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Evading sustainable development standards: Case studies on hydroelectric projects in Ecuador

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ABSTRACT

China has been a crucial source of development finance for Ecuador over the last decade. In particular, Chinese policy banks and contractors have helped develop six of Ecuador's eight emblematic hydroelectric dams as part of the nation's shift away from fossil fuel reliance for energy. This shift, while reducing the carbon intensity of the nation's energy matrix, also brings new social and environmental risks. Hydroelectric dams can be associated with community displacement, changes in local livelihoods, and threats to the availability and quality of water for fishing and domestic use. Over the last few decades, development finance institutions and the Ecuadorian government itself have developed a series of social and environmental safeguards to mitigate these risks. This paper compares two recent dams to explore the extent to which safeguards have been successfully implemented: Coca-Codo Sinclair (PHCCS) financed by the Export-Import Bank of China (China Ex-Im), and the Baba Multipurpose Project (PMB), initially financed by the Inter-American Development Bank but ultimately implemented with funds from the Ecuadoran public budget. It finds that China Ex-Im's safeguards did not create better outcomes at the PHCCS than at the PMB. Furthermore, in both cases, the extent to which safeguards were effective depended more on the mobilization of local civil society than on the existence of de jure safeguards.

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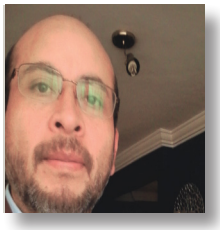

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Introduction

China has been a fundamental ally in infrastructure development in Latin America (Ray, Gallagher, Lopez & Sanborn, 2015; CEPAL 2016; Duran Lima & Pellandra, 2017). In the case of Ecuador, China participates through loans and investments in lieu of traditional development banking. In the 1990s, the World Bank (WB) and the Inter-American Development Bank (IDB) financed a significant portion of large-scale projects, including dams. Subsequently, they have focused on environmentally sustainable and small-scale comprehensive water management projects (IDB, 2018a); in this context, mega-projects have experienced a drop in the availability of resources and now face more restrictive conditions for financing to safeguard social and environmental impacts. In response, Chinese investors and loans have found a niche in which to participate.

Chinese financial institutions have financed 6 of the 8 emblematic hydroelectric projects in Ecuador to solidify a strategy proposed by the government of Rafael Correa to change the energy matrix: Coca Codo Sinclair, Sopladora and Minas San Francisco were financed by the Import-Export Bank of China (Ex-Im Bank) through a loan while Delsitanisagua, Quijos and Mazar Dudas were funded by the China Development Bank (CDB). Seven of the EPC contracts[1] (turnkey) for these projects were awarded to Chinese companies: Synohydro Corp. for Coca Codo Sinclair, Consorcio CGGC for Sopladora, Harbin Electric International Company Ltd. For Minas San Francisco, China International Water & Electric Corp. for Toachi Pilaton, Hydrochina Corp. for Delsitanisagua and China National Electric Engineering Co. Ltd. for Quijos and Mazar Dudas. This government has prioritized recovering the State's role in stewarding the electric sector—ceded in 1999 when a privatization process began— and moved to guarantee energy sovereignty and sustainability; increase and diversify participation in renewable energies; and consequently, reduce and replace traditional sources of energy that contaminate the environment (SENPLADES, 2013; ARCONEL, 2015).

Ecuador is highly biodiverse, but this natural capital is often affected by the construction of mega-projects of infrastructure in socially and environmentally sensitive territories. In some cases, unrecoverable losses of cultural and environmental legacies are generated. In this context, although the economic benefits associated with financing of large infrastructure projects has been confirmed, it is relevant to analyze if procedures to prevent risks and mitigate as well as repair impacts for communities and ecosystems are in place. The role of these procedures, which are represented in safeguards, would be "to ensure that investments fulfill minimum social, environmental and governance standards. These norms and institutions may originate with a recipient country or investor" (Larsen & Ballesteros, 2014, p. 16).

In this context, it is important to look at the degree and effectiveness with which socio-environmental safeguards are implemented on hydroelectric stations that are operational: Coca Codo Sinclair Hydroelectric Project (PHCCS) and Baba Multi-Purpose Project (PMB). The financing structures of these projects reflect a distancing from multi-lateral mechanisms and as such, it is challenging to implement safeguards. The PHCCS was financed by a financial entity of the Chinese state, China Ex-im Bank and was built by another state company from China, Sinohydro Corporation. The PMB was initially financed with a loan from the Inter-American Development Bank (IDB) but finally, the project was built with funds from the State budget.

To determine the effectiveness of safeguards, we compared the current national legal framework and the regulations of the development bank, utilizing quantitative and qualitative information that we systematized through secondary visits, observation visits, socio-spatial localization and semi-structured interviews with actors in affected areas, officials linked to the projects and experts. Given that the application of a rule goes well beyond the effects of simple mechanical operations, we attempted to understand the process, beginning with the regulations that govern actions for dam construction; moving on to the social and political contexts in which action is taken; and ending with the effects that are generated by conflicts with actors and rising criticism of experts in socio-environmental experts. We present this information in the methodological section.

The comparison of two case studies provided information to contrast the different schemes to apply safeguards. The presence of China in the execution of infrastructure projects may respond to a process of internal deregulation that facilitated its participation. Both of the projects that were studied use national legislation as a baseline; nevertheless, in the case of PHCCS, we examined China's contributions to efforts to safeguard sustainable development. We contend that a pattern of limited application of social and environmental standards existed, some of

1 EPC, Engineering, procurement, and construction

which originated in Chinese regulations, until state, social and/or public pressure demanded compliance.

In the first section of this chapter we provide details on the methods and sources of information that were used. In the second section, we describe the projects analyzed to situate their characteristics within the contexts in which they developed. In the third section, we discuss the safeguards that were in place on two hydraulic infrastructure projects in Ecuador and analyze the mechanisms that facilitated or impeded their application. In the fourth section, we discuss the main findings and compare the results. Finally, we present conclusions and the lessons learned about the application of safeguards in the case of Ecuador.

Method and sources of information

The methodological approach that was used from April to October 2017 was based on qualitative research, which was conducted through a case study and a subsequent comparative process. The case study (following Olivier de Sardan, 2008) included the review of different sources of information to bring together elements that had been triangulated to compensate for the lack of available information from both Chinese organizations and other bodies of the government of Ecuador. Four types of techniques were used.

First, document analysis allowed us to collect quantitative and qualitative information to develop the contextual framework in which the projects were executed and to obtain specific information on each. Social and environmental standards were reviewed through a variety of secondary sources: national legislation; environmental impact assessments (EIA) and the respective plans for environmental management; reports on China's socio-environmental safeguards; and the directives issued by Chinese institutions whose area of action includes overseas projects. We had access to internal documentation and to consultant reports contracted by the implementing companies; research conducted on the projects; central government and the local government plans in the areas of influence; and the environmental auditing reports of the projects.

Secondly, direct observation, which according to the guidelines of Morin (1984) incorporates a panoramic and analytical dimension, allowed us to shed light on the construction process and project management, and was oriented toward identifying critical incidents, tensions and mechanisms for monitoring, supervision and resolution of problems on each of the projects. Third, we utilized socio-spatial localization to obtain a more in-depth understanding of geographical and environmental aspects that affect project execution to comprehend the dynamics of affected areas. Fourth, to better understand practices for social and environmental management on the projects, we conducted semi-structured interviews with various stakeholders: residents, public employees in charge of planning; heads of the social and environmental areas of the implementing companies; experts on environmental matters in the area of project influence; and employees at local public entities.

By bringing together this set of information, we were able to identify commonalities and differences to subsequently inform a comparative analysis of both cases. The following ambits were identified for the PHCCS: general safeguards; local regulations and transparency; workers' rights; and environmental protection measures. For the PMB, we examined the following aspects: conflict relative to the project design; relations with communities and compensation policies; effects on fishing resources; and comprehensive watershed management.

During information collection, we found different degrees of restrictions on access. First, in terms of the Chinese entities, neither China Ex-Im Bank nor the builder Sinohydro answered the requests made for information. Second, there were restrictions on access to some reports developed by the executing companies and to some of the auditing documents for the project. Despite this, a good portion of the national actors that were contacted agreed to be interviewed and were open to allowing the research team to visit both projects.

Project Description

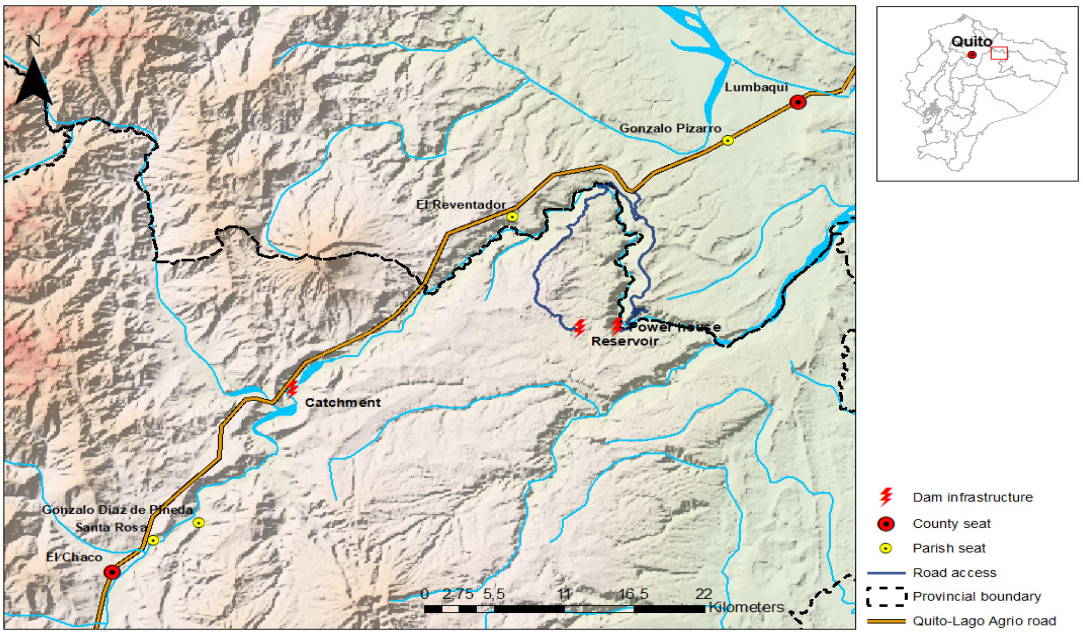
In this section, we provide a brief description of the projects in this study to better understand the territorial, historical and social contexts in which they developed.

COCA CODO SINCLAIR HYDROELECTRIC PROJECT (PHCCS)

The PHCCS is an energy generation project that utilizes water from the Quijos and Salado rivers at the point where they converge to form the Coca River; both are part of the Napo River watershed. This area is located northeast of the city of Quito in the eastern range of the

Andes in an area that marks a transition between the Ecuadorian highlands and Amazon (Map 1). Although a large portion of the project's infrastructure is in the province of Napo (in the El Chaco canton), it also runs through a stretch of the Coca river in the province of Sucumbios (in the Gonzalo Pizarro canton). Construction affects a number of communities in the area.

Map 1: Geographic location of the Coca Codo Sinclair Hydroelectric Project (PHCCS)



Source: IGM (2017), INEC (2017).

Although initial studies on the hydro-energetic potential of the Napo River watershed were conducted in the 1970s, the feasibility studies financed by IDB concluded in 1992 (Camborda, 2016) and recommended installing total power of 859 MW. After the eruption of the El Reventador volcano in 1987, and due to country's financial restrictions and political instability, the project was considered high risk. The difficulties surrounding efforts to execute investments delayed the project's launch until 2007, when Rafael Correa's government assumed one of its most ambitious objectives: to change the energy matrix.

The project resumed and in January 2008, it was declared a High Priority National Project by the National Electricity Council CONELEC[2] (Machado, 2011; Camborda, 2016; Coca Codo Sinclair EP, 2013, pg. 27). This same year, the feasibility studies were updated; the project was revamped to install up to 1,500 MW; and the Compañía Hidroeléctrica Coca Codo Sinclair S.A., which was chartered with Ecuadorian capital (with 70% of the shares belonging to Termopichincha S.A.) and Argentine capital (with the remaining 30% of the shares belonging to Enarsa S.A.). In 2009, constitutional changes stipulated that the energy sector was within the State's strategic area of influence and Coca Codo Sinclair S.A. was transferred to the State of Ecuador through the Corporación Eléctrica del Ecuador (CELEC EP). Additionally, negotiations began with the Chinese company Sinohydro Corporation, which was interested in penetrating the Latin American market by rolling out Chinese hydroelectric projects. This facilitated access to financing from China Ex-Im Bank.

