

Chinese Investment in Latin American Resources: The Good, the Bad, and the Ugly

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Abstract

China's need for vast amounts of minerals to sustain its high economic growth rate has led Chinese investors to acquire stakes in natural resource companies, extend loans to mining and petroleum investors, and write long-term procurement contracts for oil and minerals in Africa, Latin America, Australia, Canada, and other resource-rich regions. These efforts to procure raw materials might be exacerbating the problems of strong demand; "locking up" natural resource supplies, gaining preferential access to available output, and extending control over the world's extractive industries. But Chinese investment need not have a zero-sum effect if Chinese procurement arrangements expand, diversify, and make more competitive the global supplier system. Previous Peterson Institute research (see Moran 2010) and new research undertaken in this paper, show that the majority of Chinese investments and procurement arrangements serve to help diversify and make more competitive the portion of the world natural resource base located in Latin America. For a more comprehensive analysis, we conduct a structured comparison of four Peruvian mines with foreign ownership: two Organization for Economic Cooperation and Development-based, and two Chinese. We examine what conditions or policy measures are most effective in inducing Chinese investors to adopt international industry standards and best-practices, and which are not. We distill from this case study some lessons for other countries in Latin America, Africa, and elsewhere that intend to use Chinese investment to develop their extractive sectors: first, that financial markets bring accountability; second, that the host country regulatory environment makes a significant difference; and third, that foreign investment is a catalyst for change.

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OVERVIEW

Chinese investment in extractive industries in the developing world is a subject of growing controversy and concern. Is China locking up the world's resource base, to the detriment of non-Chinese users and consumers around the globe? Is China perpetuating a new era of “resource curse” outcomes, with diversion of revenues to corrupt elites and marginalization of local populations in regions with oil or minerals?

In Africa, Chinese investment in the Democratic Republic of the Congo is represented, on the one hand, as a “Marshall Plan” for that beleaguered state, and, on the other hand, as a fresh era of neocolonialism. Chinese investment in Angola, for example, involves bribery of tragic—or tragic-comic—proportions (see appendix V on Chinese foreign direct investment (FDI) in Africa).¹

China's need for vast amounts of minerals to sustain its high economic growth rate has increasingly turned Chinese investors towards Latin America. This demand has propelled China into third place among Latin American investors, directing over \$15 billion (about 9 percent of total FDI) to the region in 2010 (ECLAC 2011).² Over 90 percent of this investment has been targeted towards extractive industries. China's voracious appetite for minerals investment is often seen as a boon to Latin American countries—a chance to diversify away from reliance on traditional markets and a steady and ready source of funds, and, as the ECLAC study points out, an opportunity for Latin American countries that need capital and technology.

But this possible benefit will be far outshadowed by bad news if it turns out that the economic, social, and environmental framework within which Chinese companies operate is different from—and inferior to—the best-practice standards that the major established oil and mining companies typically maintain. Individual host countries in the developing world may be exposed to resource curse practices of illicit payments, graft, and corruption, plus poor worker treatment and lax environmental standards. UNCTAD'S World Investment Report devoted to transnational corporations, extractive industries, and development notes (as do other authoritative sources) that non-Organization for Economic Cooperation and Development (OECD) investors—most prominently Chinese investors, operating under a doctrine officially labeled “noninterference in domestic affairs”—have often undermined hard-won governance standards observed by multinational corporations subject to home country legislation that conforms to the OECD Convention on Combating Bribery (including the US Foreign Corrupt Practices Act), and ignored or bypassed the best-practice environmental standards insisted upon elsewhere (UNCTAD 2007).

1. See, for example, Jennifer C. Li. 2006. *China's Rising Demand for Minerals and the Emerging Global Norms and Practices in the Mining Industry*. Working Paper No. 2. Foundation for Environmental Security and Sustainability.

2. The United States is first, originating 17 percent of Latin America's FDI, and the Netherlands is second with 13 percent.

In recent years, China has used financing arrangements and direct investment to gain secure access to oil, metals, and foodstuffs from governments around Latin America. In many cases loans are secured against revenues from future sales to Chinese companies or granted at rates subsidized by the state-controlled China Development Bank (CDB). Most prominent are deals to obtain oil from Brazil and Venezuela (China has promised to provide more than \$32 billion to the Chavez government, which will pay off its debt in oil), and soy, wheat, and natural gas from Argentina. Official data shows that Venezuela now sends about 460,000 barrels a day (about 20 percent of its oil exports) to China. In Ecuador, the Chinese oil company PetroChina has lent \$1 billion to state company PetroEcuador in exchange for oil deliveries. The China Development Bank also agreed to lend \$1 billion to Ecuador's government, to be repaid through oil exports. In the case of Venezuela and countries like Argentina and Ecuador, who have both previously defaulted on international debt, access to such amounts of capital would otherwise be very difficult. According to a study of CDB's activities "virtually no other financial institutions were willing to lend such large amounts of capital for such long terms" (Downs 2011, 1).

China has also been active in infrastructure development projects in Latin America. The CDB has offered a \$2.6 billion 10-year loan to revive a freight train system connecting Buenos Aires to much of Argentina's central heartland. In the country's Rio Negro province, the Metallurgical Corporation of China has invested \$80 million to reactivate an iron ore mine, and China's Beidahuang Group has promised \$1.4 billion in irrigation infrastructure in exchange for a 20-year contract to grow corn, wheat, soy, and dairy on otherwise dry land for Chinese consumers.

Latin America has grown in importance to China over the past decade: Over half of Chinese investment in natural resources is in Latin American countries, concentrated in some thirty-four major projects (see appendix I) that stretch from Venezuela and Ecuador, through Brazil, Bolivia, and Peru, to Argentina and Chile. Since initiating its "going out" strategy, encouraging its companies to become more competitive, China's total FDI in Latin America has increased nearly six-fold: from \$285 million in 2004 to \$1.6 billion in 2009.³

What are the implications of Chinese investments in Latin American resources for world markets, and for individual Latin American host countries? Are these investments part of a Chinese strategy to capture the world's resource base for China? Are there clear differences between Chinese owned and managed resource projects, and similar projects owned and managed by OECD-headquartered investors—with regard to labor practices, environmental practices, questionable payments, and corporate social responsibility? How can host policies in Latin America be structured—and enforced—to achieve most benefit from Chinese resource investments?

3. MOFCOM (Ministry of Commerce People's Republic of China) in ISI Emerging Markets (2011).

This paper first examines the impact of Chinese investments on world natural resource industries, testing whether the thrust of Chinese investment is to “lock up” global supplies, on the one hand, or to diversify and make more competitive sources of supply, on the other. The paper then turns to a structured case study of four major mining projects in Peru, comparing and contrasting the behavior of Chinese investors with the operations of a prominent non-Chinese investor according to a careful array of economic, social, and governance variables. The paper concludes with implications for developing and developed country policies, for multilateral lending institutions, and for international and local non-governmental organizations.

CHINESE INVESTMENT IN LATIN AMERICAN RESOURCES: IMPLICATIONS FOR WORLD MARKETS

On the demand side, Chinese appetite for vast amounts of energy and minerals puts significant strain on international markets for oil, natural gas, iron ore, coal, copper, nickel, aluminum, and other materials.

On the supply side, Chinese companies—backed by the Chinese government—have been acquiring equity stakes in natural resource companies, extending loans to mining and petroleum investors, and writing long-term procurement contracts for oil and minerals in Africa, Latin America, Australia, Canada, and other resource-rich regions. These activities have aroused concern that Chinese efforts to procure raw materials might be exacerbating the problems of strong demand—locking up natural resource supplies, gaining preferential access to available output, extending control over the world’s extractive industries.

But Chinese investments in Africa, Latin America, and elsewhere need not have this zero-sum effect. Chinese efforts to procure raw materials might actually help solve the problems of strong demand. Which outcome Chinese procurement arrangements generate depends upon whether those arrangements basically solidify a concentrated global supplier system (and enhance Chinese ownership/control within that concentrated supplier system), or expand, diversify, and make more competitive the global supplier system (and use Chinese ownership/control as a lever for such expansion, diversification, and enhanced competition).

What does evidence from Chinese resource procurement activities around the world show, and how do Latin American projects fit in?

The Chinese deployment of capital to procure natural resources takes four forms.

In the first procurement arrangement, Chinese investors take an equity stake in a very large already-established producer so as to secure an equity-share of production on terms comparable to other co-owners.

In the second procurement arrangement, Chinese investors take an equity stake in an up-and-coming producer so as to secure an equity-share of production on terms comparable to other co-owners.

In the third procurement arrangement, Chinese buyers and/or the Chinese government make a loan to a very large already-established producer in return for a purchase agreement to service the loan.

In the fourth procurement arrangement, Chinese buyers and/or the Chinese government make a loan to finance an up-and-coming producer in return for a purchase agreement to service the loan.

These four structures provide the basis for giving operational definition to “tying up” supplies. If the procurement arrangement simply solidifies legal claim to a given structure of production (first and third_structures), tying up, or gaining preferential access to, supplies has zero-sum implications for other consumers. What is noteworthy, however, is that if the procurement arrangement expands and diversifies sources of output more rapidly than growth in world demand (second_and fourth_structures), the zero-sum implication vanishes as all consumers (including Chinese purchasers) have easier access to a larger and more competitive global resource base.

