves as a tool for extending the reach of conventional analyses regarding environmental impact assessments. The ICMM’s concept is based on various principles found in the Rio Declaration, the Global Reporting Initiative, the Global Compact, OECD Guidelines on Multinational Enterprises, World Bank Operational Guidelines, OECD Convention on Combating Bribery, ILO Conventions 98, 169, 176, and the Voluntary Principles on Security and Human Rights.

According to the ICMM, *the maturity of the conservation context* depends on four factors, which may be considered at the national, regional or local level: i) The state of knowledge of ecosystems and species; ii) The existence of conservation plans, initiatives and protected areas; iii) The capacity of conservation organizations (government and civil society) and the success of enforcement measures; and iv) The intractability of biodiversity threats. Moreover, the ICMM works with three broad stages of ‘maturity’: i) Embryonic; ii) Immature; and iii) Mature. Maturity is considered attained when the factors influencing the conservation context are well established and provide a sound basis for effective conservation.

Maturity seems not to be the general rule at the Amazon region, at least according to the BMPs analyzed in this study. As the ICMM has pointed out⁶⁷, the success of biodiversity conservation [and certainly the likelihood for a company to adopt BMPs] relies heavily on this contextual maturity. As such, understanding external and internal factors, e.g. an “overarching strategic planning framework” established in the country where the high-impact development projects are to be implemented, appears as a major challenge for these companies to succeed. Therefore, conventional analyses for environmental impacts should be replaced by more sophisticated and situation-specific analyses, such as the assessments seen in the infrastructure case study.

As an example of the influence of the sustainability maturity context, the BMPs implemented by the beverages sector proved that the presence and support of the state and its institutions, especially the environmental agencies, which promote public-private dialogue, is a relevant factor that benefits the active involvement of private actors in the implementation of BMPs, as seen in the case of the Aje-ByE private public alliance.

The study of the BMPs within the mining case study provides a relevant opportunity for high-impact projects: the convenience of establishing long term plans from the initial phases up to the termination of the projects, is crucial. This can be extended to all sectors, so that compensation and remediation costs can be managed easily and especially, cyclical BMPs planning and implementation could be fostered.

⁶⁷ ICMM (2006) “Good Practice Guidance for Mining and Biodiversity”, p. 74. Available at: <https://www.icmm.com/website/publications/pdfs/biodiversity/good-practice-mining-and-biodiversity>

Interestingly, the case studies analyzed for this study allowed I4DI to validate the original model on the drivers for the adoption of voluntary BMPs. The BMPs from the mining sector appear to be driven by organizational leadership and commitment to the local communities, whereas the BMP from the infrastructure case apparently was mainly driven by conditionalities of the multilateral banks. The oil/gas case seems to be a hybrid, in that the implementing firm was required by the financing agent to implement certain aspects of the offshore-inland model and to monitor biodiversity impacts, but the firm went beyond these minimal requirements and made further investments to ensure BMP success. However, multiple layers can also be seen: the attitude of mid-rank government officials was also a crucial factor for the BMP to be adopted in the infrastructure sector. Or purely economic reasons are often merged with environmental friendly actions, such as the hydropower BMPs, and the initiatives from the beverages industry.

I4DI chose the concept of “sustainability maturity context” as the basis from which best management practices could be adopted. I4DI extended the reach of the “conservation maturity context” to additional factors at the organizational level that could enhance the likelihood of BMP adoption. In general, the context is shaped by legal and institutional frameworks, social and environmental conditions, as well as by public/media opinion. This implied –by the end of the literature review phase- an adjustment to the original model of drivers for the adoption of voluntary BMPs, devised by I4DI before the commencement of the study. In the end, the “sustainability maturity concept” refers to context factors that influence the adoption and implementation of BMPs on a voluntary basis, an aspect that is broader than the immediate decision-making process within the organizations.

The *sustainability maturity context* still conditions the adoption of BMPs: it is the basis from which political, economic, social, cultural and environmental factors join together in a variety of possibilities, all of them considerably complex, for encouraging private actors to act in a responsible manner. Ajé proved to be a case where the sustainability discourse has been embedded within the Board and CEO thanks to benchmarking exercises where Unilever appears to be a role model, whereas the San Francisco-Mocoa road clearly denotes permanent dichotomies between disciplines, e.g. engineers, geological technicians, social scientists and biologists; and between private and public actors, e.g. the infrastructure level, private contractors, environmental authorities, multilateral banks and local communities. The BMPs from the mining sector denote that companies that do not connect with the local communities of the influence areas will find it more difficult to operate, especially in a global context of apparent *decarbonization*. Adoption of the BMPs from the oil and gas sector demonstrate the positive results from proactive industry and organizational leadership, in wanting to bring sound science and new technologies to bear in doing the right thing and doing it well, as well as the context of capacity building and citizen engagement above and beyond the requirements of various investors over a longer time frame.

Following on the work of Schaltegger and Burritt (2015) on the four ethical motivations for designing Corporate Social Responsibility (CSR) and corporate sustainability, and the recommendations from the International Council for Mining and Metals (ICMM) on the “maturity conservation” concept, I4DI adjusted the original model for the drivers of adoption of BMPs to include a “sustainability maturity concept”. Thus, the overarching factors that might determine the adoption of voluntary BMPs are as follows:

- Legal and institutional frameworks;
- Social and environmental conditions of the project’s area of influence; and
- Media and public opinion.

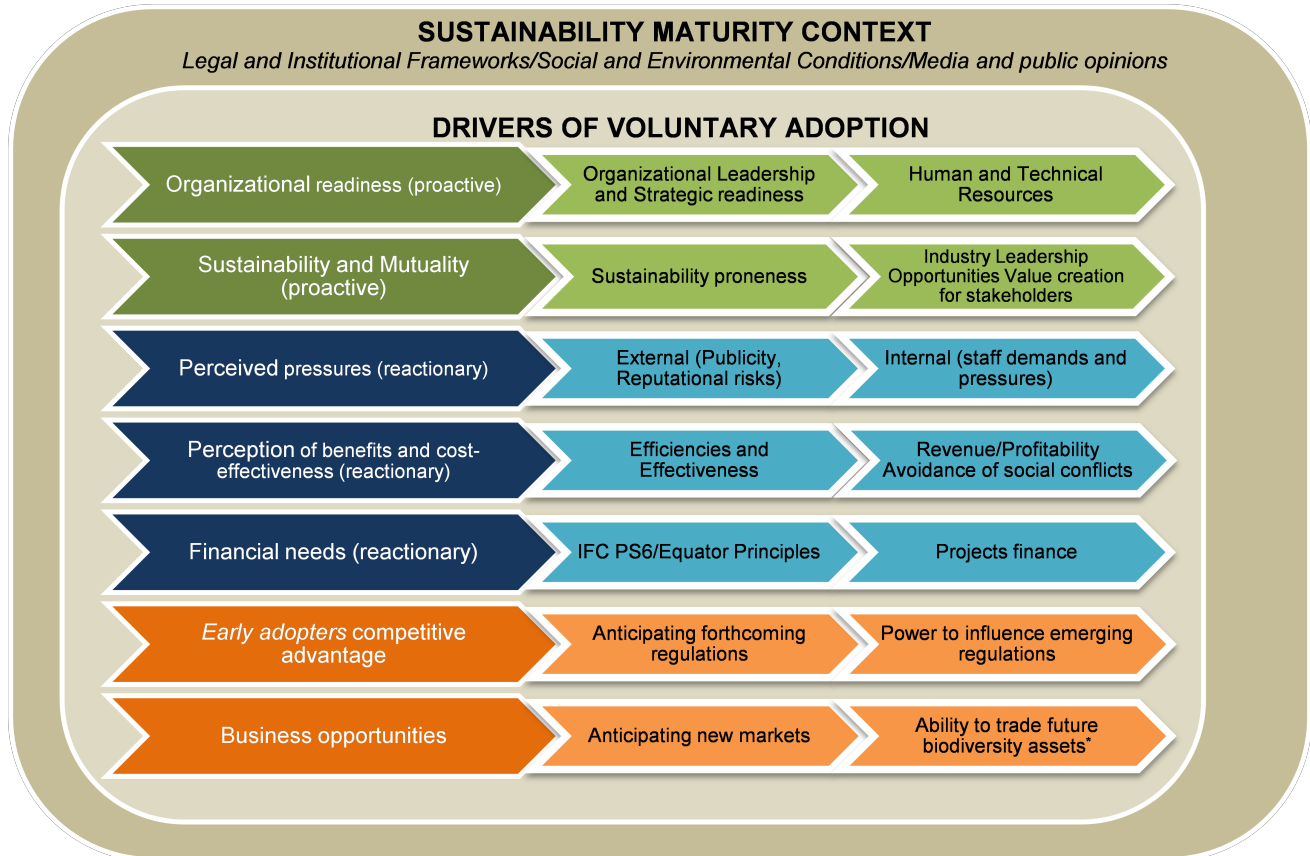
Underlying these overarching factors, seven more specific drivers were identified and grouped within three motivational categories of:

- Reactionary ethical motivations (highlighted in blue in Graph 3),
- Proactive ethical motivations (highlighted in green in Graph 3), and
- Potential economic benefits due to company innovation (highlighted in orange in Graph 3).

The final motivational category listed above is particularly critical for the adoption of BMPs as it further demonstrates the power of proactive versus reactive motivations. In this case, a firm’s internal commitment to innovation and forward thinking to advance their bottom line, rather than reacting to outside contextual factors, is key to adopting best management practices.

As mentioned above, the original model of voluntary adoption of BMPs was adjusted after the literature review phase. Similarly, after finishing the case study phase, the model was adjusted as follows:

Graph 3. Drivers for the adoption of BMPs: I4DI Model of the Sustainability Maturity Context



I4DI considers that the organizational drivers are embedded within a "sustainability maturity context" (which varies across countries and regions), making this interaction an interesting issue to be analyzed on a case-by-case basis. The sustainability maturity context is reflected in robust legal and institutional frameworks compelling the companies to develop a more socio-environmentally responsible approach. In some others, regulations exist but are not properly enforced and in some others, laws and policies are just now being put into place. Organizational decisions for the adoption of BMPs cannot be thought as isolated practices but need to be seen as part of a larger scale of sustainability-prone scenarios. But regardless of the level of development, this context is exerting pressures over the business sector to pursue good social and biodiversity stewardship. In tandem with this context, and also as an expression of it, there are drivers leading the companies to put in practice biodiversity best management practices.

A significant level of persuasion is also needed for some private sector firms. The experience of this research study concluded that not all the companies are interested in being part of development studies, although they politically responded positively to first contacts by I4DI. When it comes to responding to surveys and interviews, and when documentation of the company is requested, it was quite difficult for the research team to obtain positive responses. In general, respondents with a high academic background or the ones responsible for sustainability areas tended to be more keen on providing responses. This attitude is in itself a finding of the study: the general level of interest in the scope and opportunities resulting from such research studies is rather low. Since several companies in the region have their own bureaucracies, perhaps assuring a contact person with certain level of influence over the

company's decision-makers before the commencement of the study could ease the development of future research and foster more credibility and trust to the private firms. Assertive and effective communications between the research team members and the study subjects is a critical issue. Another limitation found during this study was that companies are not used to documenting their processes and experiences. Many respondents, particularly in the Oil/Gas sector case study, noted that good storytelling and proactive public relations could greatly enhance the positive visibility of both the firms involved and the results of their BMPs. However, a concern of negative public criticism tends to result in companies avoiding such risks that could result from such practices. Also, staff rotation and loss of institutional memory can detract from opportunities to document and strategically sharing of such experiences. Very few respondents were part of the decision-making and planning process linked to the targeted BMPs, as was the case with the infrastructure sector BMP (in particular the Ajé case, where its own Chief of Marketing and Sustainability claims to be the personal promotor of the BMP). This underscores the necessity of documenting the processes and BMPs from the beginning of their life cycle, since organizations cannot depend on the good intentions of transitory employees. For example, Cerrejon Coal started to document the experience concerning water management over the last ten years.

Moreover, it was a general finding from the surveys and KIs that mid-ranked employees expect their CEOs and Boards to support more responsible investments as a requisite for sustainable interventions with the local communities. The companies that perceive more coherence between CEO level and mid-rank coordinators appear to be more prone to implementing BMPs (Cerrejon Antamina, Pluspetrol, Aje, Hunt), whereas cases where this coherence was not confirmed by I4DI (the San Francisco-Mocoa road) is evidence of uncertainty regarding the continuity of the BMP.

Visibility to the public eye, be it institutional or from the local community, was reputed as a major game changer for the implementing companies, as is evident in the cases pertaining to the mining and oil & gas sectors. This may be of considerable value for the Amazon Basin, since institutional presence in this region is deficient and companies might perceive less pressure (in terms of responsible behavior towards the environment and trust to be gained from the local communities).

Regarding organizational motivations, the beverages industry proved to be the most dynamic and keen on assuming market leadership based on sustainability motives, which could mark some guidelines for the extractive industries. This is not the case for some other industries e.g. the infrastructure sector, which still depends considerably on states and public policies. This sector should work on the importance of long lasting state policies rather than short or mid-term policies which could include incentives for the private contractors. Long term efforts are scarce when it comes to infrastructure projects in the Andean countries that depend from national governments; in the same coin, private contractors do not feel any pressure nor do they receive any incentives for adopting BMPs voluntarily.

Finally, the mining and oil & gas sectors have proved that BMPs can also be a conflict prevention tool when local communities are involved in the project monitoring schemes and devise capacity building initiatives that benefit their socio-economic conditions. Indeed, as part of the BMPs design and implementation process, companies established cooperation agreements with the local communities with clear goals and benefits.

This study provides a safe ground for setting up and further discussion clusters regarding BMPs design and implementation. CEOs from the companies that implement(ed) the BMPs for this study could disseminate the respective outcomes and lead the realization of thematic and sectorial gatherings concerning the paradigm shift of doing business within the gradual acceptance of the sustainability discourse, including local NGOs and community representatives that could add value to the framing of future BMPs.