The national company FOPECA was in charge of building the power plant while engineering work, which was initially slated for US$1.979 billion but was later increased to US$2.439 billion (Coca Codo Sinclair S.A. 2010; SENPLADES, 2016), was awarded to the Chinese company Sinohydro Corporation under a turnkey modality. In May 2010, the Strategic Hydroelectric Public Company Coca Codo Sinclair (COCASINCLAIR EP)[3] was created under the umbrella of the Ministry of Electricity and Renewable Energy (MEER), which contributed financing for US$1.168 billion. COCASINCLAIR EP acted as the project's executor with an initial budget of US$2.617 billion, which was later

2 Resolution No. 001/08 of January 31, 2008

3 Executive Decree 370 of 2012, dated May 26, 2010

increased to US$2.851 billion including the EPC contract (SENPLADES 2016). The same week, a loan contract was signed with China Ex-Im Bank for US$1.683 billion at a fixed semi-annual rate of 6.9% and a tenure of 15 years with a 5-year grace period (MINFIN, 2010). PHCCS' engineering works, which were executed by Sinohydro, concluded in 2016 and Rafael Correa inaugurated the project on November 18th of the same year.

It is estimated that, on average, the project generates 8.734 GWh a year for the National Interconnected System (SNI) although during the first year of operation, it generated only half that amount. The area of occupancy is divided into five project areas: intake, conveyance tunnel, compensating reservoir, pressure pipes and the power plant (CELEC, 2017; MEER, 2017).

The area from which PHCSS draws its water includes the headwaters and sub-watersheds of the Quijos and Salado Rivers in conjunction with the microwatersheds and/or minor drains that are part of the Coca River sub-watershed, in the Napo River watershed in Ecuador. In accordance with the principle of "hydrological ties," users situated downstream of the reservoir take advantage of the benefits that can be captured from the headwaters or suffer the consequences of poor water management upstream. In this context, soil is either used to conserve forests or is over-exploited, both of which have an impact on the rural human development model in watersheds with hydropower potential such as Coca (López, 2016).

The Definitive Environmental Impact study (EIAD) of the PHCCS (Efficācitas, 2009) identified an area of influence that could be categorized into four types:

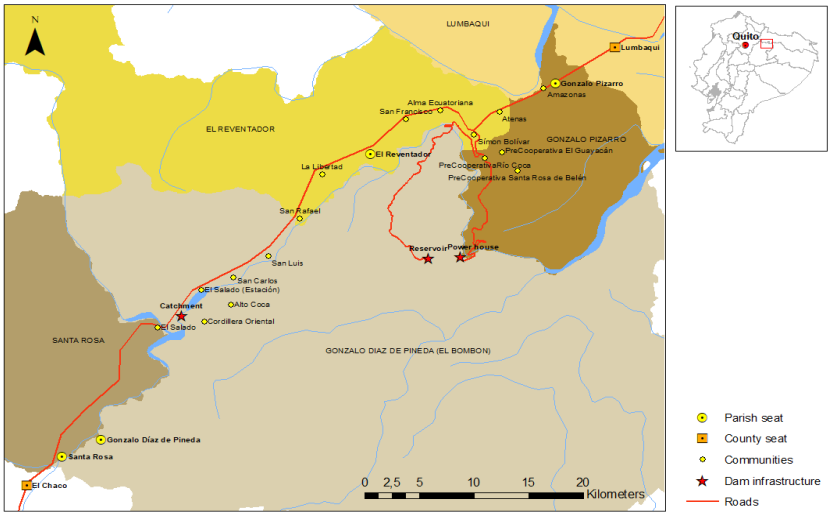
1) *The area of direct environmental influence*: area affected by the project's physical infrastructure; the camp sites; access roads; and the stretch of the Coca River where construction took place, starting with the water collection project and ending at the tailrace tunnel in Codo Sinclair.

2) *Area of direct social influence:* three parish communities: Gonzalo Dias de Pineda, El Chaco canton, province of Napo; El Reventador, Gonzalo Pizarro canton, province of Sucumbíos; and Gonzalo Pizarro, Gonzalo Pizarro canton, province of Sucumbíos (Map

3) *Area of indirect environmental influence:* reservoir upstream of the water collection project for the Quijos and Salado Rivers.

4) *Area of indirect social influence:* remainder of the population of the El Chaco canton, the Quijos canton (situated in one of the watersheds that contribute to the project), the county seat of Gonzalo Pizarro (Lumbaqui) and the remaining locations of the El Reventador and Gonzalo Pizarro parishes (Map 2).

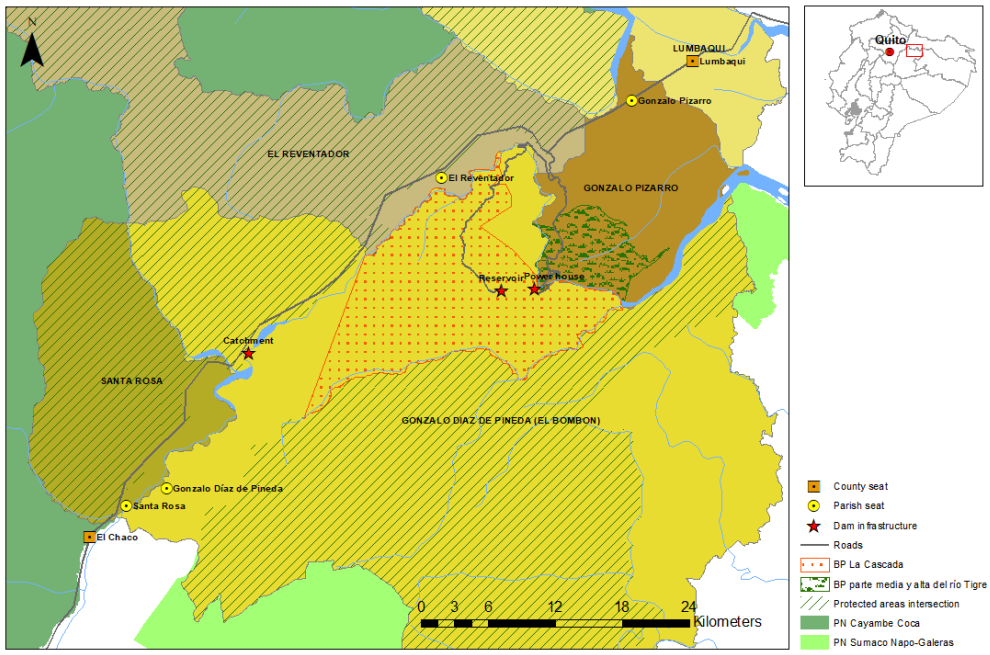
Map 2: Population Centers in PHCCS's area of influence



Source: INEC (2017), IGM (2017).

PHCCS's area of influence is covered by protected natural areas in various categories, including reserves, parks and protected forests (Map 3). This facilitates the recognition and valuation of water-related environmental services while propitiating regulation of hydroelectric projects via sustainable finance compensation schemes for the integrated management of watersheds and areas of importance for water provision in the sub-watershed of Quijos-Coca (López, 2016).

Map 3: Protected areas in PHCSS's area of influence



Source: INEC (2017), IGM (2017).

The power generated (up to 1,500MW) is carried by an extra-high-tension transmission system (500 kV), whose prior study was financed by IDB in 2010 with a non-reimbursable loan to define guidelines to select the route, design and implementation of transmission lines, one for 500 kV and another for 230 kv, and for associated works such as the El Inga power station (Lopez, 2016). The investment required for this system and its associated works is estimated around US$687 million but no information is available on the sources of financing or payment modalities. Nevertheless, it has been reported that the State received financing from Ex-Im Bank in 2013 to enter into an agreement for a definitive study (EIAD) with Harbin Electric International Company Limited (Lopez, 2016). Although local actors and environmentalists demanded respect for environmental regulations and requested that definitive studies for the hydroelectric station be linked to assessments of transmission lines to mitigate impacts in a comprehensive manner, the final transmission lines affect the Cayambe-Coca National Park, the Antisana Ecological Reserve and the protected forests of La Cascada and the Tigre River (Lopez, 2008, 2009, 2011 and 2016).

This aspect is particularly relevant to safeguards given that according to the operating policies at IDB, protected areas are considered "critical natural habitats." IDB's policy regarding cultural sites and critical national habitats, directive B.9, indicates that the bank does not provide support for operations that generate significant degradation or damage (IDB, 2007b, pgs. 40-44). If the entities had demanded that this type of directive be fulfilled, the design and route of the PHCCS transmission lines would have had to be modified.

BABA MULTI-PURPOSE PROJECT

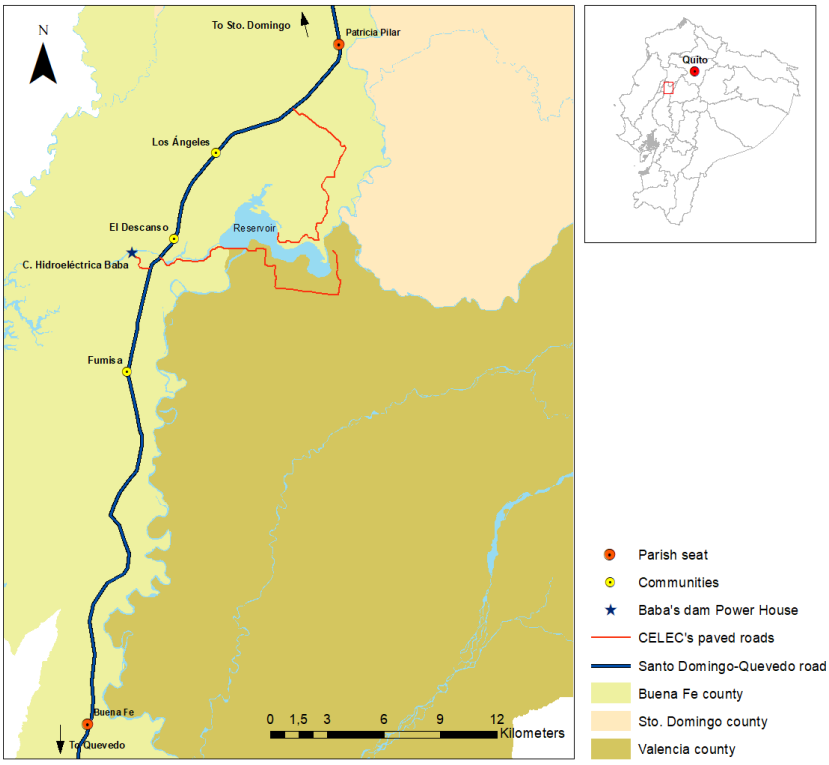
PMB is on the coast of Ecuador in the province of Los Rios. Its reservoir and main infrastructure are located 15 km south of the rural parish of Patricia Pilar, Buena Fe canton, and 27 km north of its canton seat.

PMB consists of a series of projects and infrastructure that is in the upper section of the watershed of Guayas (34,000 km^2) in the confluence of the sub-watersheds of the Baba, Lulu, San Pablo and Daule Peripa rivers between the provinces of Los Ríos, Manabí and Guayas (Map

4). Water intake projects are situated on the Santo Domingo-Quevedo highway (km 36) in the hydrographic unit of the Baba River, which is 1,495 km^2 long and receives average rainfall of less than 1,500 mm/year with an average flow of 111.4 m^3/s.

The Baba Multi-Purpose Project (PMB) was begun in 1977 with the Commission of Studies to Develop the Rio Guayas Watershed (CEDEGE). Until 1994, the focus was on hydroclimatic risk control (flooding and/or irrigation) and subsequently, attention shifted to hydroelectric generation by taking advantage of the flows of the headwaters in the watershed of the Guayas River, which were transferred at the Daule-Peripa Station. The design and the pre-feasibility studies were conducted in 1994 by TAMS-GEA and revised in 1997 by CEDEX-IBERDROLA (Efficacitas & UTEQ, 2006).

Map 4: Location of the Baba Multi-Purpose Project (PMB)



Source : Efficacitas and UTEQ (2006), INEC (2017) and IGM (2017).

In 2003, the CEDEGE delegated responsibility for the project to Hidronación S.A., whose sole partner and owner was CEDEGE. The same year, the National Electricity Council (CONELEC) approved the Preliminary Environmental Impact Study (EIAP) (IDB, 2007a: 4). IDB participated as a financing entity until 2007, when it cancelled the funds agreed to in the contract. Its participation would have implied complying with specific operating policies.

PMB was presented as a multi-purpose infrastructure project to benefit the central coast of the country in the following ways: flood control (risk management) in the provinces of Los Ríos and Guayas; expansion of the low-irrigation, agriculturally productive surface; and hydroelectric generation for the National Inter-Connected System (SNI) (Efficacitas & UTEQ, 2006). The original design implied resettling 240 families and would have essentially emptied the Baba River to transfer the water to the Daule River watershed during the dry season (Landivar 2008: 101; AIDA 2009: 37; IDB 2007a). The proposal was to build a 55m dam that would flood 3,500 ha of land composed of forests, cultivated lands and low-scale productive farms. This would have affected many peasants and communities, including Afro-Ecuadorian communities that depend on fishing and agriculture (Warner et al, 2017, pgs. 334; AIDA, 2009, p. 37).