Drawing on PIIE research carried out earlier (Moran 2010), appendix II shows a scorecard that classifies the sixteen largest Chinese natural resource procurement arrangements around the world within these four categories. The scorecard of China’s procurement arrangements shows a few instances in which Chinese natural resource companies take an equity stake to create a special relationship with a major producer. But the predominant pattern (thirteen of sixteen projects) is to take equity stakes and/or write long-term procurement contracts with the competitive fringe. A brief review of four smaller Chinese procurement arrangements undertaken at the same time does not suggest that there is significant selection-bias in looking at these sixteen largest projects. Three projects in Australia, Myanmar, and Canada show the characteristics of category II. One project in Indonesia, on the other hand, presented more of the characteristics of category I.

New research undertaken as part of this PIIE study provides a comprehensive examination of the universe of thirty-four Chinese natural resource investments and procurement arrangements in Latin America (see appendix I).

Twenty-five of the thirty-four Chinese investments and procurement arrangements serve to help diversify and make more competitive the portion of the world natural resource base located in Latin America. The preceding analysis holds some good news for Latin American host countries since it suggests that Chinese investors will be more willing to take on new frontier—or even fringe—projects that the major established oil and mining companies might pass by.

This strategy on the part of government-backed Chinese investors and lending agencies will not come as a surprise to those who have examined the evolution of the Japanese approach to natural resource procurement. In the early resource struggles of the 1970s, the Japanese government entertained the idea of creating the country’s own major “national champion” resource companies, or engaging in strategies I and III to secure a special relationship with major resource companies and/or producer governments.

From the late 1970s through the 1980s, however, Japanese policies shifted toward strategies II and IV, and Japanese procurement became a major force in enhancing the competitive structure of global extractive industries and diversifying the geography of production (Wells 1993). Japanese participation in Latin American mining projects today consists primarily of minority equity stakes in a large array of extractive projects, backed by purchase contracts for a portion of the output.

Thus it is vitally important that Chinese investment—like Japanese investment—continue to help solve demand-side problems by multiplying and diversifying sources of supply for energy and minerals.

CHINESE INVESTMENT IN LATIN AMERICAN RESOURCES: A COMPARISON OF FOUR PROJECTS (TWO CHINESE) IN PERU

Peru is a good Latin American case study because of its strong mining economy, open foreign investment regime, and longstanding presence of foreign mining companies—both OECD and Chinese-based. It is one of China's top 10 destinations for mining investment (see figure 1). Peru is the leading Latin American producer of gold, lead, silver, tellurium, tin, and zinc, and second most important regional producer of copper. In 2009, mining accounted for 6 percent of GDP and 60 percent of total exports and made up over 20 percent of Peru's \$19.4 billion inward FDI (PROINVERSION, 2011). This abundance of natural resources has made Peru the second largest destination for Chinese FDI in metals (see table 1).

According to Peru's investment authority, over 80 percent of Peru's 2010 FDI stock in the mining industry was sourced from OECD countries. Leading investors are the United Kingdom (45 percent), the United States (19 percent), followed by Brazil (15 percent), the Netherlands (5 percent), and Chile (4 percent). Canada, China, Japan, and "other" each comprise 3 percent (see figure 2).

China's interest in Peru has increased over the past decade. China has recently become the world's largest consumer of copper, consuming roughly 40 percent of world total in 2009.⁴ Copper is used in products such as air conditioners and auto parts, both important Chinese exports. China is also, as of 1992, the world's largest consumer of iron ore. According to Peru's ministry of mines, annual copper production is expected to double in the next four years, from a current 1.2 million fine metric tons, with the initiation of several new projects. Peru is now the largest supplier to China of lead, and second largest supplier of copper and zinc.⁵ China also relies heavily on other Latin American countries for its supply of copper, iron, and other products like soya beans and bovine meat. Chile is the number one supplier of

4. World Bureau of Metals Statistics. China drives 1.8 percent increase in global copper consumption in 2009. Business News Americas, April 11, 2011. Available at http://www.bnamericas.com/news/metals/China_drives_1,8*_increase_in_global_copper_consumption_in_2009_-_WBMS

5. United Nations Commodity Trade Statistics Database. Available at comtrade.un.org.

copper and molybdenum to China, and Brazil is the number one supplier of soya beans, bovine meat, and the second largest supplier of iron.⁶

In this paper we conduct a structured comparison of four Peruvian mines with foreign ownership. Two of these are OECD-based: Antamina (owned and operated by OECD country-based investors); Yanacocha, majority owned by US Newmont Mining, jointly with Peruvian company Buenaventura, and 5 percent held by the International Finance Corporation (IFC). The two others are Chinese interests: Shougang Hierro Peru, China's first major investment in Peruvian mining, and Aluminum Corporation of China Limited's (or Chinalco's) Toromocho open pit copper mine in the Junin region of Peru. We will consider each mine in terms of their fiscal regime, behavior with respect to environmental, safety, and worker regulations, linkages and relations with the local economy, expatriate record, and corporate social responsibility. We consider what conditions or policy measures are most effective in inducing Chinese investors to adopt international industry standards and best practices, and which are not? We then distill from this case study some lessons for other countries in Latin America, Africa, and elsewhere that intend to use Chinese investment to develop their extractive sectors.

Before delving into the structured comparison we provide a brief overview of Peru's policies towards foreign investors in the mining sector, the evolution of international mining standards, the evolution of Peruvian civil society vis-à-vis mining, and the evolution of Chinese companies' attitudes towards foreign investment.

Evolution of Peruvian Policy Towards Mining FDI

Peru is currently very open to foreign investment in the mining sector. This is a big change from the prevailing policies during much of the postwar period. From 1968 to 1990, Peru experienced a period of hefty government intervention in the economy under the left-wing Revolutionary Government of the Armed Forces, in which the military government took control of extractive industries through increased taxation and eventually expropriation. Restrictions were placed on the use of foreign capital, and local content and control requirements were put into place.⁷ In 1970 the government formed a state mining company, MINEROPERU, which absorbed a number of nationalized companies.⁸

6. United Nations Commodity Trade Statistics Database. Available at comtrade.un.org.

7. Peru was part of the Andean Pact/Group whose Article 24 contained the most restrictive foreign investment regime in Latin America. The Andean Pact's rules on foreign investment began to be relaxed in 1986.

8. These included Asarco, Cerro de Pasco, and Southern Peru Copper Corp (SPCC). On January 1, 1974, Cerro de Pasco was expropriated "in the interests of the country and as a social necessity." This expropriated company became Empresa Minera del Centro del Perú (CENTROMIN-PERU). Marcona Mining Company became HierroPerú in 1975. In February 1974, a US-Peruvian agreement provided a compensation schedule for properties taken over during 1968–73.

In 1990, the election of Alberto Fujimori ushered in a vast change in economic policy. Private sector involvement was actively encouraged and nearly all (about 90 percent) of the state-held mining assets were privatized. In 1991, Peru normalized its relations with multilateral institutions, the Paris Club, and commercial banks and introduced legislation aimed at providing legal stability for foreign investment.

Regulations on mining were also reformed in accordance with Fujimori's liberal economic policies. The Fujimori administration, in need of hard currency and as part of its International Monetary Fund (IMF) stabilization plan, declared the promotion of foreign investment in the mining sector a national priority. Peru's current legal framework is very open to investment in the mining sector. Peru became a member of the Multilateral Investment Guarantee Agency in December 1991. In December 1992 Peru signed an agreement with the Overseas Private Investment Corp (OPIC), which began approving requests for political risk insurance, including currency convertibility. The post-autogolpe 1993 Peruvian Constitution incorporated national treatment, establishing equal protection for domestic and foreign investors. The Fujimori government also instituted the use of stability contracts for mining companies, which fix a legal, tax, and administrative framework favorable to the mining companies for a period generally of 10 to 15 years, intended to attract multinational corporations to Peru. These stability contracts are protected by the 1993 Constitution, which prevents future governments from altering the conditions of the contracts.

These changes had an effect on Peruvian mining. Foreign investment in the mining sector since this period has been robust. Between 2000 and 2010, FDI in the Peruvian mining sector averaged \$2.59 billion a year, compared to just \$932 million per year between 1990 and 1999.⁹ Figures show that the mining sector attracted 37 percent of Peru's total FDI in the period of 2001–03, totaling \$2.2 billion.

After Fujimori left office both the short-lived Paniagua and the Toledo regimes—and later, the second Garcia administration—largely maintained the open economic policy, while placing greater weight on the pressing issues of inequality and poverty pervading Peru. For the mining sector this meant an increase in taxes. In 2002, the first year of the government's decentralization program, in which 25 regions were recognized as independent entities for the first time, the government established the Canon Minero, a mechanism for distributing a percentage (originally 20 percent but increased to 50 percent as a result of extensive lobbying to Congress) of the tax collected by the central government on revenue from mining companies to local and municipal governments of the region directly affected by mining activities. The objective is for mining profits to be used to finance investment in projects to benefit affected local people, particularly to improve infrastructure. This mechanism enables local communities to receive funds clearly traceable to mining activities in their region. Rules for redistribution under Canon Minero are highly controversial and have changed several times since the program's inception.