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Annexes

Annex 1. Document selection sheet

Document Information					Initial Review Scoring (1-3)					Total Score	Selected ?
					1 - Not at all relevant/reliable, 2 - Somewhat relevant/reliable, 3 - Very relevant/reliable						
#	Title	Author(s)	Year Published	Link	Contextual relevance to the Amazon region/tropical forests	Contextual relevance to high-impact development projects	Relevance to best practice management adoption	Relevant to all aspects of project development and implementation, including environmental assessments, siting, design, operation, and closure	Reliability of document source	Sum of Initial Review Scores	Yes/No (yes - score >12, no - score <12)

Annex 2. Best Management Practices identified during I4DI's Literature Review process

Mining Sector	BMP Identified
Ambatovy project (Madagascar)	<p>Biodiversity offsets: "In general biodiversity offsets are viewed as "measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity" (BBOP, 2012 cited by Gelcich, Vargas, Carreras, Castilla, & Josh Donlan, 2016).</p> <p>Example: Ambatovy, Madagascar- mining. There is a multifaceted program, including:</p> <ul style="list-style-type: none"> • An offsite offset spanning 11,600 ha of endangered forest; • On-site conservation zones spanning 4,900 ha, including an area of sacrificed ore body; • A forest corridor ensuring connectivity with remaining eastern rain forests; • Support to conservation of a RAMSAR wetland adjacent to the mine site; <p>Expanded reforestation activities along pipeline right-of way and within mine footprint</p>
Antamina (Perú)	<p>Antamina's voluntary projects that address biodiversity are carried out by Asociación Ancash, a corporate foundation of Antamina. Among its main objectives are the creation of Private Conservation Areas with communities that surround the area of influence of Antamina's mining operation. This area has large and pristine forests of the genus <i>Polylepis</i>. Presence of the indigenous <i>Polylepis weberbaueri</i> species is remarkable. They developed the concept to restore and conserve <i>Polylepis</i> forests as a joint venture. The strategy of the Polylepis program is to work with local communities to develop conservation agreements whereby technical assistance and materials for reforestation (and improved grazing practices) are exchanged for community assurances to conserve the restored forests. These agreements attempt to balance economic and other incentives (identified locally) and local pride in stewardship</p> <p>(ICMM, http://www.icmm.com/website/publications/pdfs/environment/1246.pdf). See also http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf</p>
Cerrejón (Colombia)	Coal The development of a Wildlife Management Plan that includes four specific programs: 1. Fauna Rescue and Relocation; 2. Fauna Rehabilitation; 3. Monitoring; and 4. Biodiversity Conservation Initiatives (ICMM, http://www.icmm.com/website/publications/pdfs/environment/1246.pdf)
Rio Tinto (Perú)	<p>Rio Tinto's biodiversity strategy: Identification of biodiversity risks and opportunity; Development and implementation of biodiversity programmes; Recognition of synergies and challenges with sustainable communities programmes; Identification and development of strategic and operational partnerships, and, Effective corporate assurance. Outputs from the strategy include a Position Statement, guiding principles, a detailed guidance document and case studies. The Strategy was launched at the World Conservation Forum in Bangkok in November 2004. It is being implemented across the Rio Tinto Group, with particular emphasis on new projects. As with the development of the strategy, the company's biodiversity partner organisations are actively involved in implementation. They are supporting Group businesses in the design and development of biodiversity programmes appropriate to local biodiversity risks and opportunities. Working groups have been formed to continue the development of additional guidance on biodiversity indicators, metrics and targets, and on the issues surrounding the use of biodiversity offsets. Both groups have membership drawn from conservation and development organisations as well as corporate and operational staff from Rio Tinto (ICMM, http://www.icmm.com/website/publications/pdfs/13.pdf)</p>
Rio Tinto and Peruvian Ministry of Environment (Perú)	<p>Agreement between Rio Tinto Minera Perú and the Ministry of Environment, for the elaboration and implementation of an environmental compensation metric application in the Andean ecosystem (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).</p>

Oil & Gas Sector	BMP Identified
Camisea project Pluspetrol (Perú)	Offshore-inland Development: it is a technique to develop oil and gas fields and pipelines, within tropical forests, using only helicopter transport and supplementary use of rivers barge transport during annual high water season. It is a roadless model for biodiversity and forests protection.
Camisea project Pluspetrol (Perú)	Minimized right-of-way: it is a reduction of the width of the corridors needed for the construction of pipelines “This “green pipeline” ROW technique, or “ducto verde” in Spanish, also emphasizes conforming the ROW to natural contours and emphasis on manual clearing (instead of heavy machinery) to further reduce impacts, particularly on steep slopes. This type of reduced-impact pipeline corridor was employed on one ROW section of the Camisea Project” (Finner, Jenkins, & Powers, 2013, p.4)
Camisea project Pluspetrol (Perú)	Canopy bridges: “There are tree canopy sections along the ROW that remain intact to facilitate the passage of wildlife, at intervals of approximately one kilometer or more” (Finner, Jenkins, & Powers, op. cit. p.4)
Camisea project Pluspetrol (Perú)	A Participatory Environmental and Social Monitoring Programme (PESMP) was implemented by a prestigious and experienced national non-profit organization, ensuring that the programme was appropriate for the social context (IPECA, http://www.ipeca.org/resources/good-practice/indigenous-peoples-and-the-oil-and-gas-industry-context-issues-and-emerging-good-practice/)
Hunt Oil LNG (Perú)	Systematized grievance mechanisms (IPECA, http://www.ipeca.org/resources/good-practice/indigenous-peoples-and-the-oil-and-gas-industry-context-issues-and-emerging-good-practice/)
Hunt Oil LNG (Perú)	The figure of local field “monitors”: “Monitors” are local people spending 10 days a month in the field to inspect work activities and reinstatement works, accompanied by a member of the implementing organization. The monitors record all findings in coordination with the specialist to ensure their observations are objective, based on project commitments or actual impacts, and that every finding can be substantiated. All findings are classified as requiring ‘No Action’ or ‘Action’. Information about the observations and any associated actions are registered in a database used as a consulting tool, which determines action priorities for a community (IPECA, http://www.ipeca.org/resources/good-practice/indigenous-peoples-and-the-oil-and-gas-industry-context-issues-and-emerging-good-practice/)
Hunt Oil LNG (Perú)	A Rural Andean Community Management Strategy was developed to ensure that appropriate consideration was given to the most vulnerable populations (IPECA, http://www.ipeca.org/resources/good-practice/indigenous-peoples-and-the-oil-and-gas-industry-context-issues-and-emerging-good-practice/)
Villano Oil Field Agip (Ecuador)	A Biodiversity (VBD) Project assessment was created in order to assess the rate and form of change over time in the natural environment of the Villano area, both at landscape and site-specific level, before and after the arrival of the oil company. The potential impacts on biodiversity from oil operations were compared with those related to human settlements, a local road already under construction and the use of forest by indigenous populations and other communities. The goal was to evaluate, on a scientific basis, the status of biodiversity, identify the drivers of change, differentiate the potential impacts of the company’s operations from those of other human activities in the same area (IPECA, https://commdev.org/userfiles/eni_case_study.pdf).
Repsol (Perú)	implementation of the program for evaluation, monitoring, and conservation of biodiversity (Lote 57), in agreement with the Smithsonian Institution, ii) implementation of the Project “Sagari”, which developed the “Biodiversity and Ecosystem Services (BES)” methodology . This methodology integrates biodiversity and ecosystemic services in the core business (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).