In March 2007, IDB (2007a) published a report indicating that the project's resettlement process had not concluded. Resettlement was

strongly opposed by affected populations, particularly in the Patricia Pilar Parish of the Buena Fe canton, which filed a preventive action with the Tribunal for Constitutional Guarantees. This court ruled in favor of the population on December 15, 2008 (Sasso, 2009, p. 11; Warner et. al., 2017, p. 334).

Due to local opposition, the promoters redesigned the project to reduce conflicts and the number of displaced people. This new design anticipated that 77 properties would be partially or totally flooded; 43 families would be relocated; and 255 temporary agriculture workers would be affected by an economic change in the use of land (Efficacitas & UTEQ, 2006). This region's natural ecosystems have been characterized by high fragmentation since the middle of the 20th century. Ninety-five percent of the change in the use of land in the watershed would be concentrated in areas for permanent crops (bananas, rubber and palm) and for short cycle crops (corn, soybean, rice) while forested areas (cultivated and natural forests) were to comprise less than 5% of the area (Warner et al., 2017).

Environmental and social impacts included changes in underground water flows and existing wells (IDB, 2007a, p. 6) as well as effects on the phreatic level of nearby land due to increased use of underground waters. This phenomenon would force populations, which already suffered from a lack of water, to dig increasingly deeper to obtain water through wells (Landivar, 2008, p. 102). Another critical element of project construction included a change in river flows and consequently, transformations in its quality and an increase in sedimentation, generating risks of accumulation and distribution of reservoir sediments due to inadequate watershed management.

Given that river populations use the water for personal and domestic use, impacts can compromise the health of the population and generate changes in the dynamics of the fish stocks. There is also a risk of transformations in the environment and in livelihoods of communities downstream from the reservoir (Landivar, 2008: 102-103; BID, 2007a: 6). Construction of the dam, access roads and other installations such as quarries and cement factories as well as bridges would affect the population and the environment (BID, 2007a, p. 6).

In September 2008, the government of Ecuador announced the expulsion of Odebrecht for breach of contract on another hydroelectric project.[4] Odebrecht was the first contractor on the PMB through the Brazilian company OAS Ltda. (AIDA, 2009, pg. 39; Hidrolitoral, EP, 2014). At this point a new operator was created, Hidrolitoral S.A., which was absorbed in 2010 by the Public Strategic Hydroelectric Company for the Coast (Hidrolitoral EP).[5] In 2013, CELEC EP- Hydronation Business Unit absorbed Hidrolitoral EP through a joint venture[6]. OAS received approximately US$225 million[7]. The changes delayed the project and the State had to assume additional costs, which were, according to estimates, between US$195 and US$243 million (AIDA, 2009, pg. 39). According to an official at the National Planning and Development Secretariat (SENPLADES), the total amount of the project was US$542,553,425.49,[8] more than double the initial budget.

According to EIAD, the project's area of direct influence includes: a) the area affected by infrastructure projects; b) the area flooded by the reservoir; c) a buffer zon around the reservoir; d) areas of extraction for aggregates and camp sites; e) the area downstream of the dam, approximately 30km long (up to the confluence of the Baba/Quevedo River with the Lulu and San Pablo Rivers). The area of indirect influence includes a hydrographic watershed located upstream of the dam (Efficacitas & UTEQ, 2006). From a population perspective, the project's area of influence includes areas in the rural parish Patricia Pilar (Buena Fe canton) and some disperse sectors of the Valencia and Buena Fe cantons. For the purposes of this study, a population is included in the direct area of influence if it resides on land that will be flooded; is affected by variations in the water regime; or represents a community close to work sites and to the future reservoir. Nevertheless, the study has no specific criteria for defining the area of indirect influence (Efficacitas y UTEQ, 2006). The EIAD does not clearly define which communities belong to the area of direct influence and which are part of the area of indirect influence. For this reason, map 5 includes, without distinction, all of the main communities that are affected after the reservoir is filled (Efficacitas and UTEQ, 2006).

4 "Presidente Correa recuerda que expulsión de Odebrecht, en 2008, fue para defender intereses del país" Ecuador Inmediato. 12 de abril de 2018. http://www.ecuadorinmediato.com/index.php?module=Noticias&func=news_user_view&id=2818813271

5 Decreto Ejecutivo No. 400, junio de 2010.

6 Oficio No. MEER-DM-2013-0203-OF, 3 de junio de 2013. The Ministry of Electricity and Renewable Energy (MEER) requested that SENPLADES initiate the definitive merger through Oficio No. MEER-DM-2014-0276-OF el 25 de junio de 2014 and through resolución SENPLADES-SNPD-2014-0488-OF el 8 de julio de 2014.

7 «Filial de brasileña OAS recibió $225 millones del Plan Baba». El Universo. 31 de marzo de 2016. Acceso el 26 de julio de 2017. http://www.eluniverso.com/noticias/2016/03/31/nota/5495064/filial-brasilena-oas-recibio-225-millones-plan-baba

8 Interview of an official from SENPLADES, July 2017.

The Baba Multi-Purpose project was inaugurated by Rafael Correa on June 27, 2013 with the objective of changing the energy matrix and providing a sustainable alternative to generate renewable and clean energy[9] (Warner et. al., 2017, pgs. 334-335).

Map 5: Area of influence of the Baba Multi-Purpose Project (communities)

Source: Efficacitas and UTEQ (2006), INEC (2017) and IGM (2017).

Description and analysis of safeguards

This section begins with a description of the main safeguards associated with each of the projects. Based on these safeguards and on the qualitative information gathered, it defines the areas of analysis and assessed the degree of compliance with and the effectiveness of implementation.

Coca Codo Sinclair Hydroelectric Project

Unlike the practices of multilateral bodies that provide traditional financing such as the World Bank or IDB, which compile and publish formal safeguards, there is no such compendium of Chinese and social and environmental safeguards for investments abroad that is easy to consult. The various directives, rules and principles published by the Chinese government are dispersed across multiple government bodies, and many have no translations (from Mandarin).

In this study, we review the most important efforts to systematize and map the social and environmental safeguards of this Asian country, "The New Great Walls. A guide to China's Overseas Dam Industry" by International Rivers (2012) and the "Manual legal sobre regulaciones ambientales y sociales chinas para los préstamos e inversiones en el exterior" by Garzon (2014) as well as texts issued by state entities in China (State Council of China, 2006; SASAC,[10] 2007; Sinohydro, 2011; China Ex-ImBank, 2008; CRBC, 2012; CHINCA, 2012). It is important to note that the institutions are responsible for supervising, managing and financing Chinese projects abroad are in the public domain; despite the multiplicity of state actors, the competences of each respond to a well-defined hierarchy; as such, the majority of these entities answer directly to the State Council, the maximum administrative authority of the Chinese government.

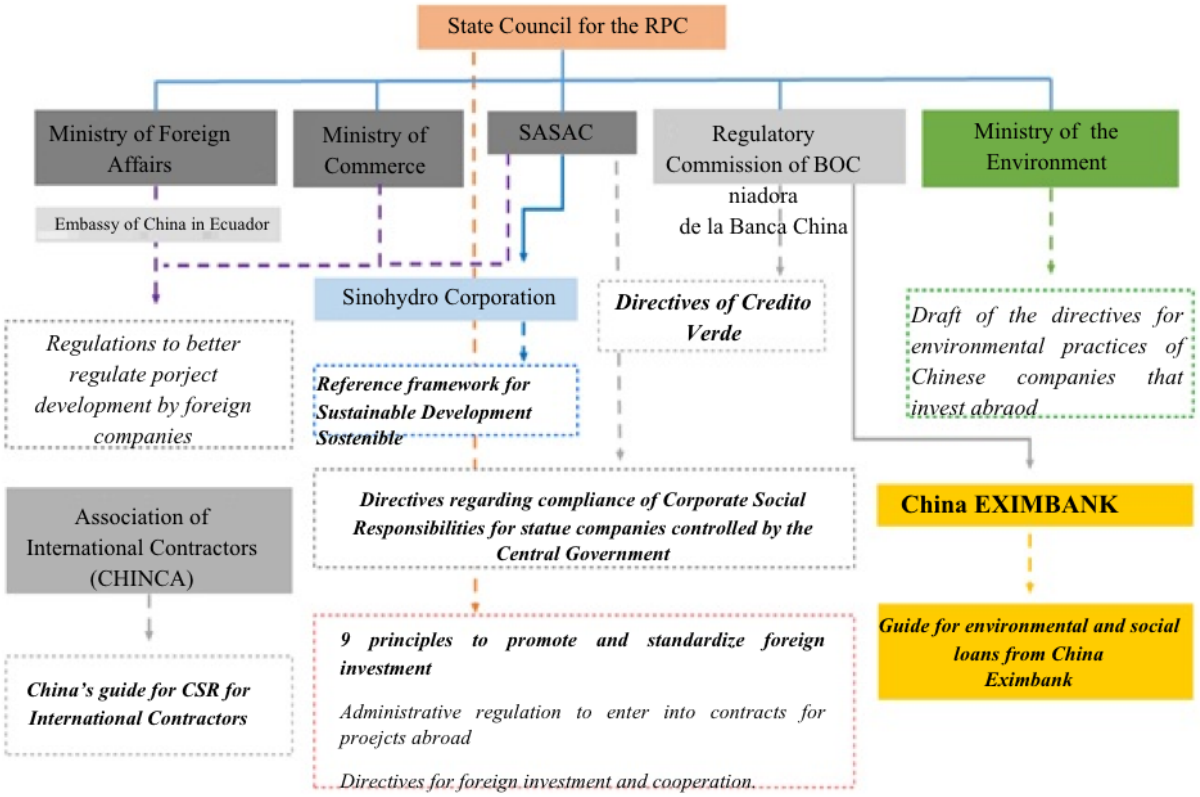
9 June 27, 2013, President Correa inaugurated the Multi-Purpose project in the province of Los Rios. He ended his speech with the following statement: "We have the planet's greenest Constitution; the first to grant rights to the plant. Now we have the greenest energy matrix..." http://webcache.googleusercontent.com/search?q=cache:M2erWCPXvWUJ:www.presidencia.gob.ec/wp-content/uploads/downloads/2013/07/2013-06-27-INAUGURACI%25C3%2593N-PROYECTO-MULTIPROP%25C3%2593SITO-BABA.doc+&cd=1&hl=en&ct=clnk&gl=ec

10 SASAC: State-owned Assets Supervision and Administration Comission (Comisión de Supervisión y Administración de los Activos de las Empresas Centrales).

Diagram 1 summarizes the main actors that formulate environmental and social safeguards for the Popular Republic of China while table 1 identifies the most important guidelines.

The majority of the policies and directives for environmental and social responsibility at the different Chinese entities are general in nature; few specifics are offered; principles are merely declared; and no particular objective measures for implementation or follow up are provided. The texts are ambiguous with regard to the scope given that it is not clear if they apply only in the case in which Chinese companies execute the work or if it extends to scenarios where these companies act as contractors (International Rivers, 2012). In cases where social and environmental management is the responsibility of local companies, it is unclear whether these companies must consider the principles of responsibility issued by Chinese institutions.

Diagram 1: Social and environmental safeguards of the Popular Republic of China



Source: International Rivers (2012); Garzon (2014); State Council of China (2007); SASAC (2007); Sinohydro (2011); China Eximbank (2008); CRBC (2012); CHINCA (2012).

In this study, the executing company COCASINCLAIR EP will be assessed according to the regulations that apply to the contracting company Sinohydro. The analysis is appropriate given that public Ecuadorian companies generally managed the socio-environmental component while the contractor assumed, almost exclusively, responsibility for construction work. In fact, PHCCS was executed according to a deferential recognition scheme, which means that it was governed by the regulations of Ecuador for safeguard compliance (Camborda, 2016, p. 7).

Based on these regulations and on the qualitative information complied, we cover five areas of analysis: general safeguards; local regulations and transparency; workers' rights; environmental protection measures; relations with communities; and social compensation, with an emphasis on aspects that are more pertinent for this project's analysis.