9. Agencia de Promoción de la Inversión Privada, Peru. Available at proinversion.gob.pe

In 2004, transfers amounted to 451 million nuevos soles (\$125 million). Subsequent rises in mineral prices have increased transfers by a factor of 12 (Arellano). In 2010, transfers totaled 3,233 million nuevos soles (about \$1.2 billion), more than 75 percent of these canon transfers went to 5 out of Peru's 25 regions (Ancash, La Libertad, Cajamarca, Arequipa, and Moquegua).¹⁰ This has created a sense of inequity among the regions that do not receive Canon funds. The relatively recent decentralization coupled with the significant increase in revenue has also placed a disproportionate burden on regional and local governments that often do not have the training or capacity to administer such funds.

Evolution of Civil Society Relations with the Mines in Peru

Peru has a long history with mining. Relations between the mines and the population affected by those mines has often been contentious. Historically, mining has been associated with environmental degradation and competition for resources—particularly land and water—between residents and mining companies. Traditional mining methods have led to pollution of the environment, displacement of people, and detrimental health and safety effects. Local communities have historically had little voice in decisions to locate mines. Paso-Font et al write that: “[t]he local population’s institutional and organizational weakness is one of the principal limitations to development. In the past, mining companies took advantage of these limitations in order to impose their own conditions. Nevertheless, when the local population perceived agreements as unjust, various problems and complaints arose against the operation, which ended up being costly in the long term.”

Peru’s first privatization under the Fujimori government was relatively contentious. The Shougang Corporation, China’s first investor in a Peruvian mine, received scathing local and international media coverage for inattention to worker safety and health, and has been subject to years of contentious strikes by the Peruvian labor force.¹¹ Other cases of local opposition to mining in Peru abound—and in several cases mining companies have been prevented from carrying out their activities or have changed course in response to local demands. One example is Canada’s Manhattan Minerals mining company, which was granted a concession by the Fujimori government in 1989 to establish an open pit mine near the town of Tambogrande in the Region of Piura. The mine lies in the middle of the San Lorenzo valley, where most of Peru’s limes and mangoes are grown, an activity that employs a large number of the local residents. The

10. Vigilancia de las Industrias Extractivas. 2011. *Reporte Nacional*, No.13. Lima: Grupo Propuesta Ciudadana. www.propuestaciudadana.org.pe.

11. See, for example, China Defies Peru Rescue of Miners Afflicted with Lung Disease, in Bloomberg’s July 23, 2008 reports; Workers at the Shougang Hierro Peru iron mine set to strike, March 29, 2010, worldlabour.org website; Peru’s Shougang’s iron mine halted by strikes, July 13, 2009, Reuters; Trabajadores piden a Shougang mejorar condiciones laborales, Peru miners feel oppressed by China’s Shougang, July 21, 2005, Reuters; Huelgistas de Shougang exigent mejores condiciones laborales, BNAmericas, August 20, 2002.

mine would have required the relocation of about half of Tambogrande's 16,000 residents. Manhattan Minerals promised better living conditions for relocated families and promised to build infrastructure and provide basic services. Manhattan's incentives were not enough to sway the local population, which, based on past experiences with mining in Peru, feared pollution of their water and thus loss of important agricultural jobs. The citizens of Tambogrande organized a petition drive and held a referendum in 2001, which came out overwhelmingly against the mine (Tambogrande's mobilization served as a model for the town of Esquel in Argentina, whose citizens opposed a gold mine in their community). In 2003 Centromin, the Peruvian Ministry of Mining decided that Manhattan Minerals had not complied with the financial requirements to advance the project and terminated its option agreement. Manhattan Minerals announced in 2005 that it would pull out of Peru forever, having lost \$60 million. Antamina revised its plan to build a road through protected parkland, opting instead for a much more expensive but less contentious pipeline. These cases demonstrate the growing power of local and international opposition to these costs, and the increasing need for mining companies to negotiate a "social license" in order to operate.¹²

The interaction of mines with the surrounding communities has been a long-standing area of tension in Peru. BHP Billiton, one of the investors in Antamina mine writes that "mining projects in Peru, as elsewhere in the world, are typically in remote areas, and surrounding communities are characterized by extreme poverty and limited services. Many historic environmental liabilities, mostly associated with land and water contamination, have been left unattended. There is a lingering perception among communities that mining projects have significant impacts upon people's health and their surrounding environment."

In May 2006 the mining sector's Corporate Social Responsibility (CSR) program was made into law. Under this law, municipalities and regional governments in areas where mineral resources (metals and industrial minerals) are exploited will receive 50 percent of the taxes collected to be invested in education and social programs (health, housing, and others) in conformance with the Canon Minero. This is supplemented by the so-called Mining Solidarity with the People (PMSP) program, implemented under the second Garcia Administration. The objective of the PMSP is "to contribute to improve the quality of life of the populations located in the area of influence of the respective mining activities." Payment into the PMSP is voluntary, although it is understood that this was implemented by the Garcia government in lieu of a mandatory tax. The PMSP should be paid for five consecutive years when (1) a company signs a

12. Yanacocha is an especially controversial case as it figured prominently in the secret tapes of Vladimir Montesinos. In addition to plots to fix elections, the tapes revealed contact with Newmont executives. An investigation into whether Newmont gained the Yanacocha concession as a result of bribes was dropped after the statute of limitations expired.

framework agreement with the state, (2) it has made profits during the year in question, and (3) prices are “extraordinary” during the year of calculation.

When these “voluntary” contributions were introduced, there was very little capacity at the local and provincial level to create or manage local spending efficiently and effectively. The OECD mining companies desired that rather large amounts of local funds be spent wisely, without corruption, which led the OECD companies to engage in capacity building about how to manage public expenditures. This drive on the part of the OECD mining companies led the Chinese investor Chinalco toward wanting the same and engaging in the same. The OECD mining companies led a major change in the development of relations with international and local civil society. The traditional role of non-governmental organizations (NGOs) in Peru was to monitor abuses, and engage in denuncias. Alongside this role, the OECD mining companies wanted to create new dialogues and partnerships with international and local NGOs, to pro-actively design and carry out programs related to community expenditures. The structure of the foreign investor civil society relationship changed, from purely confrontational to cooperative.

Over the past decade, civil society participation has increased considerably in Peru, particularly with respect to the relationship between communities and mines. Peru’s Mines and Hydrocarbons law requires companies to consult with local communities through public hearings. In June 2010 the Peruvian Congress approved the Law on the Right to Prior Consultation for Indigenous or Native Peoples.¹³ This law requires that local communities be consulted on any regulatory change that may affect them. Companies must now present their mandatory environmental impact assessments at public meetings in which local populations can ask questions and voice objections, which often must be taken into account. It is assumed that in Peru, a project that does not obtain the so-called social license (such as the case of Manhattan mining) will not be able to proceed.

A benefit from having a mine locate in a region has traditionally been the creation of local jobs. As mining has become more capital intensive and technologically complex, local communities have benefitted in that mining is less environmentally harmful and often safer than before. The skill set required for modern mining jobs is often not matched by the skill set of the local population, however. In response, many mining companies have initiated economic development programs, including training and education, agricultural development, and other programs to help stimulate and develop economic alternatives.

The increase in funds from the Canon and mining companies’ CSR programs have increased local expectations of what services the mines could and should provide. Mines are located in remote rural areas

13. Peru ratified International Labor Organization (ILO) Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries, which established in article 6 the right of native peoples to be consulted on matters affecting their territories and way of life in 1994.

generally populated by poor, largely indigenous, people. Mining companies often become targets for demands from these underserved populations, with the local populace expecting the companies to provide jobs as well as goods and services usually seen as public goods provided by government. As Epifanio Baca (2010) writes, “over the last few years, socio-environmental conflicts between extractives companies and local communities have spread throughout several regions in Peru, due to the perception by these communities that their economic and social rights are being violated. Additionally, they face a State that has little capacity and political will to uphold the quite permissive socio-environmental regulations.”

Changes in International Mining Standards

Over the past decade, international organizations, OECD donors, and international NGOs have intensified efforts to shed light on harmful mining practices, and have pushed to apply international standards to extraction activities in order to mitigate negative environmental and social externalities and to address the risks of corruption and mismanagement of government revenues from these activities. The result has been a clear trend in the mining industry towards integrating stakeholder concerns—with regard to labor practices, environmental practices, resource curse concerns, and corporate behavior—into operations. Over the past decade or so, large-scale OECD-based mining companies have increasingly adopted a new model for resource extraction, aimed at mitigating the social and environmental impacts wreaked by traditional mining techniques.

The main forum for promoting transparency is the Extractive Industries Transparency Initiative (EITI). The EITI is a coalition of governments, companies and other stakeholders, launched in 2002, which has developed an international standard for systematic reporting and auditing of payments by resource extracting companies and documenting the receipt of those payments by governments. Mining companies are also increasingly developing corporate social responsibility (CSR) strategies and working with local communities to help build economic development strategies.