Hydropower Sector	BMP Identified
Celepsa (Perú)	Implementation of a tool for risk management regarding changes in the ecosystems surrounding the operations of Celepsa ("Análisis Corporativo de los Servicios Ecosistémicos –ACSE"). This tool identifies the strategic value of ecosystems from a corporate lens, so that these issues can be part of the organizational strategy (p. 3). This tool was designed by the World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), and the Meridian Institute, and has been implemented by more than 300 companies around the world, allowing companies to i) anticipate risks, ii) improve stakeholder's management, iii) influence public policies, iv) demonstrate leadership (Ministerio Ambiente, Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf)
Celepsa (Perú)	i) Support for the "Patronato de la Reserva Paisajística Nor Yauyos Cochabamba", which promotes the management for the conservation of the water resources, ii) implementation of the sustainable development program for the Cañete river shrimp (Ministerio Ambiente, Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
US Bureau of Reclamation (USBR)	Reclamation is the largest wholesale water supplier in the United States, and the nation's second largest producer of hydroelectric power. Its facilities also provide flood control, recreation, and fish and wildlife benefits. https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=58744 . BLM's programs are designed to provide the best management practices of the basic resource base. A complete Website of dams, projects and power plants across the United States can be found at https://www.usbr.gov/projects/ .
US Bureau of Land Management (BLM)	i) As the administrator of the Federal government's onshore oil and gas program, the BLM seeks to minimize land disturbance from development by working with stakeholders to develop the BMPs to minimize project footprints and fragmentation of wildlife habitat, and by applying modern environmental laws, regulations, and standards. An increasing amount of the energy that powers the US is generated on public lands managed by the BLM. The BLM is leading the way in allowing for orderly, environmentally responsible development of these sources by companies that will carry power to growing markets in the West and Southwest. BLM manages development of these resources in ways to benefit the public by supporting local economies and providing dependable domestic energy. https://www.blm.gov/programs/energy-and-minerals . ii) BLM has developed a collaborative action and dispute resolution (CADR) program: this program strives to produce sustainable decisions by effectively engaging others in their stewardship; and working collaboratively to prevent, manage and resolve conflict at the lowest possible levels. To do this, CADR embraces a range of activities outside of conventional planning and litigation, e.g. mediation, stakeholder working groups or joint fact-finding, often with assistance from a neutral, third party. BLM has four strategic goals: a. Champion a Collaborative Culture, b. Create a Common Understanding, c. Build Collaborative Capacity, d. Foster Accountability and Assess Outcomes. https://www.blm.gov/services/cadr/program-goals . iii) Tribal consultation: For the BLM, the essential reason for Native American consultation is to identify the cultural values, the religious beliefs, the traditional practices, and the legal rights of Native American people, which could be affected by BLM actions on public lands. Tribal consultation regarding public-land activities has 4 essential elements: a. Identifying appropriate tribal governing bodies and individuals from whom to seek input, b. Talking with appropriate tribal officials and/or individuals, c. Treating tribal information as a necessary factor in defining the range of acceptable public-land management options, d. Creating and maintaining a permanent record to show how tribal information was obtained and used in the BLM's decision making process. https://www.blm.gov/services/tribal-consultation .
Run-of-river schemes as hydroelectric power generation	Run-of-river (ROR) schemes are hydroelectric power (HEP) schemes that operate without water storage, using the flow within a river channel. These are smaller-scale HEP schemes that contribute to meeting renewable energy targets. Run-of-river HEP schemes are often presumed to be less environmentally damaging than large-scale storage HEP schemes. However, there is still debate on the real and measurable positive effects of this scheme. A relevant paper analyzing run-of-river HEP can be found at: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154271 . This paper analyzed changes in a given fish community composition, and concluded that there were no statistically significant effects detected on five out of six metrics of community composition. Information on run-of-river

	schemes can also be found at http://www.renewableenergyworld.com/articles/print/volume-19/issue-9/features/hydro/inside-amp-s-new-run-of-river-hydropower-plants.html .
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Other Industries & Multi-actor	BMP identified
US Bureau of Land Management (BLM)	Conservation of the Greater Sage-Grouse: due to the urbanization of the American West, Greater Sage-Grouse habitats, an icon of the American West, have been lost to development, invasive weeds and wildfire. The BLM manages the remaining sagebrush habitat, by developing land use plans. These plans benefit not only the Greater Sage-Grouse, but some 350-other species. https://www.blm.gov/node/3282
US Bureau of Reclamation (USBR)	The recreation areas developed as a result of Reclamation water projects are among the Nation's most popular for water-based outdoor recreation. Reclamation projects include approximately 6.5 million acres of land and water, available for public outdoor recreation. Those projects have created valuable national wildlife refuges and state wildlife management areas that offer recreation opportunities, e.g. camping, hiking, hunting, photography, and wildlife viewing. Reclamation also assists local communities in attracting recreation-related investments and involves local citizens in the decisionmaking process. As a result, recreation developments meet public needs and expectations. https://www.usbr.gov/recreation/ .
Aguas Amazonicas initiative (Perú)	The Aguas Amazonicas initiative consists of a “ <i>río arriba-río abajo</i> ” integrated management of basins (“ <i>Manejo Integrado de Cuencas</i> ” –MIC), which conceptually can be used at the adequate scale for achieving conservation goals, project planning and environmental mitigation. Hydrographic basins are natural units within the Amazon region and have been understood as part of the geographical space for local communities. The Aguas Amazonicas initiative has developed a new classification of hydrographic basins which complements current classifications created by Peruvian national water agencies. This classification allows mapping exercises regarding ecological phenomena, e.g. fish migration and different types of water alongside the basin. The classification of basin units can also be used for identifying quantitatively which areas should be considered during planning stages when it comes to fisheries and wetlands; at investment projects on road infrastructure, hydropower, extractive projects and agribusiness http://aguasamazonicas.org/la-iniciativa/desafio-de-escala/ . Aguas Amazonicas’ water management has the potential for being a relevant citation as a source of BMPs for ‘integrated watershed management’ in the face of hydropower and other threats.
Participatory citizen science	Participatory citizen science is a widespread practice that involves the public directly in the multifaceted and iterative processes of scientific investigation, especially for the project planning and design phases. A similar term also used is “Public Participation in Scientific Research (PPSR)”. http://www.informalscience.org/sites/default/files/PublicParticipationinScientificResearch.pdf . The growing field of public participation in scientific research (PPSR) includes citizen science, volunteer monitoring, and other forms of organized research in which members of the public engage in the process of scientific investigations: asking questions, collecting data, and/or interpreting results. http://www.birds.cornell.edu/citscitoolkit/about/defining-citizen-science/ .
Peruvian Government, private sector and financial institutions (Perú)	The “Puesta en valor de la biodiversidad en el Perú” project, seeks for implementing a digital platform for information sharing which might allow to visualize biodiversity conservation initiatives from the private sector (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
ElectroPerú (Perú)	The Biodiversity Balance Scorecard tool seeks for integrating traditional and scientific knowledge and obtaining a rapid diagnosis on the state of the biodiversity management in determined geographical zones. This has been intended for decision-making at the private sector. It has been used as a pilot at ElectroPerú (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Private sector in Perú	The glossary of common concepts aimed at simplifying the technical language concerning biodiversity and sustainable use of ecosystems – for company use only (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Ajeper-beverages (Perú)	The shareholders of this company (beverages) decided to spend revenues from taxes towards the conservation of Amazon forests , rather than investing in roads (Ministerio Ambiente Perú,