Table 1: Summary of Chinese regulations and general principles

Safeguard issuer (co-responsible for safeguarding)	Directives or guidelines issued	Year of Issuance	General principles of the safeguards Sources	Sources
Council of the State of PRC	9 principles of promotion and standardization of foreign investment	2007	Chinese companies must protect the environment in the countries in which they operate, respecting local legislation and behaving in ways that are coherent with the principles of environmental sustainability	International Rivers (2012), Garzón (2014)
	Administrative regulation to enter into contracts for foreign projects	2008		
	Directive to foreign investment and cooperation	2010		
Ministry of Commerce			Implementation of projects abroad is monitored by the Chinese Embassy through the Economic Consular Office with the assistance of an official from the Ministry of Commerce	International Rivers (2012)
Ministry of Environmental Protection (Chinese Academy of Environmental Planning)	Draft for directives for environmental conduct of Chinese companies that invest abroad	2010	Environmental directives and standards whose scope outside of the country is limited	International Rivers (2012)
Ministry of Interior Relations (SASAC)	Regulations to better control foreign project development	2007	Chinese companies must protect the environment in the countries in which it operates, respecting local legislation, and local culture; protecting the rights and interests of workers and actively participating in local charity work.	International Rivers (2012)
SASAC	Directives on compliance with Corporate Social Responsibilities for state companies under the Central Government's control	2007	Chines estate companies must comply with the principles of corporate social responsibility	
Sinohydro Corporation	Reference framework for Sustainable Development	2011	Environmental and social regulations that respond to the minimum standards of the World Bank	International Rivers (2012)
Regulatory Commission of the Bank of China	Directives of Crédito Verde	2012	Initially conceived of for domestic projects but now also includes projects abroad	CRBC (2017), Garzón (2014)
China Eximbank	Guide for environmental and social assessment for China Exinbank	2008	Environmental Impact Assessment and permits for local environmental administration are preconditions for loan approval. Respecting the right of locals to and resources, as well as public consultations on projects with significant negative impacts. After project construction is complete, the executor must conduct and ExPost Environmental Impact Assessment.	Internacional Rivers (2012), Garzón (2014)
CHINCA	Guide for Social Responsibility of China for International Contractors	2012	Regulations for environmental protection and social responsibility. Responsibility of Chinese companies to provide information on projects, protect labor rights and incorporate sub-contractors and suppliers in their respective Corporate Social Responsibility Practices.	Garzón (2014) CHINCA (2012)

Source: International Rivers (2012); Garzon (2014); State Council of China (2007); SASAC (2007); Sinohydro (2011); China Eximbank (2008); CRBC (2012); CHINCA (2012).

GENERAL SAFEGUARDS

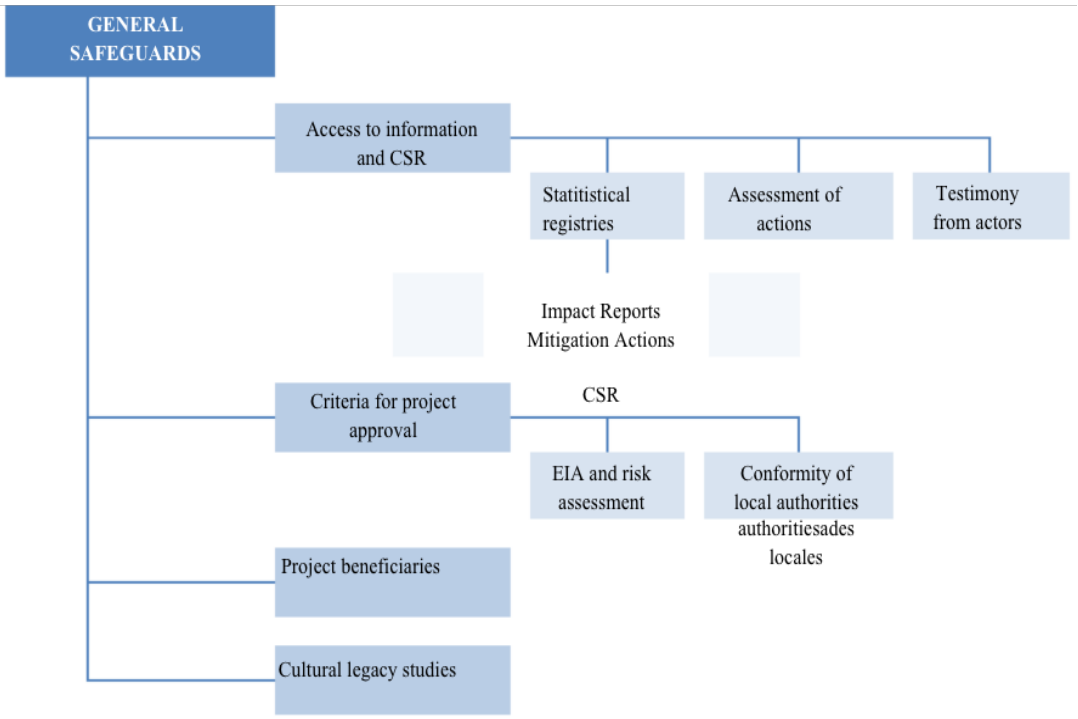
One of the elements that best characterizes the foreign projects that China finances is a difficulty in accessing information. Despite the fact that all of the documents with directives or safeguards indicate that it is important to facilitate access for different actors on the project, we found that in practice, this was not the case.

Both China Ex-Im Bank and Sinohydro were directly involved in PHCCS but neither allowed interviews or provided the information that was requested. This made it difficult to assess the implementation of safeguards and demonstrated that the parties consulted had adopted a opaque approach. In the case of the Ecuadorian counterpart, COCASINCLAIR EP, there was more access to information and interviews although a significant portion of the documents on the company's social and environmental policy were not available. Available information has been complemented through interviews with people who were involved in various project processes and culled from the EPC contract signed by Coca Codo Sinclair S.A. and Sinohydro in 2009. The Safety, Hygiene, Health and Environmental Plan focuses on issues related to workplace safety and health or environmental aspects but does not include the policy for community relations and social and environmental compensation programs or the Chinese regulations that govern foreign investment.

China Ex-ImBank's loan approval process is subject to two preconditions: an assessment of environmental impacts and authorization from the local environmental administration. The Definitive Environmental Impact Study (EIAD) for PHCCS was conducted by the consultancy firm Efficācitas in 2009. This document, in addition to describing the conditions prior to the project's execution (Section V: Baseline), discusses the main impacts that were predicted (Section VI: impact identification and evaluation) and the measures that should be implemented to mitigate the negative effects on the bio-physical and socio-economic environment (Section X: Environmental Management Plan).

In terms of the cultural and archaeological legacy, the EIA indicated that the area in which the PHCCS was set to unfold had archaeological remains, particularly in areas that were flagged for quarries, camp sites and tailings areas (section VI 3.3.7). To address these issues, the Environmental Management Plan (PMA) proposed a "Program to Manage Cultural and Archaeological Resources," which would be implemented in conjunction with workers from Sinohydro, sub-contractors and affected communities (section X 7.8). This program incorporated four projects to inform local populations; educate workers about the PHCCS; and to rescue archaeological legacy. The Socio-Environmental Monitoring Program included a project to "Monitor the Archaeological Legacy during the Development Phases of Coca Codo Sinclair," which contemplated follow-up on the archaeological sites that had been identified and the possibility of engaging in unforeseen recovery efforts (section X 9.13).

Diagram 2: General Safeguards in the PHCCS



Note- CSR: Corporate Social Responsibility.

Source: Developed by the authors.

LOCAL REGULATIONS AND TRANSPARENCY

The contractor is duly registered as a foreign entity in the Superintendency of Companies, which oversees companies that operate in Ecuador. We consulted all the documentation available on the company on the Superintendency's web site and found that the contractor has no pending administrative or fiscal obligations with the state of Ecuador. Additionally, we found no evidence of incoming or outgoing flows between local Sinohydro interests and tax havens.

In the eight years that the company has been operating in the country, there have been no reports that the contractor has engaged in acts of corruption. Nevertheless, it is important to note that some actors have indicated that Sinohydro has asked the Vice Presidency of Ecuador to intervene in its favor to resolve labor disputes with different actors.

WORKERS' RIGHTS

The PMA includes concise labor safeguards with specific emphasis on workplace risks. We found that the contractor and sub-contractors were responsible for implementing programs for occupational health and safety, whose main focus is on accidents and illnesses generated during the construction stage. These facts have been reported in the press and were addressed in the interviews we conducted with actors involved in the project.

Toward the end of 2011, 26 complaints were filed against Sinohydro and CCS in the Labor Inspectorate of the province of Sucumbíos. All alleged that work conditions adversely affected the occupational health and safety of workers and their general wellbeing[11][12]. Some problems were evident, including the absence of protocols for occupational accidents, which indicates that safety conditions are inadequate; the fact that workers lack proper clothing and equipment to protect their physical integrity[13]; the company's failure to recognize overtime; and gap

11 "Abusos laborales empañan el avance del proyecto hidroeléctrico Coca-Codo." El Comercio, 22 de enero de 2012. http://www.elcomercio.com/actualidad/negocios/abusos-laborales-empanan-avance-del.html

12 "Continúan problemas con trabajadores de Coca Codo Sinclair." El Mercurio, 27 de noviembre de 2012. https://www.elmercurio.com.ec/358472-continuna-problemas-con-trabajadores-de-coca-codo-sinclair/

13 "Huelga en Coca Codo Sinclair." El Comercio, 22 de noviembre de 2012. Acceso el 05 de agosto de 2017. http://www.elcomercio.com/actualidad/negocios/huelga-coca-codo-sinclair.html

in the salaries paid to local workers compared to foreign workers. Additionally, there were claims that local workers were mistreated and discriminated against by mid-level Chinese management. Poor quality drinking water generated health problems among local employees; food was poor; and their housing at the camp site was precarious. Polanco (2013) found that the combination of poor conditions for lodging and overcrowding in the project's camps led to disease and other health problems.

In response to these complaints, the Ministry of Labor and the Social Security Institute of Ecuador (IESS) conducted inspections that led to a fine of US$5,280 for Sinohydro after sufficient grounds were found for six of the complaints[14]. The workers went on strike in 2011 and 2012. Under the supervision of the Ministry of Labor, Sinohydro introduced some corrective measures, including: improvements in the camp infrastructure; installation of water purification plant; a nutritionist to improve food quality; biometric systems to improve monitoring of overtime; periodic medical exams for workers; training in industrial safety and health; and training on workplace risks with experts from IESS (Sinohydro 2016). The intervention of CCS EP, which established regulations regarding safety equipment and other safety protocols, was also relevant in the process to correct deficiencies. For example, in 2012 two of the contractor's service buses were involved in accidents while transporting workers; three passengers were killed and others injured. Although the workers received adequate care at the accident site and Sinohydro fulfilled all legal obligations with the families of the victims (head of occupational safety and health at CCS EP, E01), CCS EP had to insist that Sinonhydro stop hiring buses that were more than six years old; strengthen measures for vehicle inspections; and monitor speed through the use of adequate instruments (head of occupational safety and health of CCS EP, E01).

Nevertheless, these interventions did not solve all of the deficiencies identified. The Controller's Office approved a special investigation in 2013 that found 27 observations that Sinohydro had failed to meet regulations for occupational security and health.[15] Additionally, a perception exists that "to facilitate Chinese companies' work, a number of regulations are not followed" (Pablo Serrano, spokesperson for the Confederation of Free Unions of Ecuador - CEOSL)[16]. Proof of these points was generated in 2014. A serious incident, which was declared accidental after an inspection was conducted, shows the errors produced when safety regulations are overlooked due to pressure to conclude a project on time. Twelve people were hurt and three were killed when an avalanche of water and materials that had accumulated in the provisional platform inside a pressure pipe at the power station burst. Accidents had been reported since the beginning of the project; local residents witnessed Chinese and local workers, with cuts on their fingers and other bodily injuries, were transported to the hospital. (Polanco, 2013).

Without minimizing the conflicts and incidents discussed above, it is important to note the strong dissonance between the expectations of workers regarding the conditions they work in and labor experiences at western companies, which differ considerably from the cultural practices of Chinese operations. An official at SENPLADES indicated that "the Chinese arrived with a work culture that was very different from that to which the locals were accustomed;" while western companies invest in high-quality housing and food, Chinese companies do not follow these parameters[17]. This view was corroborated by another official who explained that "...the Chinese...have another tradition of labor relations; for the Chinese, these aspects are not important and are instead secondary because they imply higher costs ..."[18]

A highly problematic element of labor rights is associated with the workers' right to free association. The Workers' Union at Sinohydro (STS) clashed with the Company Committee at Sinohydro (CTS). Both were created in 2012 but with different interests. The former, which was comprised of a small group of workers to promote workplace improvements, called for strikes that jeopardized job security. The latter, which was linked with the national government and Sinohydro, sought consensus that favored the contractor, which led to doubts about its autonomy. Nevertheless, under the tutelage of CTS, in 2013 a collective contract was signed with workers along with other agreements with Sinohydro, which reduced conflict and improved some workplace conditions.

Finally, Sinohydro replicated the employment pattern of male dominance in Ecuador's construction sector. Of the entire workforce hired in 2012, 6% were women, which outperformed the average figure posted systematically across the construction sector in 2013-2017, which

14 See note 6.

15 «La contraloría y la fiscalizadora alertaron fallas en el Coca Codo». El Comercio, 20 de diciembre de 2014. Acceso el 05 de agosto de 2017. http://www.elcomercio.com/actualidad/contraloria-fiscalizadora-fallas-cocacodo-proyecto.html

16 «Por dar facilidades a empresas chinas se incumplen normativas». La Hora, 17 de diciembre de 2014. Acceso el 05 de agosto de 2017.