China does not participate in the EITI. Chinese companies are more likely to participate in the UN Global Compact, a business framework through which companies commit to aligning their behavior with ten universally accepted principles on human rights, labor, environment, and anti-corruption. Shankleman (2009, 4) writes that “neither the government of China, nor any Chinese oil or mining companies are active within EITI except where Chinese companies operate in countries that implement transparency systems.” Peru, the host country for the subjects of our structured comparison, became an EITI candidate country in December 2010 and was designated “close to compliant” by the EITI Board. Peru published its first EITI Report in 2009 covering oil, gas, and mining payments to the government during the years 2004–07 (EITI 2011). The payments were presented in aggregated form so it was not possible for outside observers to discern how much individual companies paid. Current practices allow a

country to be EITI compliant with either aggregated or disaggregated payment disclosure. If Peru were to adopt a disaggregated standard (like Ghana, Liberia, Guinea, or Norway, for example), civil society and other observers would be able to identify how much Chinese investors were paying in relation to OECD investors.

Another forum is the International Council on Mining and Metals (ICMM); an organization dedicated to improving sustainable development performance in the mining and metals industry. ICMM engages with companies, local government, and NGOs to promote sustainable development. BHP Billiton, Mitsubishi, Teck, and Newmont are all ICMM members; Chinalco and Shougang are not. As members of the ICMM, companies commit themselves to implement the ICMM Sustainable Development Framework; a program to integrate a set of principles into corporate policy, and set up transparent and accountable reporting practices. Companies' progress is evaluated annually and published through the ICMM's website. In the 2010 annual review, all four companies received the highest rating.¹⁴

Domestically, there a number of organizations that have substantially improved the transparency of companies operating in Peru. Grupo de Dialogo Minería y Desarrollo Sostenible (GDMDS) and Grupo Propuesta Cuidanada have a large presence in Peru. GDMDS focuses on mining in relation to environmental protection and sustainable development. The organization brings together relevant stakeholders to promote transparency and cooperation. Both Antamina and Yanacocha contribute to GDMDS. Grupo Propuesta is also an NGO but focuses more broadly on the decentralization process in Peru, promoting transparency and greater participation of civil society in the democratization process. As part of their mission, Grupo Propuesta monitors the contribution of mining companies to fondos and the canon. The Grupo publishes an annual report on these activities and provide a transparency ranking on mining companies activities (see appendix III).

Changes in Practices of Chinese Companies

There are signs that Chinese companies, at the urging of the Chinese government, are starting to conform more closely to international standards. Major Chinese companies generally operate within a framework established by China's state-owned Assets Supervision and Administration Commission (SASAC). Chinalco, one of our case study companies, is one of the companies under the supervision of SASAC.¹⁵ Since the mid-2000s, domestic environmental standards have begun to become more stringent, and the Chinese government has pushed for companies investing abroad to pay attention to environmental and social factors as well as profit. Loosely defined corporate social responsibility requirements have been put

14. The Annual ICMM Report is available at www.icmm.com.

15. This list is regularly updated as smaller Chinese companies merge and are consolidated into larger ones, but an English language list as of August 2010 is available at <http://www.sasac.gov.cn/n2963340/n2971121/n4956567/4956583.html>

forth. Major Chinese companies have begun to publish CSR reports and develop philanthropic programs. Many mining companies have established in-house safety and environmental units.

Chinese mining companies with experience investing abroad have begun to show signs of having learned from their or their predecessors' experience, as Chinese companies began to be criticized internationally for their practices (again, see appendix V on Chinese mining companies in Africa). Chinese investors are beginning to demonstrate interest in acquiring better local knowledge, for example by producing feasibility studies in advance of beginning construction; taking seriously compliance with local and environmental, labor and land acquisition laws, and supporting local development projects through philanthropic activities. In our interviews in Peru, Chinese executives spoke (in excellent Spanish) of the large learning curve confronting Chinese investors when entering a country such as Peru with respect to local practices and mores.

In 2007, China Ex-Im Bank issued a document entitled Guidelines for Environmental and Social Impact Assessments of the China Export and Import Bank's Loan Projects (China Ex-Im Bank) requiring that borrowers follow host country laws and regulations and specifying the need for social and environmental assessments for overseas projects. China has also reacted by developing alternative means of obtaining resources that avoid local community involvement by providing loan financing to state companies (i.e., Russia and Brazil) in exchange for a guaranteed volume of sales of the resultant gas or oil to Chinese oil companies.

The Case Studies

In this paper, we examine two OECD cases and two Chinese-owned mines. Appendix III summarizes a more extensive comparison of the mines in terms of transparency, including publication of company practices and payment of social funds; fiscal practices, including payment of taxes and corrupt or questionable practices; treatment of workers, including safety practices, wages, and job creation for the local population; environmental practices; and corporate social responsibility.

The first two cases are OECD-owned mines. Yanacocha is a joint venture between Newmont Mining Company and the Peruvian Compañía de Minas Buenaventura, with a 5 percent stake held by the International Finance Corporation (IFC). It began operations in 1993. Antamina, which began production in June 2001 is a \$2.3 billion copper project, owned by a multinational group of international companies and financed by numerous export credit agencies and banks, with support from the World Bank's Multilateral Investment Guarantee Agency (MIGA).

Yanacocha had a rocky initial record in terms of appendix II's indicators, with officials accused of bribing the Fujimori regime in the mid-1990s, and a serious mercury spill in 2000 for which the company was fined \$500,000. Antamina has also experienced growing pains. A botched relocation effort

in its early days of operations has been detailed in a Harvard Business Review case study (Portocarrero et al 2007) as was Antamina's initial plan to build a road through national parkland—the target of much negative domestic and international attention (including concerns by Antamina's investors). The latter plan was ultimately abandoned in favor of a much more costly and cumbersome—but less controversial—decision to build a new pipeline.

In 2011, both mines show signs of complying with Peruvian and international standards in the indicators measured in table 3. Both companies publish annual reports as well as information on corporate social responsibility (CSR) activities and contact information on their websites.

In terms of transparency, both mines' owner companies are supporting companies of the Extractive Industries Transparency Initiative (EITI)—a coalition of governments, companies, and other stakeholders that has developed an international standard for systematic reporting and auditing of payments by resource extracting companies. Both also belong to the International Council on Mining and Metals (the principal group devoted to identifying best practices in mining), and participate in Grupo Dialogo Peru, a ten-year old initiative that gathers mining companies, local communities, and government representatives to talk about issues relating to mining. Antamina receives the highest transparency ranking by Grupo Propuesta Ciudadana, a group that tracks mining companies' transparency with respect to their disbursement of voluntary social funds. Yanacocha ranks fourth out of 39 companies ranked.

In terms of labor practices, Antamina offers the highest wages in the industry at all levels and is not cited as having serious labor infractions. According to an independent consultant's report, Yanacocha's wages are 24 times higher than the national average. In environmental standards, Antamina received complaints in 2001 and 2005 about the water at its port facility. In 2009 Antamina was certified as compliant with ISO 14001:2004. Yanacocha's reputation has suffered as a result of the 2000 mercury spill. In 2008 Yanacocha received ISO 14001 certification for its entire operation.¹⁶

Antamina has undertaken substantial corporate social responsibility efforts and is widely cited as engaging in dialogue with the local community and working with NGOs on development planning in these communities. The Ancash Association (a corporate foundation sponsored by Antamina, created in 2002) has developed projects in education, tourism, organic agriculture, fishing, and conservation of natural resources with an investment by Antamina of \$1.25 million. Antamina also launched a \$2.25 million extraordinary fund to support sustainable development in the region. Antamina has contributed \$65 million to the PMSP sustainability fund to improve the health, welfare, and education of indigenous populations that live in the areas near the mine site. Yanacocha's social programs concentrate on

16. ISO 14001:2004 is implemented through the International Organization for Standardization. It applies to any organization that wishes to establish, implement, maintain, and improve an environmental management system. ISO 14001:2004 outlines requirements for an environmental management system and applies to those environmental aspects that the organization identifies as those which it can control and influence.

infrastructure development and programs to develop productive activities, particularly in farming and livestock in Cajamarca. These activities are conducted in conjunction with local NGOs and foundations.

The Chinese-owned mines studied are Shougang Hierro Peru and Chinalco Toromocho, purchased in 2008 with operations slated to begin in 2012.

The first mining company privatized under Fujimori, the state-owned Hierro Peru (Marcona) mine was sold to China's state-run steel maker Shougang Group in November 1992. In addition to the \$118 million purchase price Shougang agreed to take responsibility for Hierro Peru's debt (\$42 million) and invest \$150 million over three years (1992–95). Shougang Hierro Peru took over management and operations in January 1993. As of 2005, Shougang's acquisition of Hierro Peru was reportedly the largest Chinese foreign investment in Latin America (Sanborn 2009, 227).

Newspaper reports reveal a sense of disappointment that permeates this case. China was originally hailed as a hero, bravely purchasing a mine in the middle of the desolate Shining-Path controlled desert. However, questions were raised since the very beginning about Shougang's corporate behavior. A government commission investigated irregularities in the privatization of Hierro Peru: the price Shougang paid far exceeds the base price established in a valuation study.

The Commission also found that Shougang reneged on its commitment to invest \$150 million in the community, only spending \$35 million and paying a \$14 million fine instead. As of 2011, Shougang is listed by the Superintendencia Nacion de Administracion Tributaria (SUNAT) as delaying its tax payments.