Other Industries & Multi-actor	BMP identified
	http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Tasa (Perú)	Implementation of “Good practices in sustainability”, an ecosystemic-based program for monitoring the dynamics of the maritime ecosystem in Perú; ii) implementation of the “fishery schedule on board” , which allows the registration of information, and the liberation of submarine predators (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Inkaterra (Perú)	Promotion of the World Birding Rally , an observation birds’ race, ii) elaboration of an inventory of flora and fauna in influence áreas, iii) research for the conservation of native orchids, iv) rescuing and rehabilitation of the spectacled bear (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Condor Travel (Perú)	i) Promotion of sustainable turistic destinations and work with indigenous communities in Cusco, ii) sale of carbon certifications for tourists , and measuring and mitigation of carbon footprint (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Agrokasa (Perú)	i) Identification, monitoring and systematization of the “avifauna” of the Ica and Barranca desert, ii) creation of two zones for biodiversity conservation and native species restoration (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).
Rainforest Expeditions (Perú)	Ecotourism in Alliance with native and peasant communities of the Tambopata national reserve, ii) support for entrepreneurship based on products from the Amazon (Ministerio Ambiente Perú, http://www.minam.gob.pe/bye/wp-content/uploads/sites/108/2016/04/AF_BYE-N%C2%BA0-dobles-RGB.pdf).

Annex 3. Sample of Possible Case Studies

#	Project	Company	Country. Location	Type of Project	BMP implemented	Possible drivers identifies	Conditions of voluntary best management practice adoption
1	Camisea	Pluspetrol and Transportador a de Gas del Perú	Perú	Oil & Gas. Malvinas natural gas plant – a component of the Camisea project – in the Peruvian Amazon	<ol style="list-style-type: none"> 1) The "offshore-inland"/ "roadless" model that avoids the traditional road building that causes deforestation 2) It brings indigenous rights to the fore, not only for settled communities, but also for initial contact groups and related conflicts on the ground and in indigenous politics 3) It can inform private sector decision-making as Hunt Oil Company decided not to exploit one of the lots at its disposal, in part due to the presence of voluntarily isolated indigenous groups 	<ul style="list-style-type: none"> • External and internal key actors sympathetic to the biodiversity conservation approach, with real capacity to influence the decision making level of the company 	<ul style="list-style-type: none"> • Company's reputation • Pressures from environmental and indigenous groups • Access to lending lines
2	Perú LNG	Hunt Oil	Southern Region of Perú. The 408-km pipeline crosses diverse landscapes and ecosystems, reaching a maximum elevation of 4,900 m and passing through 22 districts in the departments of Ayacucho, Huancavelica, Ica and Lima, many of which are remotely located	Oil & Gas. Comprises a natural gas transportation pipeline that traverses the Andes to a liquefaction plant and marine terminal on the Pacific coast.	<ol style="list-style-type: none"> 1) A robust stakeholder engagement process 2) A systematized grievance mechanism 3) Local hiring and purchasing procedures 4) A Rural Andean Community Management Strategy was developed to ensure that appropriate consideration was given to the most vulnerable populations 5) The Participatory Environmental and Social Monitoring Programme (PESMP) represents the first participatory monitoring programme that has been carried out in the construction phase of a major oil and gas development project in Peru. It is considered a successful programme that could serve as a model for similar projects in South America and beyond, and particularly in the context of vulnerable communities 	<ul style="list-style-type: none"> • The avoidance of potential conflicts and grievances related to community expectations • The promotion of transparency and trust with local community members. 	Not identified

3	Villano Oil	Agip Oil Ecuador (Eni's subsidiary)	Ecuador. Block 10, located in an almost untouched area of forest in the Pastaza province of the Ecuadorian Amazon.	Oil & Gas	<p>1) Open dialogue engagement with different stakeholders, as “an effective means of leveraging local ecological knowledge, understanding the value of traditional ecosystems, learning how natural resources are used and avoiding potential resource conflict” (IPIECA);</p> <p>2) Thinking about whole landscapes: understanding “the scale at which different ecosystem processes occur in order to design sound impact assessments, mitigation measures and monitoring programmes. For large projects, assuming a landscape perspective assures that area-demanding species and broad-scale ecological processes are adequately considered” (IPIECA)</p> <p>3) Following the mitigation hierarchy: Villano is a good case for analyzing the general order of preference for mitigating biodiversity impacts (Avoid; Reduce; Restore; and, if necessary, Compensate, including offsetting.</p>	Not Identified	Not Identified
4	Antamina	Compañía Minera Antamina S.A	Perú. Peruvian Andes, in the Department of Ancash. Ore is transported from the mine to a port facility in the coastal town of Huarmey, Peru via a 302 km pipeline	Mining. Antamina is an open pit copper, zinc, and molybdenum mining operation. The nine-year-old mining complex is among the ten largest in the world and represents the largest mining investment (US\$ 2.3bn) in the history Peru	<p>1) Conservation agreements and voluntary projects that address biodiversity were developed with local communities, including indigenous people. Local communities have played a crucial role in mobilizing resources and support for the environmental compensation activities</p> <p>2) The Business and Biodiversity Offset Program has documented the program as a pioneer initiative in creating biodiversity offsets.</p>		

5	QMM Madagascar/ La Granja/ Porto Trombetas/ San Luis (Alumar)	Rio Tinto	Madagascar, the Anosy Region of Southern Madagascar/ Perú. Cajamarca/ Brasil, Northeast.	Mining	1) No Net Loss/Net Positive Impact on biodiversity	<ul style="list-style-type: none"> • The acknowledgement of the complexities surrounding the mining business • Social pressures and the pursuing of long term business value • Company's reputation • Company's interest in accessing multilateral funding 	<ul style="list-style-type: none"> • Financial lending requirements • Governments offset policies • Corporate Risk Management
6	Cerrejón Coal	Carbones Cerrejón	del Colombia. Southeast of the Department of La Guajira in the Ranchería River Basin	Mining. Cerrejón is an open-pit mining operation dedicated to the exploration, extraction, transport, and shipping, and export of thermal coal	1) Wildlife Management Plan which approaches flora and fauna conservation and rehabilitation, and a permanent engagement with the Wayuu indigenous communities.	<ul style="list-style-type: none"> • Not identified 	<ul style="list-style-type: none"> • The Colombian institutional and legal framework should be revised during the possible analysis of this case.
7	Pasto-Mocoa Road	IADB, Ministerio de Transporte de Colombia and Instituto Nacional de Vias de Colombia	Colombia	Road Infrastructure	1) The Mocoa-Pasto road is a 46Km road, which is a tiny portion of a broader enterprise seeking to connect the South American continent, especially Ecuador and Colombia, and also the Amazon with the ports at the Pacific and Atlantic coasts. This project is the only example of infrastructure in Colombia having developed more sophisticated risk management than usual mandatory environmental impact assessments. This was, in part, due to the implementation of IADB's new environmental safeguards and to the poor impact assessments previously conducted in the same region under the IIRSA initiative.	<ul style="list-style-type: none"> • Pressure from the local communities, including indigenous people. 	<ul style="list-style-type: none"> • Not identified.
8	Pucara-Pisayambo Hydroelectric Power Plant	Hidroagoyan	Ecuador	Hydropower	1) "For this Project, the storage capacity of a natural, high elevation mountain lake was increased and reinforced with an earthen dam. Water is drawn directly from the	<ul style="list-style-type: none"> • Not Identified 	<ul style="list-style-type: none"> • Not Identified