17 Interview 2017.

18 Official from the Ministry of Policy, Interview 2017.

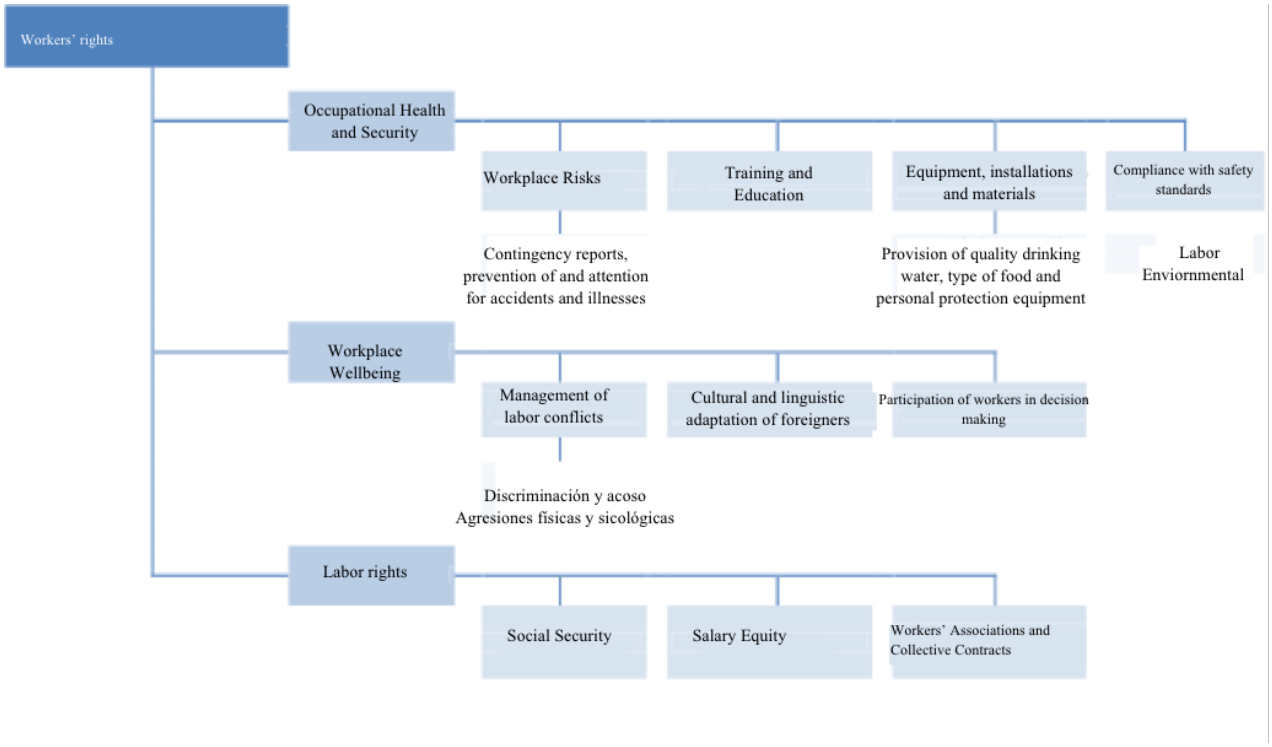
was less than 4% (ENEMDU, 2018). Nevertheless, the National Economic Census 2010 (INEC 2010b) found that 14% of the jobs in the construction sector at the national level were held by women. Female employees worked primarily as translators, administrative assistants and in some cases, as crane operators. Interviews also showed that cultural differences prevailed. For example, the head of occupational safety and health at CCS EP commented that due to Chinese superstition, women were forbidden to enter underground areas.

ENVIRONMENTAL PROTECTION MEASURES

There were two stages of impacts on the PHCSS: construction and operation. During the construction stage, EIAD focused on mitigation measures to address problems with water resources, deforestation and the loss of biodiversity associated with the project's camp site and infrastructure; home resettlement; and agricultural expansion in quasi-virgin forest areas.

A specific program was proposed for quarry management/abandonment that contemplated mitigation measures to restore and revegetate affected areas with native species while recovering geomorphology. Mitigation measures were identified to control noise and air pollution and to stem the effects of quarry exploitation on biodiversity. In these areas, the main measures entailed relocating wild species and providing the population with environmental training. Nevertheless, no new measures to manage tailings were contemplated.

Diagram 3: Occupational Safeguards at PHCCS



Source: Developed in-house

In the project execution stage for PHCCS, the most significant issue took place at the beginning of work to build the access road to the power station, which was conducted without an environmental permit. This fact marked the initiation of a fragmented process for community oversight, environmental monitoring and access to project information. Although the objections raised by institutional and social actors from El Chaco and Gonzalo Pizarro in 2008 (Lopez, 2009) and observations to the preliminary environmental impact study (EIAP) in 2009, which was rejected due to non-conformities, should have been decisive in ensuring that the company acted appropriately to secure an environmental permit, spaces for community monitoring were only active until 2011, when the Environmental Monitoring Committee of PHCSS operated in Lumbaqui alongside the local municipality. Subsequently, when work on water intake and transmission lines was

underway, community monitoring in El Chaco and Gonzalo Pizarro was assigned to COCASINCLAIR EP, which may have compromised the independence of reporting process and skewed efforts to register non-conformities. Access to information on environmental audits and/or supervision of work was also restricted despite the fact that regulations exist to ensure transparency in public administration in Ecuador. Other difficulties arose regarding access to information, given that registries on water flows and balances in the sub-watershed supply areas were not updated. This data would have helped predict the impact on domestic water use in the city of Quito or on irrigation in Cayambe.

The PHCCS has the potential to generate significant impacts on water ecosystems as it affects the catchment reservoir and diverts part of the flows from the Coca River. It would be a good idea to propose a plan for comprehensive and participatory watershed management to identify management criteria based on uses and on the institutional, social and economic actors associated with the project. Such a process might have the objective to achieve water security through electric generation while guaranteeing the safety of populations located downstream of the dam and diversifying the agro-productive units in the sub-watershed supply areas (Lopez, 2011). Nevertheless, the EIAD prioritizes a sector-based focus. This leads to incomplete monitoring of: physical-chemical parameters; the biological behavior of the reservoir; and generation flows and their distribution. It may also limit the ability to identify microclimatic changes and detect any destabilization of the banks of the reservoir and the riverbed below the dam.

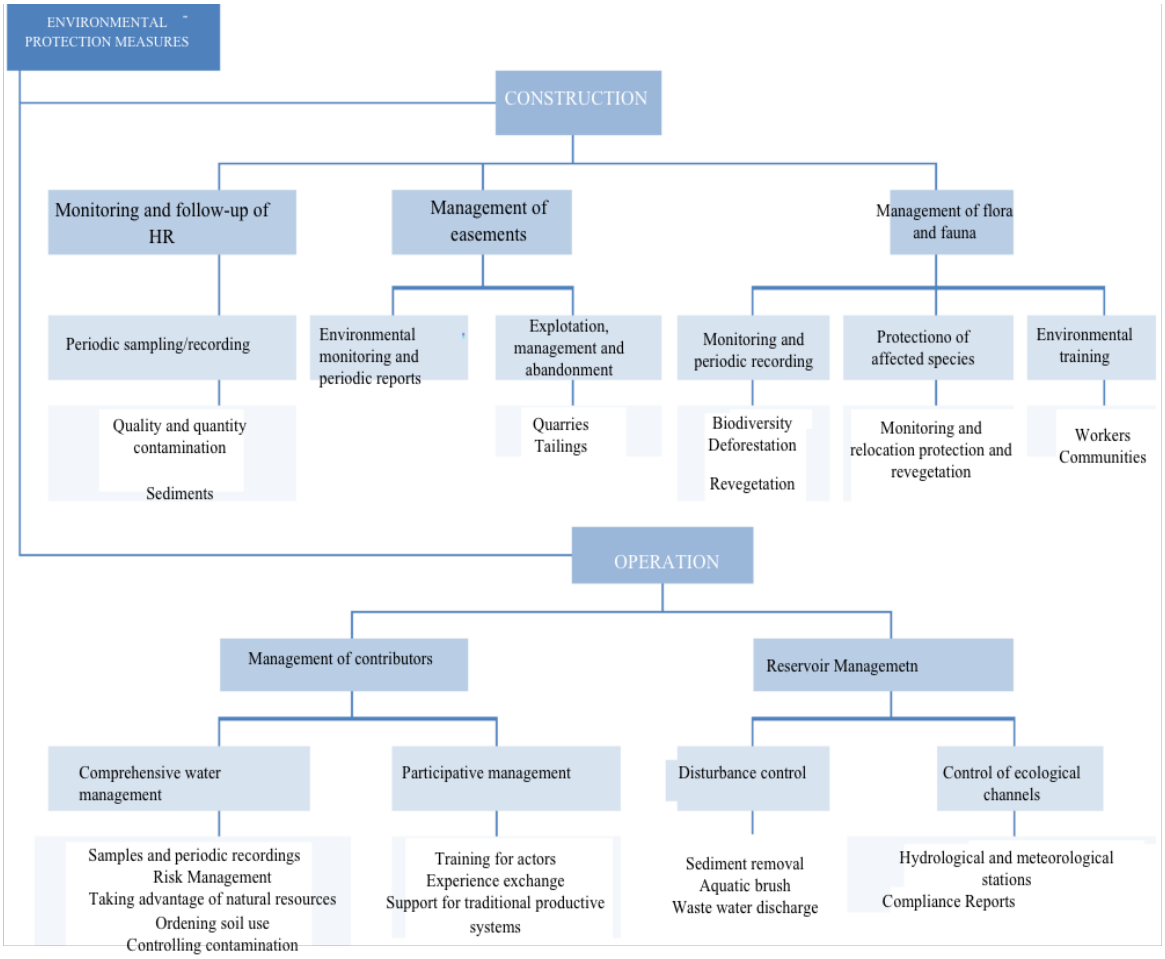
In the dynamic and complex system of a river, the impact generated along a stretch can have significant consequences in other places, which may generate other risks, for example, effects on the water ecosystem that originate the loss of species due to a decrease in the flow; the accumulation or reduction of sediments; and waste water disposal. The return of flows used for hydroelectric generation can also generate significant impacts downstream of the restitution site that are both geomorphological, with erosion and landslides, and biological.

Changes in the cycles of sediment discharge lead to trophic changes and affect the reproductive cycles of different species. Although the ichthyofauna of the Napa River watershed is not diverse, particularly in the stretch of waters downstream of the San Rafael Waterfall, it serves as a source of food for various species. This area of the watershed also plays an important role in the spawning process. Such is the case of marine mammals like the otter, which reported no activity whatsoever during the PHCCS monitoring project. This area is home to diverse invertebrate water species, according to a biologist from Universidad San Francisco de Quito interviewed for this project. It is of concern that several of these impacts were not considered in the management plans for the PHCCS. Furthermore, and perhaps even more gravely, basic activities, such as biological monitoring or chemical changes in the system, were never contemplated.

It is important to note that the main watersheds that feed the water system of the Amazon are home to various hydroelectric projects, both built and under construction, particularly in tributary rivers in the western chain of the Andes. Winemiller et al. (2017, p. 1) explains that "to achieve real sustainability, the assessments of these new projects should go beyond local impacts to contemplate synergies with existing dams, changes in soil use and possible climate changes."

Other aspects of concern with regard to the PHCCS include seismic and volcanic risks. In this case, the contingency plans offered by EIAD are unclear. The right bank of the Coca River is home to three volcanoes. The Antisano is inactive; Cayambe has been increasingly active over the past three years; and Reventador has been erupting since 2002. The project area, and the catchment project in particular, is located very close to a large geological fault that was the epicenter of an earthquake in 1987 that marked 6.9 on the Richter scale, which caused various landslides that led to an accumulation of sediments in the watershed of the Coca River.

Diagram 4: Environmental Safeguards in the PHCCS



Source: Developed in-house

3.1.5 RELATIONS WITH COMMUNITIES AND SOCIAL COMPENSATION

Four areas of the relation between Sinohydro and COCASINCLAIR EP and the local communities affected by the PHCSS, both in the construction and operating phases, are analyzed here: socio-economic impacts of the construction process and generation of direct and indirect jobs; compensation measures; productive development projects; and mechanisms for dialogue. Sinohydro was in effect solely responsible for construction on the project while COCASINCLAIR EP assumed the remainder of responsibilities.

The scale of the PHCSS required a large number of workers during the construction phase. According to official figures from Sinohydro (2016), during the 6-year execution period, more than 14 thousand people were employed including personnel from Sinohydro and its sub-contractors. To this number should be added workers who built the road to the power station, who were employed by FOPECA S.A. (2008). Notwithstanding, around 20% of the manual labor hired by Sinohydro were foreigners and of this subset, the majority were Chinese. Local manual labor (people who live in the area of influence of the PHCCS) has not been precisely quantified but we can infer that Sinohydro more than likely hired approximately 40% of its worker from the area of influence; to this amount, it is necessary to add labor hired by sub-contractors. Nevertheless, during the process to inform the public about the project, the company indicated that 70% of its workforce would be local, which generated high expectations among the locals and within communities in other provinces. In practice, however, the majority of the jobs that were made available for local workers were for unskilled labor.