Labor relations have also not been stellar. The company brought in Chinese laborers and reduced the work force from 3,000 to 1,700. Shougang has been fined repeatedly for breaches of health, safety, and environmental practices. The Commission also investigated worker complaints about outdated and unsafe equipment. Miners complain that wages at Shougang are among the lowest in Peru's multi-billion dollar mining industry, at an average \$14 a day; the average miners' salary in Peru is \$33 a day, according to Peru's National Society of Mining, Petroleum, and Energy. In terms of living conditions, Shougan's facilities are, in the words of Miguel Santillana, researcher at the Instituto del Peru, "a disgrace" (Santillana 2011). The company reduced the size and quality of housing for miners and demonstrated a lack of sensitivity to the local population, leaving blocks of housing once occupied by workers vacant in a town with an acute housing shortage. Workers also complain that there has been no investment in the town of 13,000 that houses the miners.

Shougang has received four fines for environmental infractions. In 2002 Shougang was fined \$30,000 after the collapse of tailings thickener at the San Nicolas plant contaminated water supplies in Marcona and surrounding areas. Shougang is also accused of pumping waste water into the nearby San Nicolas Bay, where its deepwater port is located. In March 2006, the Ica regional government declared a

state of environmental emergency in San Juan de Marcona, a largely symbolic measure enacted to protest Shougang's activities.

Shougang and Antamina are at opposite ends of the spectrum in terms of corporate behavior. The question is which model Chinalco Toromocho will follow.

Neither Chinese company is an EITI supporting company, nor a member of ICMM. Neither participates in Grupo dialogo Peru. However, Chinalco largely left in place the management team of the previous owner, Peru Copper, a Canadian company. Until December 2010 the company's president was a Canadian who had previously worked at Antamina. Chinalco Toromocho's website is already much more informative than Shougang's. Although it has not yet begun operations, Chinalco has established a social fund, Fondo Social Toromocho. Chinalco is also investing in infrastructure for the local community through an agreement with the transport and communications ministry (MTC) and Colombian firm Sociedad Desarrollo Vial de los Andes (Deviandes) to rebuild 10 kilometers along a stretch of the Centro IIRSA highway that is on the Toromocho concession. The initiative will cost \$20 million. An environmental impact study (EIS) has been conducted, and as part of these proceedings, Chinalco has conducted public hearings with the local community.

One major difference between Shougang and Toromocho is that the latter, which has reportedly secured a \$21 billion loan from the China Export and Import Bank, will be subject to that entity's standards, revised in the mid-2000s.

Chinalco Toromocho has the opportunity to learn from both Antamina and Shougang's experiences. It is already facing its first major challenge: the relocation of an entire town. Chinalco will spend \$100 million to relocate the town of Morococha, a community of 3,400 inhabitants, which is currently located on the site where the mine will operate. According to Dr. Santillana, Chinalco has, so far, behaved much more cautiously and transparently than did Shougang, with more involvement of civil society.

What can the Peruvian government do to encourage firms to behave more like Antamina and less than Shougang? How can it avoid repeating the experience of several countries in Africa? A quick look at some indicators may provide some potential areas for action.

Peru has made significant economic strides since the early 1990s, gaining macroeconomic stability and taking advantage of high commodity prices in the mid-2000s. However, poverty and inequality persist. Currently, 6 percent of the population lives in extreme poverty (less than \$1.25 purchasing power parity (PPP)) and nearly 15 percent live on \$2 per day (PPP). Rural poverty is much higher than urban, with 60 percent of the rural population living at the poverty line, compared to 21 percent of urban. According to the Peruvian National Institute of Statistics and Information Technology (INEI), chronic malnutrition still affects 17.9 percent of children under 5-years-old (18.3 percent in 2009). Fifteen and a half percent of homes have no hygienic services (bathrooms, running water) and 17.5 percent of

rural residents were illiterate. Income distribution is relatively unequal, with a Gini coefficient of .48. Thirty-five percent of the country's wealth is held by the top 10 percent of the population, while the bottom 10 percent holds only 1.4 percent.

One factor often attributed to the persistent inequality is government ineffectiveness. Accordingly, Peru's performance on governance indicators is generally quite weak. Political rights and societal attitudes towards government have improved since the post-Fujimori political transition, but public administration, particularly at the regional and municipal levels, leaves much room for improvement. The judicial system also shows weaknesses. Thus, real obstacles remain to the provision of services to Peruvians living in outlying areas, who tend to be mostly poor and mostly indigenous, with lower human capital rankings and higher unemployment.

Institutions and governance structures are needed to provide public goods. In the absence of a government provider of public goods, people look to other sources to provide such services. When expectations are not met, social tensions and labor conflicts result. In Peru, mining companies have become the target for demands for public goods. This is a challenge, as direct payments of taxes to the government may not satisfy all parties and if institutions are weak, the benefits from taxation of mining companies or funds set up in collaboration with the government will not benefit local communities.

We use the World Bank's governance indicators to illustrate Peru's institutional situation. These indicators are compiled from a wide variety of sources (for more information on these indicators see Kaufmann et al 2010). The Worldwide Governance Indicator (WGI) defines governance as "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them" (Kaufmann et al 2010).

Table 2 shows that Peru has changed since the 1990s when Shougang began its operations. The increased scores on voice and accountability show the greater roles of civil society actors and political stability has significantly increased. The transition from Fujimori to democratic administrations in the 2000s has led to greater participation and trust in the political process, but no great improvements in the public administration and in deliveries of public goods, particularly those that allow a thriving private sector. Worrying, though, are the significant drops in Government Effectiveness and Control of Corruption. The former illustrates one reason that mining companies in Peru attract so much attention and are under such pressure to provide the public goods that government does not.

Compared to African countries, Peru seems in a relatively strong position. Table 3 shows Transparency International's corruption perceptions index for all African and Latin American countries with gold, copper, or iron ore mining. Peru's score of 3.5 is about average for Latin America, but better than all but five African countries.

LESSONS AND POLICY IMPLICATIONS

What are the lessons from this structured comparison of a Chinese and a non-Chinese mining project? How can host policies in Latin America be structured—and enforced—to achieve most benefit from Chinese resource investments?

Our research has found that Chinese investment in Latin America predominantly expands and makes more competitive the global resource base. Chinese investors tend to be more willing to take on new frontier projects that others pass up.

This good news could turn to bad news, however, if Chinese companies, traditionally guided by a principle of nonintervention, are not held to high standards of corporate behavior. International standards have become more stringent over the past decade in terms of labor and environmental practices, transparency and control of corruption, and community outreach and support.

A company such as Yanacocha, which began with a problematic record in terms of community outreach, questionable practices, and environmental issues has, in the past decade, brought its practices up to international standards. Antamina, which began operations in the 2000s, has consistently helped set the standards in Peru. Shougang Hierro Peru, which does not participate in international forums, nor hold itself accountable to shareholders, has shown far less evidence of changed behavior. However, its expansion, financed by external creditors, will be a proving ground. Chinalco, under the guidelines of China's new policies towards foreign investment, shows efforts to meet international standards.

The bottom line is that how natural resource investors behave in a market depends on a number of factors—not just the source of the investment, though that matters as well, especially when it is in a country that has few mechanisms for transparency and accountability.

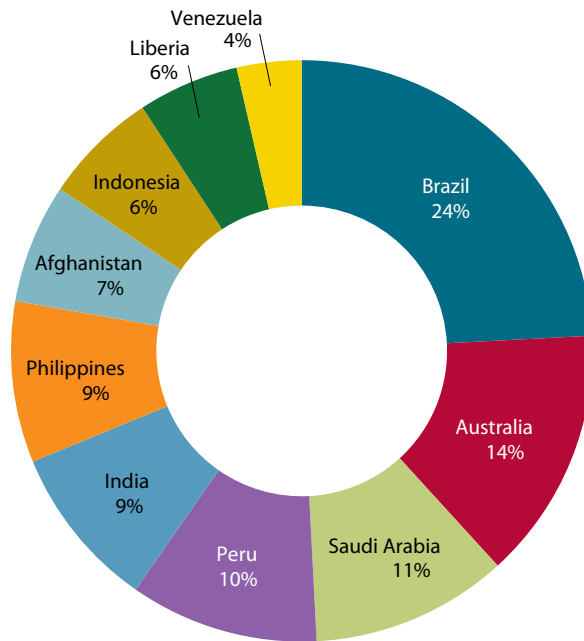
Here are several lessons that can be drawn from the Peruvian experience:

- **Financial markets bring accountability.** Investors that have to withstand scrutiny as they register their equity, raise capital, and seek multilateral assistance in international markets tend to adopt defensible standards, or face reputational risk. Supporting groups that monitor the activity of corporations helps to shed light on both positive and negative practices and helps encourage constructive behavior.
- **The host country regulatory environment makes a big difference.** The business environment (along with tolerance of civil society participation) was very different before and after the Fujimori regime in Peru, and the behavior of companies reflects this. Chinese investor behavior in some African countries reflects the inability or unwillingness of leaders to set or to enforce corporate behavior standards. Over the course of our research, weak institutional capacity and political will were cited repeatedly as factors limiting the potential for a positive development impact. The obligation to direct substantial tax revenues to provincial and local governments led OECD companies to set up

programs to help authorities spend the funds effectively, and to seek out partnerships and dialogue with civil society actors who could help.