						improved reservoir through penstocks to a powerhouse located inside the mountain and out of view. After generating electricity, the water is discharged back into the lake's natural outflow drainage at the base of the mountain, and also contributes flow to an irrigation canal. The project has a relatively small footprint in a well-represented habitat zone; does not disrupt ecological connectivity; does not affect any known river users, and benefits local farmers by providing regulated flows for irrigation" (Kimbrough & Kumar, 2015)		
9	Water Development Alliance –WADA	USAID and Coca-Cola	Africa	Water	1) They provide water access, hygiene and sanitation services.	• Not identified	• Not identified	
10	SABMiller/TNC partnership	SABMiller and TNC	Perú, Colombia and Ecuador	Water	1) They source funding from water users to conserve ecosystems that regulate water supplies for all.	• Not identified	• Not identified	
11		AB InBev, TNC, Jaguarina Bureau of the Environment and the Brazilian National Water Agency	Brazil. The Jaguari and Jundiai watersheds	Water	1) A watershed restoration program that aims to use large-scale green infrastructure to ensure a clean and steady supply of water for all stakeholders in the Jaguari and Jundiai watersheds. This includes elements of reforestation and soil conservation techniques (Barrett, 2015)..	• Not identified	• Not identified	
12	Ecoparque	Backus, Reforesta Perú, the Instituto Interamericano de Cooperación para la Agricultura-IICA and the Ministry of Foreign Affairs of Finland	Perú	Water	1) A project for the recovery of degraded lands in the Peruvian Amazon	• Not identified	• Not identified	

1 3	Aje and the Iniciativa de Biodiversidad y Empresas advanced by the Ministry for the Environment	Perú	Water	1) A private-public partnership for the preservation and sustainability of biodiversity and ecosystemic services	• Not identified	• Not identified
1 4	Natura Cosméticos	Brazil	Personal products/Cosmetics	1) For its water, packaging and carbon offset practices have been recognized by UNEP as a "Champion of the Earth". 2) This sustainable production company is looking at sourcing from cropping systems, especially oil palm, that, in other circumstances, can present a significant biodiversity threat. "Natura supports small suppliers in rain forest communities using a fair trade model" (MIT Management. Sustainable Initiative, n.d.).	• Not identified	• Not identified
1 5	Minerva Foods	Brazil		1) It has developed good practices for not exposing livestock in the forest. The 2015 sustainability report states that "In the course of 2015, the Company conducted transactions with 6,514 cattle ranchers. Of this total, 2,354 correspond to new suppliers selected in the. The exercise, of which 100% were evaluated on the basis of environmental, territorial, labor and consideration to possible impacts on society and human right" (Minerva Foods, 2016, pág. 86)	• Not identified	• Not Identified

Annex 4. Brief review of country legal frameworks related to some of the BMP's identified

Country	Industry Sector	BMP implemented	Legal framework
Brazil	Mining	<ul style="list-style-type: none"> No Net Loss/Net Positive Impact on biodiversity 	<ul style="list-style-type: none"> Ley del Sistema Nacional en Unidades de Conservación Brazilian Forestry Code. See https://www.cpt.com.br/codigo-florestal/codigo-florestal-brasileiro-completo-e-atualizado-lei-127272012 Environmental Compensation Fund
Colombia	Mining	<ul style="list-style-type: none"> Wildlife Management Plant 	<ul style="list-style-type: none"> Ley 611 de 2000, published in Diario Oficial N° 44.144, August 29, 2000 that establishes norms for the sustainable management of wildlife and aquatic species. The law is related to fauna nursery (zoocriaderos) and the BMP is related to wildlife
Colombia	Road infrastructure	<ul style="list-style-type: none"> A risk management more sophisticated than usual mandatory environmental impact assessments 	<ul style="list-style-type: none"> Ley No.1523. Por el cual se adopta la política nacional de gestión del riesgo de desastres y se establece el sistema nacional de gestión del riesgo de desastres y se dictan otras disposiciones The law is related to governmental plans and the BMP is a private initiative
Colombia	Water	<ul style="list-style-type: none"> Source funding from water users to conserve ecosystems that regulate water supplies for all. 	<ul style="list-style-type: none"> The Environment and Sustainable Development Ministry issued the Executive Order 953 of 2013, through which refers to investments of at least 1%, from territorial entities current incomes, to fund payments for environmental services (PES) schemes in areas the supply water to municipal, district and regional aqueducts. This norm empowers the territorial entities to incentivize private owners to develop PES
Ecuador	Water	<ul style="list-style-type: none"> Source funding from water users to conserve ecosystems that regulate water supplies for all. 	<ul style="list-style-type: none"> There is no law yet that rules this type of environmental tool
Ecuador	Hydropower	<ul style="list-style-type: none"> Use the storage capacity of a natural lake Powerhouse located inside the mountain and out of view After passing through the turbines the water is discharged back into the lake's natural outflow drainage at the base of the mountain, and also contributes flow to an irrigation canal 	<ul style="list-style-type: none"> Ley Orgánica de Recursos Hídricos Usos y Aprovechamiento del Agua. 2014
Peru	Water	<ul style="list-style-type: none"> A project for the recovery of degraded lands in the Peruvian Amazon A private-public partnership for the preservation and sustainability of biodiversity and ecosystemic services Source funding from water users to conserve ecosystems that regulate water supplies for all. 	<ul style="list-style-type: none"> There is a recent and well developed legal framework for different schemes of payments for environmental services

Annex 5. Eligibility criteria for quantitative survey

The criteria taken into consideration to invite respondent to participate in the quantitative survey were:

- Current or former organization staff members, at any level or position, with knowledge of the BMP decision-making or implementation process, or
- Current or former organization staff members in positions of key influence or with authority over the decision to voluntarily adopt the BMP under study, or
- Current or former organization staff members responsible for the implementation of the BMP under study, or
- Current or former representatives/staff of bodies that funded the BMP under study (assuming that are part of the organization; not external actors),
- Current or former organization staff members with knowledge of the legal framework surrounding the BMP.

Appendix 6. Quantitative Survey

NB: A topic-targeted survey will be fielded to respondents from each selected case study organization such that prompts at the beginning of the survey and embedded within questions will focus respondents on a single BMP.

1. Before the best management practice went into effect, how much time was spent deciding upon and planning for that practice?
 - a. Less than 1 year
 - b. At least 1 year and less than 2 years
 - c. At least 2 years and less than 3 years
 - d. 3 years or more
 - e. Do not know

NB: Best management practices are defined as *“those that minimize the negative environmental, social, and/or economic impacts that stem from the use of typical practice.”*

2. What groups or individuals within your organization had key influence in deciding to implement best management practice?
 - a. The Corporate Social Responsibility division/department or certain individuals belonging to
 - b. The Sustainability division/department or certain individuals belonging to
 - c. The Board of Directors or certain individuals belonging to
 - d. The company’s CEO
 - e. The Legal or Compliance division/department or certain individuals belonging to
 - f. The Risk Management division/department or certain individuals belonging to
 - g. The HSEQ division/department or certain individuals belonging to
 - h. The Human Resources division/department or certain individuals belonging to
 - i. The Human Rights division/department or certain individuals belonging to
 - j. The Environmental division/department or certain individuals belonging to
 - k. The Social Management division/department or certain individuals belonging to
 - l. The Communications/Public Relations division/department or certain individuals belonging to
 - m. Company’s Trade Union(s) or certain individuals belonging to
 - n. Other(s)
3. What groups or individuals external to your organization had key influence in the decision to implement best management practice?
 - a. Local citizens or communities
 - b. Local policy makers
 - c. National policy makers
 - d. International regulators
 - e. Industry partners
 - f. Shareholders
 - g. NGOs
 - h. Media or certain journalists
 - i. National or international investors
 - j. Other(s)
4. To your knowledge, were there any conflicts between the groups/ individuals that had key influence during the decision-making and planning process for best management practice?
 - a. Yes – GO TO 5
 - b. No – GO TO 6
 - c. Do not know – GO TO 6