No incentives or training was offered to local residents so that they could provide services to Sinohydro or its employees. In this context, the number of indirect jobs for the local population fell below expectations. Difficulties arose because public-sector suppliers must comply with

a series of basic requirements, including providing health records; registering with the tax office; registering with the public procurement system, among others. Although simplified schemes exist for these processes, these formalities constitute obstacles for potential service suppliers in the PHCSS's area of influence. According to the information that we obtained during interviews with the community, local associations were hired to make uniforms for paramedics and school uniforms and were given work cleaning the camp site and providing meals.

Food preparation services were provided by Servidong CIA. Ltda., which is owned by naturalized Ecuadorian resident from China. It was not possible to obtain more information from COCASINCLAIR EP. In addition to its inexperience, the local population was not prepared to cover the scale of services required for food, lodging and machinery. Various residents have declared that the best opportunities on the project were associated with building the access road to the PHCCS, which was executed by FOPECA S.A. The urban centers of El Chaco and Lumbaqui benefitted from the economic dynamism originated by the arrival of workers. Although the majority of workers resided in the PHCCS camp, some looked for homes close to the project. This led to substantial increases in prices for rentals, land and revenues for local restaurants and entertainment spots. Nonetheless, this change in context contributed to an increase in alcohol use, street fights and theft.

Employment opportunities were temporary. As Sinohydro approached project completion, unemployment rose in the area of influence. Many residents were unable to resume their previous activities in the agriculture and/or livestock segments.

Compensation projects on the PHCSS focused on providing basic and recreational services as well infrastructure for education and health. Work included building sewage systems and water catchment projects; road paving; building sports field, improving school and health infrastructure; installing computer rooms and equipping classrooms; equipping health centers; and supporting ministries to build to millennium education units (UEM) and a health center. Nevertheless, some questioned the benefits that these projects provided the local population. The UEM led several small schools in the sector to close down, which reduced the population's access to education services. No permanent budgets were created to finance services, such as internet, or to create permanent staff for schools.

Sinohydro provided some support to the communities around the PHCCS, including an enclosure wall and the lavatories for the school in the San Luis Hamlet. The company also provided economic support to the Municipality of El Chaco for cultural activities (Sinohydro, 2015). Nevertheless, according to some residents, construction on the road that passed through the San Luis hamlet was meant primarily to facilitate the circulation of Sinohydro's vehicles rather than to benefit the community.

In summary, the balance of the works for social compensation executed by CCS is negative given that the prior community consultation and education processes generated major expectations that were not fulfilled. Some of the works that were promised (and described in PHCCS's investment plans) were not executed, including work on sewage systems for the Simón Bolívar hamlet or the health center for the main town in the canton, Lumbaqui. Residents nevertheless recognize that they were partially responsible for these problems given that local leaders lacked initiative and management capacities to ensure that the compensation projects were executed, which resulted in disparities and in some cases, disputes arose between affected communities due to the heterogenous distribution of the project's impacts. In this context, although the power station and the reservoir compensator are located in the Gonzalo Pizarro canton, the majority of the infrastructure is in the parish of Gonzalo Diaz de Pineda in the El Chaco canton.

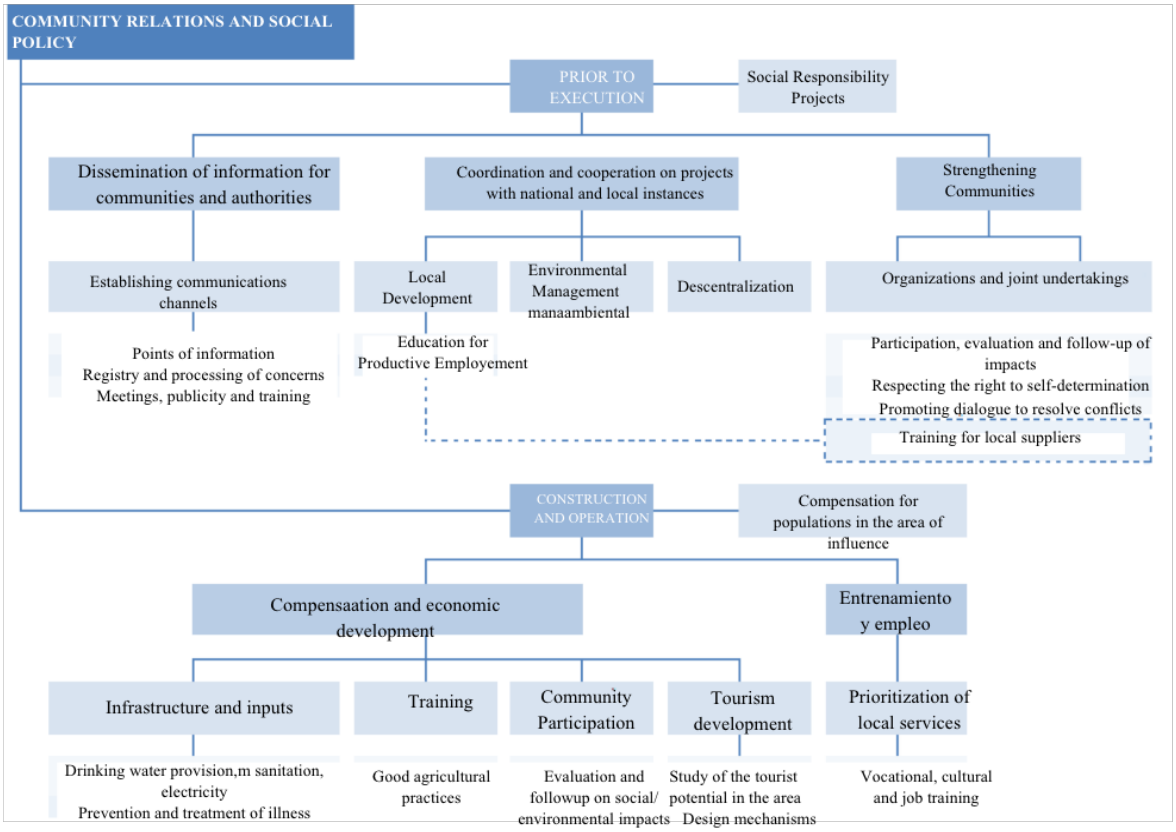
The goal of local productive development was not a priority for the PHCCS, although at the beginning of the construction phase, a study was contracted to "strengthen community organization." We had no access to this study and are unsure if it was actually conducted. Some initiatives failed due to a lack of follow-up and others were not undertaken due to insufficient previous evaluation. This was the case of the sustainable production systems for naranjilla and passionfruit cultivation and poultry, pig and guinea pig rearing for 20 small farms. Three of the projects included in the Annual Hiring Plans were not executed: a fruit processing plant in El Chaco; a fish processing plant in Gonzalo Pizarro; and greenhouses in the El Reventador parish.

The PHCCS's area of influence includes various productive associations, some of which are active but many of which are inoperative due to a lack of institutional support. The local governments, particularly those at the parish and provincial levels that have productive capabilities, have tried to support these associations but their budgets are limited. This support is crucial for development in the area. The PHCCS can affect some activities, including agriculture and adventure tourism due to a drop in the flow of the San Rafael waterfall (the main tourist

attraction in the region), which could be resumed under a sustainable scheme by promoting, for example, association-run farming for subsistence and sale in the local market.

In terms of communication mechanisms with the local population, we identified three schemes. First, informative points were organized in the cities of El Chaco and Lumaqui; nonetheless, few people asked for information during the project's construction stage. Second, an advertising campaign was rolled out in the local and national press. This effort was questioned because its emphasis appeared to be on implementing a marketing strategy rather than on informing the population in the area of influence and the financing for this campaign exceeded the budgets for works and projects relative to social compensation. Finally, meetings and educational events were scheduled that, more than likely, were the only spaces where the local population could express concerns about the PHCCS (primarily environmental). Although the EIAD systematized this criticism, no mechanisms were proposed to address the issues. The State responded unfavorably to this criticism and a complaint was filed with the court against the union leader on the project. Some leaders claimed they were subject to persecution for social protest. The project did not experienced constant, organized opposition, however, so the strikes, complaints and grievances were perceived as isolated events. All of these factors led to the general discontent of the local population's general regarding the repercussions of the PHCSS.

Diagram 5: Safeguards for relations with communities and social compensation on the PHCCS



Source: Developed in-house

Baba Multi-Purpose Project

The framework of safeguards for the PMB is more ambiguous than that of the PHCCS. As mentioned, IDB cancelled its loan for the project in 2007, after which financing was covered solely by the General Budget of the State.

Over the last few decades, IDB has developed a set of operating policies to safeguard various socio-environmental aspects of the projects

it finances and utilizes diverse procedures to guarantee that socio-environmental standards are fulfilled. IDB also has mechanisms that populations living near the project can use to file complaints. These policies, which all executing entities are bound to follow, include, among other aspects, issues such as: access to information, public services, natural disasters, involuntary resettlement, gender equality and indigenous nationalities (BID, 2018b).

In the case of PMB, IDB demanded that the Consorcio Hidrolitoral (CHL) and the other actives involved comply with some requirements, as indicated in Table 2. In May 2007, IDB approved a loan for US$87.8 million (BID, 2007c) through a "line for private financing" and proposed a set of recommendations.

Table 2: IDB's socio-environmental requirements

TYPE OF REQUIREMENT	DESCRIPTION
General	Compliance with all national social, labor, health and security requirements included in the regulations related to any permit, authorization or license for components that apply to the project or to the company on the project
	Comply with the General Directives on the Environment and the World Bank's Directives for Monitoring that are included in the Manual to Prevent Contamination (July 1, 1998)
	Comply with the Directives of 120003 of the International Finance Corporation for Occupational Safety and Health.
	Inform IDB in writing about compliance with any environmental or social requirement relative to the Loan Agreement and about accidents, impacts or any other relevant environmental, labor, health or safety event.
	Ensure that any sub-contractor to builds or operates complies with environmental, social, labor, health and safety requirements in the Loan Agreement.
	Disseminate information related to environmental, social, health and safety aspects and conduct on-going consultation regarding the same through a Plan to Manage and Communicate with actors that has been approved by IDB.
Prior to the approval of the Executive Board of IDB	IDB will require a Final Plan for Compensation and Resettlement that complies with IDB's policy for involuntary resettlement prior to approval by the Executive Board of IDB.
Prior to financial closure	IDB will require various plans that include the framework of the Environmental and Social Management System and which includes actions identified in the PMA and in the environmental, social, health and safety plans for the construction phases, a Management and Communications Plan for the watershed or catchment areas, including a detailed budget for water, balance or any measures for mitigation or compensation that are necessary and a report on progress in implementing the Compensation and Resettlement Plan.
Prior to the first disbursement	IDB will require detailed plans and procedures for environmental and social management for the construction phases, including environmental, health and security and contingency and prevention plans for spills and control.
For all disbursements	For all IDB disbursements, an Environmental and Social Compliance Certificate from independent environmental and social consultants will be required that declares that the Project completely fulfills all environmental and social requirements and the provisions of the Loan Agreement.
Prior to filling the reservoir	The company must present to IDB the following plans to operate the Project: Plans and procedures for environmental and social management for the operating stages, including an updated plan for Management and Communication for actors involved and a Management Plan for the watershed or the watershed area, an occupational safety and health plan for the operation, a contingency plan or one that focuses on and controls spills during the operation, including a follow-up program for downstream and a preparation program for emergencies relative to flooding.

Prior to the technical finalization of the project	The company should present to IDB the certificate of environmental and social compliance that has been issued by independent and social consultants who certify compliance with all environmental and social requirements and with the provisions of the Loan Agreement, including the adequate application of a Compensation and Resettlement Plan.
During the duration of the loan agreement	The company must prepare and present an environmental and social compliance report to IDB. This report must be presented every quarter during construction and during the first year of operation. Subsequently, the report must be presented during the loan period.
Competences of the IDB	The Bank monitors the environmental, social, health and safety aspects of the project through internal actions of supervision and documentation among others. The Bank also hires an external independent consultant to supervise or monitor execution in accordance with the Compensation and Resettlement Plan. The Bank will have the right, as part of the Loan Agreement, to hire, when necessary, an independent audit of the environment or of health and safety.

Source: BID (2007a, pp. 15-18).