- **Foreign investment is a catalyst for change.** Using foreign investment in the extractive sector for broad-based national development has some of the attributes of a public good: International standards (IFC, ICMM), support for capacity-building and enforcement of international standards (World Bank trust fund, revenue watch), and institutions to provide credible monitoring (EITI, global witness, publish what you pay) are needed to shape the pure play of market forces. Antamina in Peru is an example of this, often mentioned by other companies and by Peruvian officials as setting the standards for others to follow. In the words of David Splett, Antamina's vice president for finance, "companies can fulfill a significant role in a country when institutional and social weaknesses exist. Antamina is an excellent example of what companies can do in helping communities address social and infrastructure needs. But to do this there needs to be significant leadership provided at the executive level to set the standards."

Figure 1 Top 10 destinations for Chinese mining investment, 2003–11



Source: fDi Markets.

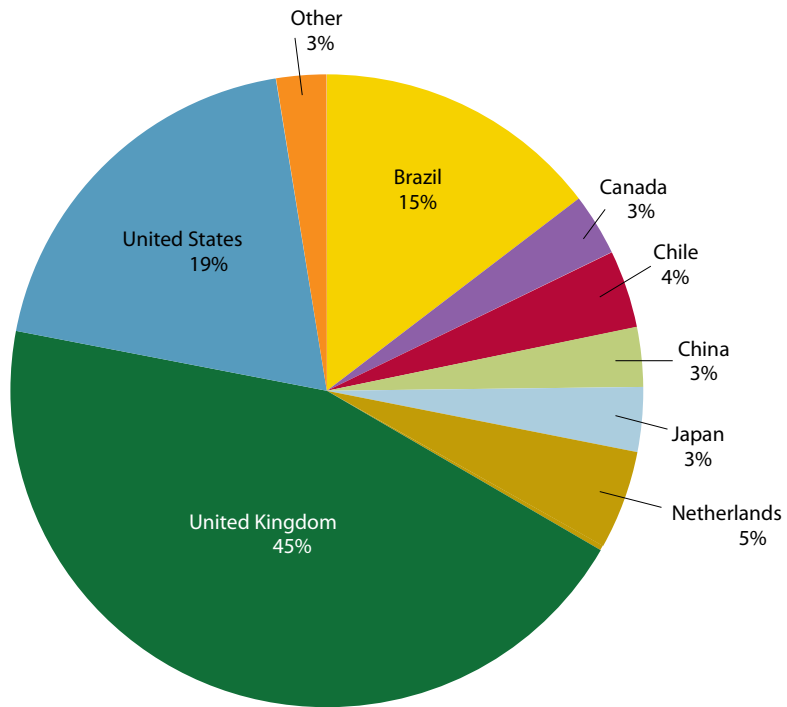
Table 1 Chinese FDI in Latin America mining (2003–11)

	Millions of US dollars	Rank
Argentina	47	4
Bolivia	2	7
Brazil	11,449	1
Colombia	10	6
Ecuador	n.a	n.a
Guyana	1,000	3
Peru	4,890	2
Venezuela	15	5

FDI = foreign direct investment

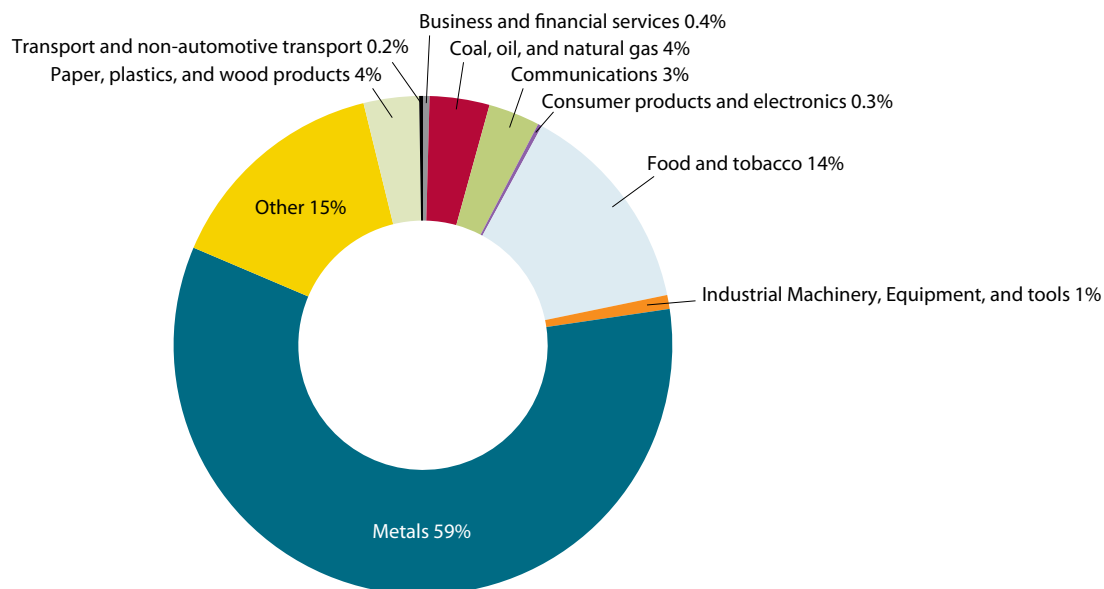
Source: fDi Markets.

Figure 2 Country composition of FDI stock in the mining industry, Peru 2010



FDI = foreign direct investment
Source: PROINVERSION 2011.

Figure 3 Chinese FDI in South America by Sector, 2003–11



Note: "Other" includes industrial machinery, equipment, food, and tobacco

FDI = foreign direct investment

Source: fDi Markets.

Table 2 Governance indicators

	Voice & accountability		Political stability	
	1996	2009	1996	2009
PERU	40	50	12	18
	Government effectiveness		Regulatory quality	
	1996	2009	1996	2009
	51	43	69	64
	Rule of law		Control of corruption	
	1996	2009	1996	2009
	30	30	52	45

Source: World Bank WGI.

Table 3 CPI score 2010

Country/territory	Rank	CPI score (2010)
Chile	21	7.2
Uruguay	24	6.9
Botswana	33	5.8
South Africa	54	4.5
Namibia	56	4.4
Tunisia	59	4.3
Ghana	62	4.1
Brazil	69	3.7
Colombia, Peru	78	3.5
Malawi, Morocco	85	3.4
Liberia	87	3.3
Swaziland	91	3.2
Egypt, Burkina Faso, Mexico	98	3.1
Zambia	101	3
Senegal, Algeria, Argentina	105	2.9
Gabon, Bolivia	110	2.8
Mozambique, Ethiopia, Tanzania, Mali, Guyana	116	2.7
Madagascar, Eritrea, Niger	123	2.6
Uganda, Ecuador	127	2.5
Zimbabwe, Nigeria, Sierra Leone	134	2.4
Mauritania	143	2.3
Cameroon, Cote d'Ivoire	146	2.2
Kenya, CAR	154	2.1
Guinea, DRC, Venezuela	164	2
Angola, Equatorial Guinea	168	1.9
Burundi	170	1.8

CAR = Central African Republic

DRC = Democratic Republic of the Congo

Note: The Corruption Perceptions Index (CPI) is an aggregate indicator that ranks countries on a scale from 10 (very clean) to 0 (highly corrupt), according to perception of corruption in the public sector. The CPI draws on different assessments and business opinion surveys carried out by independent and reputable institutions.

Appendix I

Category I: Special relationship with major producer

Buyers and/or their home governments take an equity stake in a "major" producer to procure an equity share of production on terms comparable to other co-owners.

1. CNOOC and Bidas Corporation, Argentina, 2010
 2. Shanghai Baosteel and Vale, Brazil, 2001
 3. Chalco and Vale, Brazil, 2004
 4. Chalco and Vale, Brazil, 2004
 5. CNPC's acquisition of the Intercampo and Caracoles oilfields from Petroleos de Venezuela SA, Venezuela, 1997
 6. CNPC and Petroleos de Venezuela, Venezuela, 2008
-

Category II: Special relationship with competitive fringe

Buyers and/or their home governments take an equity stake in an "independent" producer to procure an equity share of production on terms comparable to other co-owners.