5. Please describe any conflicts during the decision-making and planning process for best management practice of which you are aware.
6. In YEAR OF BMP IMPLEMENTATION, how would you rate your organization's absolute level of concern in minimizing the **negative environmental impacts** stemming from typical practice.
 - a. Very concerned
 - b. Somewhat concerned
 - c. Not at all concerned
 - d. Do not know
7. In YEAR OF BMP IMPLEMENTATION, how would you rate your organization's absolute level of concern in minimizing the **negative social impacts** stemming from typical practice.
 - a. Very concerned
 - b. Somewhat concerned
 - c. Not at all concerned
 - d. Do not know
8. In YEAR OF BMP IMPLEMENTATION, how would you rate your organization's absolute level of concern in minimizing the **negative economic impacts** stemming from typical practice.
 - a. Very concerned
 - b. Somewhat concerned
 - c. Not at all concerned
 - d. Do not know
9. Before YEAR, did your organization have any experience voluntarily adopting other best management practices?
 - a. Yes – GO TO 10
 - b. No – GO TO 11
 - c. Do not know – GO TO 11
10. Please identify one or more best management practices that your organization adopted before YEAR.
11. Before YEAR, did your organization have experience adopting any other best management practices that were mandatory (required by law)?
 - a. Yes – GO TO 12
 - b. No – GO TO 13
 - c. Don't know – GO TO 13
12. Please identify one or more best management practice that your organization mandatorily adopted before YEAR
13. Before YEAR, did your organization have experience adopting any other best management practices that were required (not mandatory but a requirement for doing business)?
 - a. Yes – GO TO 14
 - b. No – GO TO 15
 - c. Don't know – GO TO 15
14. Please identify one or more best management practice that your organization adopted before YEAR because they were required
15. How would you characterize the implementation of the best management practice?
 - a. Mandatory (e.g., required by law)
 - b. Not mandatory, but a requirement for doing business (e.g., in order to access credit or land)
 - c. Voluntary

16. On a scale from 1 to 5, where 1 is Not at All Important and 5 is Very important, please rate the **importance** of each of the following reasons as to **why** your organization decided to adopt the best management practice
- Mandated legally
 - Required for financing
 - Required for access to land
 - Expedited the receipt of permits
 - Organizational standards
 - Industry standards
 - Global standards
 - Public perception
 - Employee perception, satisfaction and/or retention
 - Organizational leadership and strategic readiness
 - Human and technical resource capacity
 - Corporate responsibility
 - Potential for industry leadership
 - Potential for increased revenue/profitability
 - Potential for increased efficiencies/effectiveness
 - Potential to enter new markets
 - Potential to trade future biodiversity assets, such as ecosystem services or biodiversity offsets
 - Human Rights commitments
17. Are there other reasons, not listed above, as to **why** your organization decided to adopt the best management practice?
- Yes – GO TO 18
 - No – GO TO 19
 - Do not know – GO TO 19
18. Please list the other reasons as to why your organization adopted the best management practice
19. Considering all of the possible reasons why your organization decided to adopt the best management practice, what are the three most important reasons?
- Mandated legally
 - Required for financing
 - Required for access to land
 - Expedited the receipt of permits
 - Organizational standards
 - Industry standards
 - Global standards
 - Public perception
 - Employee perception, satisfaction and/or retention
 - Organizational leadership and strategic readiness
 - Human and technical resource capacity
 - Corporate responsibility
 - Potential for industry leadership
 - Potential for increased revenue/profitability
 - Potential for increased efficiencies/effectiveness
 - Potential to enter new markets
 - Potential to trade future biodiversity assets, such as ecosystem services or biodiversity offsets
 - Human Rights commitments
 - Other(s)
20. Since adopting the best management practice, have there been any unanticipated positive consequences of the adoption?
- Yes – GO TO 21
 - No – GO TO 22

c. Do not know – GO TO 22

21. What have been the unanticipated positive consequences of the adoption?
22. Since adopting the best management practice, have there been any unanticipated negative consequences of the adoption?
- Yes – GO TO 23
 - No – GO TO 24
 - Do not know – GO TO 24
23. What have been the unanticipated negative consequences of the adoption?
24. Since YEAR, has your organization had experience voluntarily adopting any other best management practices?
- Yes – GO TO 25
 - No – GO TO 26
 - Don't know – GO TO 26
25. Please identify one or more best management practice that your organization voluntarily adopted since YEAR
26. For each of the following items, please rate the extent to which you agree or disagree on a scale from 1 to 5, where 1 = strongly disagree, 2 = disagree, 3=neutral, 4= agree, and 5=strongly agree.
- The environmental impacts of typical practice in this sector can best be controlled through educational programs that encourage organizations to use BMPs.
 - In general, the best way to control negative environmental impacts is through enforcement of strict regulations
 - In general, organizational practices designed to protect the environment reduce profits
 - My organization would voluntarily implement best management practices more frequently if there were greater cost share associated with BMP implementation
 - The decision to implement [the best management practice] in my organization was compatible with management objectives

Annex 7. Eligibility criteria for Key Informant Interviews (KIIs) with decision-makers

The criteria taken into consideration to invite respondents to participate in the KII were:

- Current or former organization staff members in positions of key influence or with authority over the decision to voluntarily adopt the BMP under study, or
- Current or former organization staff members responsible for the implementation of the BMP under study, or
- Current or former representatives/staff of bodies that funded the BMP under study.
- Current or former organization staff members with knowledge of the legal framework surrounding the BMP.
- Current or former researchers (whether individual or institutions) assessing the implementation of the BMP.
- Current or former external influencers, e.g. NGOs, working along with the company in the implementation of the BMP.

Annex 8. Key Informant Interview Protocol

Respondent profile

1. Please describe your current role in the organization and your history of working with this organization.
2. Please briefly describe your history, if any, of working with other organizations in this sector.

Organizational profile (if not available in document review)

3. Please briefly describe your organization's history of working in this sector and in the location where [the best management practice] was implemented.

Decision to implement

4. Please provide a brief summary of the best management practice.
5. Describe the history and process of your organization's decision to implement [the best management practice.]

PROMPTS: How did the decision-making process unfold? When did the idea begin emerging?

PROMPTS: What was the historical context (within your organization, within the community, within the industry)? To what extent did your organization have previous experience in voluntarily implementing best management practices previously?

PROMPTS: Who or what, internal or external to the organization, influenced the idea? Information about what other organizations were doing? Your organization's structure? Leadership or staff expectations/capacity? Industry standards? Community or local relations or broad public perception?

PROMPTS: What facilitators or challenges emerged during the decision-making process? How long did the decision-making process take?

6. What did your organization anticipate would be the positive consequences of implementing [the best management practice]?