IDB's reasons for cancelling the loan are ambiguous. In addition to the requirements issued by IDB (2007a), which focused on involuntary resettlement in particular, the multilateral entity accompanied the process to change the project's design and roll out consultation processes with neighboring communities (BID 2007a), which indicates that IDB was committed to continuing financing the project. In the assessment that the entity conducted of its program in Ecuador for 2007-2012, IDB mentioned "uncertainties in the regulatory frameworks" of the country (in particular, a failure to provide precise information on the role that each institution plays). It mentions that the Government of Ecuador had not foreseen a role for the private sector in infrastructure investment (BID, 2012). These aspects indicate IDB's withdrawal from project financing based more on political factors than on disagreements regarding compliance with technical standards.

Once IDB withdrew from the PMB, only the provisions and mechanisms for safeguards under Ecuadorian regulations remained. Nevertheless, the institutional architecture is complex and sometimes confusing. Four levels are apparent: the Ministry of the Environment, which is the highest authority responsible for guaranteeing that socio-environmental safeguards are observed; Consorcio Hidrolitoral, and later CELEC Hidronacin, as the executing entity; the Secretariat of Water (SENAGUA), as the governing body of the country's water resources, which offers state financing to provincial governments that execute projects approved by this entity (Moreano et al., 2016, p. 16); and the decentralized autonomous governments (municipalities and prefectures).

The document that best describes both the possible impacts and the regulations for socio-environmental management under the PMB, is the Definitive Environmental Impact Study (EIAD) (Efficacitas & UTEQ, 2006), which is one of the essential instruments in the process to approve the environmental permit. The EIAD contemplates follow-up audits of the Environmental Management Plan (PMA) as part of EIAD as well as internal documents from the executing entity that cover social policy. An IDB report from 2007 indicated that Environmental Licenses assumes, among other aspects, that the PMA included in the approved EIA will be observed, including the requirement to present a calendar of deadlines for development and implementation of the said PMA.

Based on these regulations and on the qualitative information compiled, we cover the following areas of analysis: conflicts regarding the project's design; relations with the community and social compensation; effects on fishing resources; and comprehensive watershed management.

CONFLICT REGARDING THE PROJECT DESIGN

Social pressure and elevated levels of conflict obligated the PMB's promoters to reconsider the original design. The new alternative reduced the affected area to 1,099 ha (from 3,500 ha) and consequently, cut the number of homes that would be affected (from 240 to 41). The new proposal stemmed initial opposition to the project. A former employee at Odebrecht, in an interview in September 2017, indicated that this decision helped the company gain people's trust. Several actors attributed the demobilization to the fact that a large number of families would no longer be affected by the project and to factors of organizational disintegration.

The most influential factors in this scenario were: strategic errors in the social struggle; the allegation that local leaders had been bought off by Odebrecht; and offers from local government representatives, who changed their opinions of the project. This led the population to distrust its leaders. One of the most important members of the opposition at this time mentioned that another determining factor was the rise to power of the Gobierno de la Revolución Ciudadana in 2007, which was responsible for demobilizing social movements in general.

The information process used three mechanisms: public consultations to identify local stakeholders (BID, 2007a, p. 14); Public Information Centers (CIP) in the main towns of the cantons which, due to a lack of interest, were replaced by 'informative tents' and door-to-door visits in the communities beginning in 2006 and informative meetings in the communities, education centers and other local institutions between 2008 and 2013 (Efficacitas & UTEQ, 2006).

Nevertheless, the Environmental Management Plan did not inform people who visited these spaces about the mechanisms in place to present complaints and concerns. We were also unable to obtain records of the number of people who visited and the issues discussed. A former employee of Odebrecht, who currently works in CELEC Hidronación, mentioned that the majority of people who visited the CIP were looking for work and that despite the existence of mechanisms to present complaints, people avoided doing so because they were afraid that they would not be hired.

It was necessary to organize a prior, informed consultation process with the communities affected by flooding from the reservoir given that Ecuador is a signatory of convention 169 of the International Labour Organization for indigenous peoples and tribes, which in Art. 16 indicates that a consultation mechanism must be applied on any project that requires resettlement and that Afro-Ecuadorian and Montubio peoples lived in the project's area of influence. Although the families that were affected received economic compensation for the loss of their lands, no consensus was reached about the transfer. Displacement was not a choice; it was an order. A restricted communications strategy was adopted that viewed populations as passive subjects and recipients of information who may eventually present complaints and concerns that the project's promoters should attempt to address or solve.

RELATIONS WITH THE COMMUNITIES AND COMPENSATION POLICIES

One of the first aspects of importance is that the Compensation and Resettlement Plan, which IDB requested from the project's promoters, was not available. According to PMA, the program was designed in accordance with IDB's operating policies (OP-710) and with the "Acquisition of Lands and Involuntary Resettlement" performance standard of the International Finance Corporation (IFC) of the World Bank. Nevertheless, the information contained in the PMA and its update (Efficacitas & UTEQ 2006; Efficacitas, 2012) is highly preliminary and does not facilitate deeper analysis of the measures that were adopted.

Consorcio Hidrolitoral utilized the criteria for property to develop its compensation and resettlement policy. People who had property titles for their land received economic compensation (indemnity) for affectation while those who lacked titles were considered under the relocation program (Efficacitas & UTEQ, 2006). Some of the families that received compensation only lost part of their land but nonetheless, these individuals were displaced to neighboring cities. According to residents the compensation process, although close to concluding, was neither transparent nor equitable. A former employee of CHL indicated that the project's promoter paid a higher price per hectare for the land up for expropriation than that set by the municipal valuation, but the residents say this version is false and contend that the price depended on each family's negotiating power. The large haciendas –which negotiated over a more protracted period– received, based on interviews conducted with residents of communities in the area of influence in September-October 2017, higher payments. This was also the case of individual owners with economic and political influence in Patricia Pilar. Owners of small plots with much less influence received less for their land.

The World Bank has found that economic compensation without the support of development or reinsertion programs is inadequate. As such, the PMA mentions the importance of guaranteeing that displaced people receive a new property. Regardless, Consorcio Hidrolitoral did not, in practice, follow these principles. The perception of the families of the compensation process varies between conformity and discontent due to insufficient support. Compensation was limited to payment for expropriation; the families received no other support from CHL during the displacement process. Some of the elderly in the area stayed on to farm on land that had not been flooded. Some of the people that remained in the project area commented that the drop in available land affected their income.

Thirty-four families that worked on land that they did not own were allotted a hectare of land with a home (approximately 60 m^2 with 2 or 3 bedrooms). These plots had basic services (well water and septic tanks) and access roads (Efficacitas & UTEQ, 2006). In general, the people who were interviewed from this group expressed gratitude to Hidrolitoral and the national government but remarked that they had received no additional support (interview with relocated community members, October 2017). The plots of land in this group were used primarily for cacao, yucca and green banana crops or fruit tree plantings. Cacao production is approximately 1 quintal every two to three weeks and the market price for this product is around US$70; this is far below the value of the basic family food basket, which is situated at US$708.51 (INEC, 2017). While the elderly subsist on sales of cacao and family support, young people on the plantations receive around US$14. It was also noted that cacao crops were often affected by plagues.

The PMA (Efficacitas & UTEQ, 2006) contains proposals for social compensation, which were part of a policy known as "Alliances for Improvement." To implement this, the promoting company tried to enter into agreements with other public institutions. Based compliance audits of the PMA (Efficacitas, 2012; Efficacitas, 2013; Hilgert, 2015) and the observations made during fieldwork, Hidrolitoral rolled out some of the actions listed in Table 3 but others were omitted. For example, the tourism development program to create alternative sources of employment in the area was never undertaken (Efficacitas & UTEQ, 2006; Efficacitas, 2012) although in 2012, Hidrolitoral hired an entity to develop a Plan for Tourism Development and engaged in efforts to communicate this situation. The first operating audit (Hilgert, 2015) mentioned that CELEC EP – Hidronación has no competency to develop tourism programs.

Table 3: Social compensation measures in the PMB

Program of good agricultural practices: training, implementation of family orchards (budget for 2014 and 2015 but we could not access the implementation registry)	From 2009 and on
Program for beekeeping; some initial harvests already realized.	From 2012 and on
Programs for literacy through an agreement with the Ministry of Education	2008-2010
Training for hygiene, food health, water treatment for consumption, waste management and organizational training in different communities	2008-2012
Medical brigades for primary public health in the agreement with the Ministry of Public Health.	-

Source: Efficacitas & UTEQ, 2009; Efficacitas, 2012; Efficacitas, 2013; Hilgert, 2015

In addition to the programs that were implemented, roads were built to access the communities; additionally, water wells were built in areas where water was previously not fit for human consumption. There are still many deficiencies in basic services, such as the lack of adequate sewage system due to poor coordination with local GAD and scarce budget resources. Although various communities gained access to electric energy through the social compensation projects administered by the Baba project, power outages are common.

In summary, Hidrolitoral implemented some of the programs foreseen in the PMA. CELEC EP – Hidronación continued with several of these measures but has been increasingly less involved due to a lack of resources. In this context, the sustainability of support for the communities affected by the project is questionable.

EFFECTS ON FISHING RESOURCES

Building physical barriers on a river site interrupts the natural water flow, which forces aquatic species to adapt (Efficacitas & UTEQ, 2006). In 2010-2012, in the period prior to the dam, an agreement was reached with the National Institute for Fishing (INP) to conduct frequent monitoring of aquatic species with the help of local fishermen. Monitoring included the waters both upstream and downstream of the reservoir. Through this monitoring, INP engaged in biological studies of existing fish species (Hilgert, 2015). The first operating audit (Hilgert,

2015) mentioned that monitoring was not conducted between November 2013 and November 2015 due to a lack of budget resources.

The PMA included an incentive plan for subsistence fish farming, which was to include baseline studies, but this plan was never implemented. According to the most recent audit (Hilgert, 2015), Hidrolitoral EP/CELEC EP did not enter into an agreement with the Vice Ministry of Aquaculture and Fishing because the plan had to be implemented by local authorities. Additionally, this audit finds that the planned study to introduce aquatic species to the reservoir, which was part of the same plan, was never implemented due to a lack of resources (Hilgert, 2015).

Local residents emphasized that prior to the PMB, families in the area subsisted on fishing. Both upstream and downstream of the reservoir, communities indicated that they had stopped fishing or were fishing less given that artisanal fishing techniques were no longer useful or because the amount of fish had decreased. In the first two years after the reservoir was filled, the quantity of fish was above normal but later on, levels fell below those registered before the PMB. One of the species that was most affected was the bocachico (Icthyoelephas humeralis), which is a staple in the local diet. Some villages indicated that it was very difficult to find this species because the dam interrupts their reproductive cycle given that young fish spawn in the upper watershed of the Baba (interview with villagers in the area of influence, September-October 2017). The impact of these changes was particularly significant in the community of Palo Blanco, located on the banks of the Baba downstream of the reservoir, where villagers indicated that the fish had essentially disappeared. Prior to the project, both people in the community and fishermen from outside of the area frequently fished on the beaches; the fishermen from outside of the community gave a portion of their catch to area villagers. The individuals interviewed considered this one of the project's most negative impacts.

An employee of CELEC, nevertheless, downplayed the importance of fishing, alleging that people from the sectors of Mocache, San Carlos and Quevedo, and not local residents, engaged in fishing. The company proposed, as part of its compensation projects, tilapia production. Nonetheless, pools were only built in the community of San Cristóbal. Some villagers chose not to participate in this program given that the inputs were too costly or because the fish produced was considered low quality (interview with villagers in the area of influence, September and October 2017).

COMPREHENSIVE WATERSHED MANAGEMENT

The watershed management plan was included in the PMA of the Baba project (Efficacitas & UTEQ, 2006). The document mentions that the entities responsible for the project should intervene in the watershed of the Baba, Bolo and Bimbe rivers (upstream) and protect the remnant forest areas east of the Baba river. In 2007, Hidrolitoral conducted an inventory study of the flora species in the headwaters of the Baba River to implement biological conservation areas (study updated in 2015); these studies mentioned the presence of flora species that are native to the watershed that feeds the reservoir: Pseudobombax millei, Erythrina megistophylla, E. smithiana and Pouteria gigantea but also noted land owners' resistance to ceding crop areas (Efficacitas & UTEQ, 2006). The update of the PMA (Efficacitas, 2012) states that conservation efforts are part of the competences of SENAGUA.

An employee at CELEC EP commented that a reforestation plan existed but the areas of influence were already well protected. The company planted native species along the banks of the reservoir on a 6-meter buffer zone (approx.) that was considered vulnerable to erosion. According to commentaries, the results of this reforestation effort were limited because the executing entity did not acquire the land surrounding the reservoir. While large land owners maintained this buffer zone, the owners of small plots removed the plantings because they affected a proportionally larger segment of their land. The employee interviewed confirmed that local producers are not aware of the need to preserve water. All along the reservoir, there is evidence of areas with no protective belt; consequently, banana and cacao plantings extend right to the edge of the riverbank.