7. Shandong Gold Group and Energia y Minerales Soceidad del Estado, Argentina, 2010
 8. Minmetals and Vale, Brazil, 2004
 9. Minmetals and Cosipar Group, Brazil, 2007
 10. WISCO and EBX, Brazil, 2009
 11. Wuhan Iron & Steel Co. Ltd. And MMX Sudeste Mineracao SA, Brazil, 2010
 12. Sinopec and Petrobras, Brazil, 2004
 13. Sinopec and Repsol YPF SA, Brazil, 2010
 14. Minmetals and Codelco, Chile, 2006
 15. Shunde Rixin and government of Chile, Chile, 2009
 16. CNPC's development of Atacapi and Parahuacu blocks, Ecuador, 2003
 17. Sinopec and ConocoPhillips, Ecuador, 2003
 18. CNPC and Sinopec's acquisition of Encanna, Ecuador, 2006
 19. Bosai Minerals and the government of Guyana, Guyana, 2008
 20. CNPC and PlusPetrol Norte SA, Peru, 2004
 21. CNPC's development of Block 6 and 7 of the Talara oilfields, Peru, 1993 and 1994
 22. Shougang's acquisition of Hierro Peru, Peru, 1992
 23. Zijin Mining and Monterrico Metals, Peru, 2007
 24. Shougang Hierro Peru's expansion of the Marcona mine, Peru, 2007
 25. Chinalco's acquisition of the Toromocho Copper Project, Peru, 2008
 26. Minmetals and Jiangxi Copper's acquisition of Northern Peru Copper, Peru, 2007
 27. Zibo Hongda Mining Industry Co. Ltd.'s acquisition of Pampa de Pongo iron ore mine, Peru, 2009
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Category III: Loan capital to major producer to be repaid in output

Buyers and/or their home governments make a loan to a "price maker" producer in return for a purchase agreement to service the loan.

28. China Development Bank and Petrobras, Brazil, 2009
 29. Shanghai Baosteel and Vale, Brazil, 2003
 30. China Development Bank and CNPC with the Venezuelan Social Development Bank and Petroleos de Venezuela, Venezuela, 2010
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Appendix I (continues)

Category IV: Loan capital to competitive fringe to be repaid in output

Buyers and/or their home governments make a loan to a "price taker" producer in return for a purchase agreement to service the loan.	31. CITIC's investment to build a pig iron plant, Brazil, 2004
	32. China Development Bank and the government of Ecuador, Ecuador, 2009
	33. CPEB and Petro Ecuador and the Ecuadorian Ministry of Energy and Mining, Ecuador, 2003
	34. Shandong Gold Group and Corporacion Venezolano de Guyana, Venezuela, 2003

Chalco/Chinalco = Aluminum Corporation of China

CITIC = CITIC group (formerly China International Trust and Investment Corporation)

CNOOC = China National Offshore Oil Corporation

CNPC = China National Petroleum Operation Company

CPEB = Changqing Petroleum Exploration Bureau

Sinopec = China Petroleum and Chemical Corporation

WISCO = Wuhan Iron & Steel Co. Ltd.

Sources: FDIMarkets.com, RHGroup, author's calculations.

Appendix II

Category I: Special relationship with major producer

Buyers and/or their home governments take an equity stake in a "major" producer to procure an equity share of production on terms comparable to other co-owners.	1. Sinopec, CNOOC in Angola 2004
	2. CNOOC Acquisition of 45 percent Ownership of Akpo Field, Nigeria 2006

Category II: Special relationship with competitive fringe

Buyers and/or their home governments take an equity stake in an "independent" producer to procure an equity share of production on terms comparable to other co-owners.	3. CNPC and GNPOC in Sudan 1996
	4. CNPC and Sinopec with PetroDar Operating Company, Sudan 2001
	5. CNOOC-North West Shelf Venture, Australia 2002
	6. CNOOC-Unocal 2005 (aborted)
	7. CNPC and PetroKazakhstan 2005-2009
	8. Chalco-Aurukun Australia Bauxite Project 2007
	9. Sinopec and the Yadavaran Oil Field in Iran 2007
	10. Socomin Joint Venture in the Democratic Republic of Congo to Finance \$9 billion in Infrastructure 2008
	11. Chinalco-Rio Tinto 2008-2009 (aborted)
	12. Sinopec Proposed Acquisition of Addax Petroleum for \$7.2 billion in 2009
	13. CNPC-Development of South Pars Gas Field in Iran 2009
	14. CNPC-South Azadegan Gas Field in Iran 2009

Category III: Loan capital to major producer to be repaid in output

Buyers and/or their home governments make a loan to a "price maker" producer in return for a purchase agreement to service the loan.	15. China Development Bank Loan to Rosneft and Transneft of Russia
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Category IV: Loan capital to competitive fringe to be repaid in output

Buyers and/or their home governments make a loan to a "price taker" producer in return for a purchase agreement to service the loan.	16. Sinopec-Petrobras 2009
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Chalco/Chinalco = Aluminum Corporation of China
CNOOC = China National Offshore Oil Corporation
CNPC = China National Petroleum Operation Company
GNOPC = Greater Nile Petroleum Operating Company
LNG = liquefied natural gas
Sinopec = China Petroleum and Chemical Corporation
Unocal = Union Oil Company of California

Source: Moran 2010.

Appendix III

Start of operations	Chinese-owned mines		OECD-owned mines	
	Shougang Hierro Peru 1992	Chinalco 2012 (scheduled)	Yanacocha 1993	Antamina 2001
Type of mine	Iron ore	Copper	Gold	Copper-zinc
Ownership	Shougang Group Corp. (100%)	Chinalco (100%)	Joint venture: Compania de Minas Buenaventura S.A. (43.6%) Newmont Mining Corp. (51.3%) IFC (5%)	Joint venture: BHP Billiton (33.75%) Xstrata (33.75) Teck (22.5%) Mitsubishi (10.0%)
Financing	Shougang (100%)	China Development Bank (67%) Chinalco (33%)	Some IFC financing	Financed by 22 export credit agencies and banks, including the World Bank's Multilateral Investment Guarantee Agency
Listed on international stock exchange	No	Yes	Yes	Yes
Transparency indicators				
EITI supporting company	No	No	Newmont Mining Corp.	BHP Billiton Xstrata Teck Mitsubishi
Members of ICMM	No	No	Newmont Mining Corp.	BHP Billiton Xstrata Teck Mitsubishi
Participates in Grupo Dialogo Peru (fund)	No	No	Yes	Yes
Transparency ranking (out of 100) ¹	36.0	n/a	77.5	94.5
Financial indicators				
Reports of corruption	A Peruvian Government commission investigated irregularities in the privatization of Hierro Peru. The price Shougang paid (\$311.8 million) far exceeded the base price established in a valuation study (\$26.2 million).	No	In 1994 a Newmont Mining Corp. executive was filmed bribing the de facto chief of the secret police, to influence a court decision on the sale of share of the company.	No
Company is listed on SUNAT's list of "delays" in taxes?	Yes	No	No	No
Contribution to a PMSP	Yes: s/.2 million (\$0.7 million) in 2010; 49 registered PMSPs	No	Yes: s/.80 million (\$29 million) in 2010; 85 registered PMSPs	Yes: s/. 125 million (\$46 million) in 2010; 423 registered PMSPs
Participation in a Fondo Social Internal and external audit	No 2009 application to the Ministerio de Energia y Minas de Peru to expand operations at Marcona. Have used different firms for their annual financial report including PriceWaterhouseCooper in 2010.	Yes 2009 EIA	No 2006 EIA PriceWaterhouseCooper has prepared their financial report since 2006.	No 1998 EIA From 1999–2007 subject to MIGA reviews.

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Appendix III (continued)

Start of operations	Chinese-owned mines		OECD-owned mines	
	Shougang Hierro Peru 1992	Chinalco 2012 (scheduled)	Yanacocha 1993	Antamina 2001
Type of mine	Iron ore	Copper	Gold	Copper-zinc
	Treatment of workers			
Wages	As of 2009 wages range from \$11 to \$18 per day (on average \$435/month).	n/a	In 2006 wages averaged \$722 per month.	In 2009 the minimum starting salary was \$850 per month.
Training programs for employees	Yes	Yes	Yes	Yes
Housing for employees and their families	Yes, but reportedly sub-standard.	In the process of construction.	Yes	Yes; expanded in 2010.
Medical facilities	Yes	Yes	Yes	Yes
Education support	Yes	Yes	Yes	Yes
Health and safety issues	Fined Shougang on four occasions for breaches of health, safety, and environmental practices. The Supervisory Agency for Energy and Mining Investment also investigated workers' complaints about unsafe equipment. Shougang's worker union (FNTMMSP) claims that safety standards are minimal.	No	In June 2000 mercury spilled from a transport vehicle near the communities of San Juan, Choropampa, and Magdalena. With the assistance of the Ministry of Health, Yanacocha conducted diagnostic tests, initiated treatment, and cleaned up the affected area. They also initiated an environmental and health monitoring program.	No
Reports of violation of rules on foreign labor	Yes: The company was accused of bringing labor from China in the early years of operation.	No	No	No
Relation with communities, civil society, and governments	Shougang has been remiss to meet obligations to the community that were part of its purchase agreement. Shougang committed to invest \$150 million over a three-year period (1992-95), but failed to make any payments. They incurred a \$14 million fine instead.	In 2006 there was a dispute between the Centro Poblado Menor de Combayo over community development. The dispute was resolved through consultations mediated by MINEM.	No	In 2006 there was a dispute with the Comunidad Campesina de Ango Raju over funding for the community. The dispute was resolved through consultation, mediated by MINEM.
Environmental regulations				
Empirical record	Repeated violations; incurred fines.	n/a	Major mercury spill in 2000; fined \$500,000.	2001, 2005 dispute over water contamination.
ISO 14001 certification	Yes	Yes	Yes	Yes

(continues on next page)

Appendix III (continued)

Start of operations	Chinese-owned mines		OECD-owned mines	
	Shougang Hierro Peru 1992	Chinalco 2012 (scheduled)	Yanacocha 1993	Antamina 2001
Type of mine	Iron ore	Copper	Gold	Copper-zinc
Closure plan	Included in Shougang's expansion application, presented to MINEM in 2009.	Included in Chinalco's EIA, submitted in 2009. Prepared by Knight Piésold Consulting.	Yes; prepared by Knight Piésold Consulting.	Yes; prepared by Klohn Crippen.
		Life-cycle planning		

1. The transparency ranking is conducted by Grupo Propuesta Ciudadana, a Peruvian non-profit organization. The ranking is based on the a company's contribution to the Programa Minero de Solidaridad con el Pueblo (PMSP). The PMSP is a voluntary program of financial contribution to "mining funds" that finance projects to benefit the local and regional population. For more details about the ranking see <http://www.descentralizacion.org.pe/>.