PROMPTS: Which of these were most important to the decision to implement? What, if any, evidence did you have to support these anticipated consequences?

7. What did your organization anticipate might be the negative consequences of implementing [the best management practice]?

PROMPTS: Which of these were most important to the decision to implement? What, if any, evidence did you have to support these anticipated consequences?

8. **IF APPROPRIATE:** How, if at all, was [the best management practice] designed to mitigate the trade-offs in positive or negative consequences?

9. Compared to other situations, if any, in which your organization may have adopted a best management practice primarily because it was mandatory or required, what were the differences in this situation that affected the decision to voluntarily adopt?

PROMPT: Please briefly describe the situation in which the BMP was mandatory or required.

10. Compared to other situations, if any, in which your organization may considered but ultimately decided against the voluntary adoption of a best management practice, what were the differences in this situation that affected the decision to voluntarily adopt?

PROMPT: Please briefly describe the situation in which the BMP was considered but not adopted.

Implementation

11. Describe your organization's experience with the actual implementation of [the best management practice.]

PROMPTS: After the decision to implement, what had to happen for implementation to occur? What conditions or groups or individuals facilitated the implementation? What conditions or groups or individuals hampered the implementation?

12. Please discuss the financing of [the best management practice]. Describe the experience of securing the capital investment to implement the best management practice. To what extent was there cost share of the implementation, and from what sources?

13. How, if at all, did the best management practice change from what was planned to what was implemented?

PROMPT: What were the causes of the change?

Post Implementation

14. Has the best management practice completed its lifetime? If so, what were the causes of the completion of the best management practice?

15. How have the actual outcomes of the implementation compared to your organization's expectations?

PROMPT: What evidence do you have to support these claims? Have there been any unanticipated outcomes, positive or negative?

16. In retrospect, in the decision to adopt and in the implementation of [the best management practice], would you do anything differently?

17. What would be the situation for your organization now if you had not adapted the best management practice(s)?

PROMPTS: Relationship with community; Public perception; Employee relations/perception; profits, efficiencies, cost-effectiveness; business growth/opportunities;

18. How, if at all, has the experience affected the way your organization has considered or actually adopted other best management practices – whether they be voluntary, required, or mandatory?

19. What advice would you give to other organizations in your sector that might be considering voluntary adoption of best management practices?

20. Reflecting on our discussion today, who else should we speak to in order to learn more about these topics?

Annex 9. List of respondents to quantitative survey

Industry Sector	Name of the Respondent	Position
Oil & Gas	Sandra Martinez	Corporate Environment Manager at Pluspetrol
	Pablo Taborga	QHSE Manager at Hunt LNG Operating Company
	Martin Grisolle	General Manager General Manager at Hunt Oil Company of Peru
	Barbara Bruce	Former General Manager at Hunt Oil Perú
Mining	Freddy Kleimann	Manager of Government Relations at Antamina
	Lina Echeverri	Public Affairs and Communications Manager at Cerrejón
	Ines Andrade	Public Affairs and Communications at Cerrejón
	Luis Francisco Madriñan	Biodiversity Coordinator at Cerrejón
	Gabriel Bustos	Environmental Manager at Cerrejón
	Clara Romero	Operations Leader at Fundación Cerrejón for the water in the Guajira
	Luisa González	Coordinator of Integrated Basin Management at Fundación Cerrejón for the water in the Guajira
	Janeth Daza	Director of Foundation Systems at Cerrejón
Hydropower	Natalia Suarez	Project Management at Cerrejón
	Hernan Aguiar	Chief of Central at Hidroagoyan
Road Infrastructure	Sandra Novoa	Project supervisor-Instituto Nacional de Vías INVIAS
	Blanca Hernández	Variante San Francisco – Mocoa /Corredor Pasto – Tumaco – Mocoa
	Paola Fabiana Chacon Cuadros	Variante San Francisco – Mocoa
	Paula Andrea Silva Rueda	Variante San Francisco – Mocoa
	Elizabeth Arias Quijano	Variante San Francisco – Mocoa
	Diana Verónica García Arango	Former Project Controller (Interventora)
	4 unidentified respondents	
Beverages	Gemma Canepa	Project Coordinator at Fundación Backus

Annex 10. List of Key Informant Interviews

Industry Sector	Name of the Respondent	Position
Oil & Gas	Bruce Babbitt	Former Secretary of the Interior, USG. Board Member/Advisory Committee Member for World Wildlife Fund, Andes Amazon Fund, Amazon Conservation Society
	Enrique Ortiz	Program Director, Andes Amazon Fund
	Tom Lovejoy	Special Envoy for Biodiversity, U.S. Department of State; Senior Fellow for Biodiversity and Environmental Science at the United Nations Foundation; Professor at George Mason University; Advisor Board Member for Hunt Global Partnerships
	James Mahoney	ExIm Bank: Vice President, Engineering and Environment
	Stephen Parsons	ExIm Bank: Director, Environmental & Social Policy and Review
	Catherine Miceli	ExIm Bank: Environmental Engineer
	Cassie Rowlands	ExIm Bank: Policy Analyst, International Relations
	Gonzalo Castro	Chair, World Bank Inspection Panel. Former founding Chair, Independent Advisory Panel on Development Issues in South-Central Peru
	Reynaldo Linares	Director of the Biodiversity Monitoring Program of the Smithsonian Conservation Biology Institute
	Luis Ramirez	Director of the Participatory Social Monitoring Program of Pronaturaleza
	Barbara Bruce	Former Manager of Hunt oil Company
Mining	Luis Francisco Madriñan	Biodiversity Coordinator at Cerrejón
	Janeth Daza	Director of Foundation Systems at Cerrejón
	Roberto Manrique	Environmental Manager
	Fredy Kleiman	Government Relations Manager
	Silvana Baldivino	Director of the Conservation Program, Sociedad Peruana de Derecho Ambiental (SPDA)
Road Infrastructure	Sandra Novoa	Project supervisor-Instituto Nacional de Vías INVIAS
	Blanca Hernández	Variante San Francisco – Mocoa /Corredor Pasto – Tumaco – Mocoa
Beverages	Jorge López-Dóriga	Director of Communications y Sustainability
	María Luisa del Río	Former Director of Iniciativa Biodiversidad y Empresas at the time the partnership was signed
	Vanessa Inga	Current Director of Iniciativa Biodiversidad y Empresas
	Jose Alvarez	Former General Director of Biodiversity at MINAM: Peru Ministry of Environment
Cross-sectoral and general interviews	Avecita Chicchon	Director, Amazon Andes Initiative: Gordon and Betty Moore Foundation
	Mariana Varese	Director, Andes Amazon Program, Wildlife Conservation Society
	Pedro Solano	Executive Director, SPDA – Peruvian Society for Environmental Law
	César Gamboa	Executive Director, DAR – Derecho, Ambiente y Recursos/Peru
	Paulina Arroyo	Program Officer, Moore Foundation
	Sebastián Valdivieso	WCS Ecuador
	Marc Dourojeanni	Regional Amazon expert
	Oscar Castillo	WCS (former)
	Martín Arana	Pronaturaleza (Peru), former Executive Director
	Frances Seymour	World Resources Institute
	Luis Felipe Duchichela	Indigenous Advisor, World Bank
	Krystina Bishop	Senior Social Development Specialist, World Bank