Adequate reservoir management includes controlling aquatic flora. Although the water in the Baba reservoir is in constant movement, which reduces the plant proliferation, the audits that were conducted indicate the presence of fast-growing species in some areas. The first operating audit mentioned that CELEC EP had not implemented a study/program to identify and monitor aquatic flora. In 2014, monitoring activities took place but in 2015, no such efforts were reported due to a lack of budget resources (Hilgert, 2015). The increase in aquatic flora can attract vector insects to the reservoir, which puts the health of neighboring communities at risk. Hidrolitoral EP responded to this risk by

conducting awareness campaigns with villagers and fumigating the area during the winter.

The PMA (Efficacitas & UTEQ, 2006) also included a detailed monitoring project of water quality on the Baba project. This program had three components – wastewater, surface water, and underground waters – which must be measured at different sampling points upstream and downstream of the reservoir. According to the closing audit (Efficacitas, 2013), Hidrolitoral posted the following percentages of compliance with the universe of samples planned during the construction stage (2007-2013): 79% of waste waters; 62% of surface waters and 30% of underground waters. Monitoring of waste and underground waters was not conducted in 2015, during the operating stage, due to a lack of budget resources (Hilgert, 2005).

In the case of superficial waters, the studies conducted show that water quality is relatively good although some measurements surpass the maximum limits permissible for some dangerous metals likes cadmium and mercury. Underground water monitoring found evidence of pesticides near the banana farms of the Grupo Wong (Efficacitas, 2013). Nevertheless, as the low level of compliance shows, the majority of samples of underground water were never gathered.

CELEC EP conducted studies of water quality in the wells of some families in the area of influence in 2014 and 2015 and that fecal coliform levels exceeded permissible limits (Hilgert, 2015). This corroborates the perception of villagers that the water is not fit for human consumption. In 2015, as indicated in the first operating audit, the periodicity of well monitoring did not meet the standard set for this point (Hilgert, 2015).

The measures and practices studied show that there was little planning for watershed management and coordination between institutional actors was, in certain aspects, highly deficient. SENAGUA and MAE engaged in virtually no actions to reforest and conserve water sources and riparian areas. SENAGUA began a process to set up watershed councils in 2014 but the scope was very limited (interview with an academic researcher who worked in the area, October 2017). The executing company (Hidrolitoral/CELEC) engaged in activities only in the reservoir area. These efforts were marred by serious limitations and compliance issues due to a lack of budget resources.

In summary, there is no evidence of attribution of co-responsibilities and alliances to ensure comprehensive watershed management. No council/association was formed to involve different actors from the watershed (governing institutions, project executor, local governments, producer associations or communities) in its management and the productive activities were not linked to efforts to conserve the remaining forests, reforest and eliminate contaminating practices. This last aspect is very important given that a significant portion of the land in the sector is occupied by large monocrops for export that use insecticides, which puts water and soil at risk.

Discussion

The two projects have five points in common.

a) First, their financing structures are different from the traditional mechanisms used by multi-lateral development banks until 2007. In the case of the PHCCS, IDB's financing was only available in the feasibility study phase. There is no evidence that this entity had any intention of financing the project's construction. In the PMB, IDB approved a loan for the execution stage but canceled the same in 2007.

b) Second, the State was not able to guarantee that the social and environmental safeguards on the projects were fulfilled. Its intervention was limited to correcting the impacts in the most conflictive aspects. Consequently, both projects are associated with social conflicts and imply either considerable environmental effects or grave risks of environmental impacts.

In the case of PHCCS, the State's mediation in the labor conflicts was more reactive than proactive given that it was in response to the workers' complaints and to media pressure. The PMB was marked by serious conflicts prior to its construction but protests were quashed during project execution through two mechanisms. First, the project was redesigned, which addressed the major flank of the social project related to the displacement of local populations to execute work. Second, a scheme for state control was

implemented that blocked protests by parties who were affected by resettlement.

Environmental issues, on the contrary, were not included in the service centers for affected populations or at the State level, which means that the procedures for follow-up and control were unclear. Environmental monitoring on both projects was questioned. In the PHCCS, experts commented on this point. In PMB, water monitoring took place only partially and no sanctions or demands for immediate compliance by the executing company were raised. Another environmental aspect that both projects have in common is that they lack a systemic perspective of the negative impacts that projects of this type can generate, in particular with regard to managing the watersheds that are affected. These elements have not been a source of conflict or protest by the population in the areas of influence. The most significant environmental impacts affect the water source. Changes in the quality, quantity and distribution of the resource destabilize the water ecosystem, which generates impacts that may lead to losses of aquatic species and to a series of negative effects for people who depend on these resources. The risk of deforestation is particularly significant in the case of the PHCCS, which goes through a protected area.

c) The third aspect is related to difficult access to information, which was a constant issue on both projects despite the fact that some spaces for dialogue were created. Evidence of this problem was found in different requests that were sent to the public entities that were involved in executing the project and with the Chinese actors in particular, with whom the authors attempted to establish contact.

d) The fourth element refers to community participation in decision making. The mechanisms for dialogue did a poor job of gathering information on the concerns of the populations that lived near the projects. The communications strategies were characterized by a limited concept of participation, which saw the communities as mere recipients of information. Denouncements of government persecution of individuals who participated in social protest is concerning.

e) The fifth aspect entails the State's social compensation strategies. In the case of both the PHCCS and the PM, the policies in place to generate long-term transformations in the socio-economic fabric and in the autonomy of the populations were overshadowed by the prioritization of programs to produce immediate impact, such as infrastructure work or services.

The comparison of the application of safeguards in both of the case studies allows us to determine if there were weaknesses in the processes to implement these measures on the two projects in question. Without a doubt, the strategy to apply social and environmental standards was limited, even in those cases where the point of origin for said strategies was the Chinese regulatory framework, and it took state, social and/or public pressure to demand compliance. The participation of China in the financing and construction of the PHCCS did not generate changes in the application of safeguards. Our conclusion is that the presence of safeguards in national legislation and in Chinese regulations did not translate into the development of a scheme of guarantees for affected territories and populations.

A clear and stable definition of competences and responsibilities with regard to compliance of safeguards is particularly relevant on projects with Chinese participation. Unlike the aligned procedure used by IDB, Chinese directives on environmental and social safeguards are general in nature and scattered throughout different texts; their schemes of socio-environmental protection constitute mere guidelines and principles that do not constitute binding provisions when entailing projects executed abroad.

Based on the particularities that characterize the projects analyzed, there are three elements that explain the difficulties surrounding compliance with social and environmental standards. The PHCCS had no ex-post EIA although required by national regulations and by the lender. The heads of the environmental and social area of COCASINCLAIR EP were unaware of this point, which raises the question of whether China Ex-im Bank informed the executing company of the existence of this requirement. There are no records of follow-up or intervention by China Ex-im Bank to resolve conflicts relative to the PHCCS or to enforce corresponding regulations. The first Chinese directives that specifically mentioned labor rights were issued when the PHCCS was in the execution stage (CHINCA, 2012).

In the case of the PMB, the availability of financing was an issue at the beginning but this problem was overcome when resources were allotted from the State budget to execute the project. Gradual cuts in the budget made it difficult to comply with the PMS and with social

compensation programs. The competences of public institutions overlap and are both unclear and subject to change, which may have fueled non-compliance of social and environmental commitments.

Conclusions and lessons learned

It is important to question the degree to which development banks have implemented socio-environmental safeguards on hydroelectric projects in Ecuador, and the effectiveness of corresponding measures, to ensure that impacts on ecosystems, territories and affected communities are mitigated. It is clear that environmental impacts and social conflicts were identified, which leads to the conclusion that difficulties were associated with complying with these standards. These difficulties are attributable to three elements.

First, the lack of adequate participation of interested parties. The Chinese companies apply a limited compliance strategy for environmental and social safeguards. Chinese directives on environmental and social safeguards are general in nature and disperse. There are a series of rules and/or principles at different levels of government, many of which have not been translated from Mandarin. In general, Chines contractors or creditors that offer services abroad have little knowledge of these regulations, which are not binding and are only meant to provide guidance and lack mechanisms for monitoring and follow-up. In this framework, Ecuadorian regulations as the State play a crucial role in safeguarding social and environmental concerns.

Nevertheless, the State also failed as a guarantor of safeguards. Although Ecuadorian regulations may be considered an adequate instrument to safeguard environmental and social ambits (Camborda, 2016), given that they even recognize the rights of nature, they are difficult to execute effectively. These limits originate the dual role that the State plays on these projects: first as a guarantor of compliance with regulations through the Ministry of Labor and the Ecuadorian Institute for Social Security or the Ministry of the Environment and second, as the executor that must follow these regulations on the projects that it develops. Under these conditions, the State's roles and priorities as an executor are in conflict, which creates a gap in its execution of its role as a regulator. In this scenario, compliance with labor and safety standards is reduced to merely "reaction under pressure." Environmental standards are observed only partially.

On both projects, the affected local populations focused their protest on social and labor aspects. The environmental aspects are virtually absent in social resistance efforts. The mechanisms of protest are more effective than the existence of standards or safeguards. Accordingly, social aspects are prioritized while environmental aspects take a back seat. In summary, the study found that the Statue only intervenes in response to the most conflictive processes by introducing corrective measures.

The second factor that explains difficulties in effectively complying with safeguards is that the EIA did not include all of the aspects of the project and associated risks. For example, seismic and volcanic risks, which can damage the PHCSS's infrastructure and biodiversity, were not addressed. The possibility of landslides due to alternations in the water ecosystem, although common on projects of this kind, were not addressed. These changes lead to an accumulation of sediments and to soil erosion when the water used to generate electricity is returned to the river.

The third factor is the absence of transparency regarding and responsibility for project governance. Mechanisms for access to information and community participation in decision making, both associated with transparency, fail. In terms of mechanisms for responsibility, the State plays a weak role, which complicates efforts to monitor and control project execution.

Based on these elements, the assessment that was conducted found that the sole existence of regulations does not strengthen compliance with safeguards and as such, does not ensure sustainable development. A lesson that Ecuador should learn is that public policy efforts should focus on mechanisms for follow-up and independent assessment with the participation of civil society. The State would do well to examine the participative experiences where diverse actors congregate in hybrid forums (Latour, 1991; Callon et al., 2001). An example of this is the case to converse the marine reserve of Galapagos (Heylings & Bravo, 2007). The communities intervene at all points of decision making: dialogue, design and implementation of policies that are executed in the corresponding territory, as analyzed by Funtowicz and Ravetz (1990, 1993) in their work on post-normal science, which they conceptualize as "extended communities of evaluators." In this framework, during the decision process, more weight is put on the experience and commitment of experts than on their technical or scientific

knowledge of the problem. It is important to included participatory mechanisms in national regulations that consider pluralism and the diversity of the actors involved (Cobbaut & Espinosa, 2017) when designing governance schemes for sustainable development.

Studies to address these serious problems for the population, territories and nature should be on-going to have an impact on both the policies of development banks and on national regulations. For future research, it would be a good idea to study the projects that have been financed by multilateral development banks to assess and predict the potential results of integrating their mechanisms in a scheme for social and environmental demands for new regional development banks, such as China Ex-im Bank or the Banco del Sur. This assessment will need to examine the adverse effects that may be generated by standardizing in a way that favors the least satisfactory option for quality, as indicated by Akerlof (1970).

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LIST OF ABBREVIATIONS

ARCONEL	Agency for Regulation and Electricity Monitoring
BID	Inter-American Development Bank
BM	World Bank
CCS	Coca Codo Sinclair
CDB	Development Bank of China
CEDEGE	Commission of Studies to Develop the Rio Guayas Watershed
CEDEX	Center for Studies and Experimentation relative to Public Works
CELEC	Electric Corporation of Ecuador
CEOSL	Ecuadorian Confederation of Free Union Organizations
CHINCA	China International Contractor's Association
CHL	Consorcio Hidrolitoral
CIP	Centers of Public Information
	Public Strategic Hydroelectric Company
COCASINCLAIR EP/CCS EP	
CONELEC	National Electricity Council
CRBC	China Road and Bridge Corporation
CTS	Committee of Sinohydro
EIA	Environmental Impact Assessment
EIAD	Definitive Environmental Impact Assessment
EIAP	Preliminary Environmental Impact Assessment
EPC	Energy Performance Contracting
ExIm bank	Export-Import Bank of China
GAD	Decentralized Autonomous Governments
IESS	Ecuadorian Institute of Social Security
IFC	International Financial Corporation of the World Bank
IGM	Military Geographic Institute
INEC	National Institute of Statistics and Census
INP	National Institute of Fishing
MEER	Ministry of Electricity and Renewable Energy
MINFIN	Ministry of Economy and Finance of Ecuador
PHCCS	Coca Codo Sinclair Hydroelectric Project
PMA	Environmental Management Plan
PMB	Baba Multi-Purpose Project
SASAC	State-owned Assets Supervision and Administration Commission of China
SENAGUA	Secretariat of Water
SENPLADES	National Secretariat of Planning and Development
SNI	Inter-Connected National System
STS	Workers' Union of Sinohydro
UEM	Millenium Education Units
UTEQ	State Technical University of Quevedo

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