2. SUNAT is the Superintendencia Nacional de Administración Tributaria; a government agency responsible for the collection of tax revenue.

EITI = Extractive Industries Transparency Initiative

ICMM = International Council on Mining and Metals

IFC = International Finance Corporation

MINEM = Ministerio de Energía y Minas (Ministry of Energy and Mines)

ISO = International Organization for Standardization

EIA = Environmental Impact Assessment

Source: China Internet Information Center (2011), Comisión Nacional Supervisora de Empresas y Valores (2011), Compañía Minera Antamina S.A. (2009), Grupo Propuesta Ciudadana (2011), Knight Piésold Consulting (2009), Mendoza, Antonio Eng (2010), Shougang Hierro Peru (2009), SUNAT (2011), Yanacocha (2007, 2009).

Appendix IV World Governance Indicators scores for mining countries in Africa and Latin America and for China, 2009

	Voice & accountability		Political stability		Government effectiveness		Regulatory quality		Rule of law		Control of corruption	
Chile	75	Botswana	80	Chile	86	Chile	94	Chile	88	Chile	90	
South Africa	66	Namibia	75	Botswana	70	Botswana	69	Botswana	67	Botswana	76	
Brazil	62	Chile	69	South Africa	68	Peru	64	Namibia	61	Namibia	63	
Ghana	61	Zambia	64	Namibia	61	South Africa	64	South Africa	56	Ghana	60	
Botswana	59	Brazil	54	Brazil	58	Colombia	57	Ghana	52	South Africa	60	
Namibia	57	Ghana	50	China	58	Brazil	55	Brazil	50	Brazil	56	
Argentina	56	Tanzania	48	Ghana	57	Ghana	55	Burkina Faso	47	Colombia	48	
Peru	50	South Africa	44	Colombia	56	Namibia	54	China	45	Peru	45	
Bolivia	46	Argentina	43	Peru	43	Burkina Faso	49	Colombia	40	Burkina Faso	40	
Tanzania	43	Burkina Faso	40	Argentina	40	China	46	Tanzania	40	Tanzania	40	
Colombia	42	Angola	36	Tanzania	39	Tanzania	38	Zambia	38	Argentina	38	
Burkina Faso	41	China	30	Burkina Faso	32	Zambia	36	Niger	32	Zambia	37	
Ecuador	40	Ecuador	21	Zambia	30	Niger	34	Argentina	30	China	36	
Zambia	39	Bolivia	20	Bolivia	28	Argentina	21	Peru	30	Niger	31	
Niger	28	Peru	18	Niger	25	Bolivia	18	Angola	12	Bolivia	28	
Venezuela	27	Niger	14	Ecuador	22	Angola	17	Bolivia	10	Ecuador	18	
Angola	15	Venezuela	11	Angola	20	Guinea	10	Ecuador	8	Venezuela	8	
Congo, Dem. Rep.	9	Zimbabwe	10	Venezuela	19	Ecuador	6	Venezuela	3	Guinea	7	
Guinea	9	Colombia	7	Guinea	8	Congo, Dem. Rep.	4	Congo, Dem. Rep.	2	Angola	5	
Zimbabwe	7	Guinea	5	Congo, Dem. Rep.	2	Venezuela	4	Guinea	2	Congo, Dem. Rep.	3	
China	5	Congo, Dem. Rep.	3	Zimbabwe	2	Zimbabwe	1	Zimbabwe	1	Zimbabwe	2	

Source: World Bank World Governance Indicators (WGI) database.

Appendix V

CHINESE FDI IN AFRICA

Sino-African relations began in the 1950s and 1960s when China started financing the liberation movements of many African nations seeking independence from colonial rule. In 1963 Chinese Premier Zhou Enlai toured ten African countries—a milestone in the development of friendly relations between China and Africa. During this time period China developed the “Five Principles of Peaceful Coexistence” which outlined China’s support of: (1) independence, (2) respect for sovereignty, (3) peace, neutrality, and non-alignment by governments, (4) peaceful resolution of disputes, and (5) achievement of unity and solidarity (MFAPRC 2000). It was not until the 1990s that the Sino-African relationship evolved into a market-based approach, centered on China’s strategy of encouraging companies to expand through outward FDI and trade to secure new markets and natural resources. In the first half of the 1990s FDI flows into Africa averaged \$14 million per year. In 2005 they were \$392 million, and in 2010 they had jumped to \$9 billion, making Africa China’s third largest FDI market (OECD 2008). A similar pattern can be seen in trade. In 1990 Chinese imports from Africa were \$235 million; in 2010 they were \$49 billion, making them Africa’s largest trading partner (IMF 2010).

Chinese FDI in natural resources is concentrated in Angola, Sudan, Equatorial Guinea, and Nigeria for oil; and in Zambia, the Democratic Republic of Congo, South African, Zimbabwe, and Gabon for minerals and metals. As with Latin American markets, Chinese FDI has mainly taken the form of joint ventures and equity stakes with local enterprises, led by government-backed state-owned enterprises, or SOEs (OECD 2008). What stands out in the African experience however, is the bundling of aid and investment. Most bids are coupled with loans, infrastructure projects, and debt cancellation. Because the investment loans come predominantly from Chinese SOEs backed by state financing they are not subject to the same standards as international lending agencies like MIGA and the IFC.

Bundling Loans and Investment

In 1998 China Nonferrous Metals Industry bought a majority stake in the Chambishi copper mine and has since provided \$800 million in loans and cancelled \$350 million of bilateral debt (Carmody and Taylor 2009). In 2006 Sinopec and the Chinese Ex-Im Bank offered Angola a \$2 billion oil-backed loan and acquired a 40 percent stake in Block 18 of Angola’s oil field, and entered into a joint venture with a local enterprise Sonangol, to build an oil refinery. The same year China National Offshore Oil Corporation (CNOOC) bought a 45 percent stake in the Akpo oil field in Nigeria and was given preferential access to seven oil blocks in exchange for \$2.5 billion in loans. In 2009 China announced \$13.5 billion in loans (securitized against copper and cobalt supplies) to the Democratic Republic of the Congo (DRC) for infrastructure and mining operations, including the construction of the Chembe bridge between Zambia and the DRC; a crucial trade route (Gonzalez-Vicente 2009).

Labor and Environmental Violations

The literature on Chinese FDI in African natural resources indicates that weak regulations, domestic regulations, and a lack of standardized rules and guidelines for Chinese companies operating abroad has resulted in extremely low pay, hazardous work environments, and local corruption. Below we outline a few cases.

Labor Violations in Zambia

In 2005 49 workers were killed at the Chambishi copper mine in Zambia, during an explosion in the mines' explosives factory. An investigation of the incident revealed the explosion was caused by inadequate safety measures. However reports indicate that the Non-Ferrous Company Africa (the Chinese SOE that owns and operates the Chambishi mine) was never penalized, and in 2007 President Mwanawasa gave the go-ahead for the re-construction of the explosive factory (Haglund 2008). In 2010 13 workers were shot during a protest opposing low wages and poor working conditions, held at the Chinese-run Collum coal mine in Zambia. Two Chinese supervisors, Xiao Lishan and Wu Jiuhua, were arrested and charged with attempted murder; however charges were dropped the following year (Bearak 2011).

Environmental Violations in Zambia and Gabon

During the period of privatization that occurred in Zambia during the 1990s, the government applied environmental standards on a case-by-case basis, negotiating with individual companies. The Zambian Environmental Act that was created during the privatization process places the onus on companies to report environmental performance. The Environmental Council of Zambia (ECZ) responsible for monitoring environmental performance suffers from a shortage of funding, skilled employees, and outdated legislation that gives them little, if any capability to monitor and enforce environmental standards. The general lack of common standards and reporting methods has resulted in egregious environmental violations by Chinese firms. For example tailings from the Konkola Copper Mine have leaked into the Kafue River on three separate occasions, the most recent incident in January 2011. In Gabon, Sinopec began oil exploration in the Loango National Park—a nature sanctuary—before the Environmental Impact Assessment (EIA) had been approved by the Ministry of Environment (Bosshard 2008).

THE ROAD TO IMPROVEMENT?

Despite China's violations in the past, they are showing some improvements on standards and regulations. In August 2007 China's Ex-Im Bank issued specific guidelines on social and environmental impact assessments, requiring projects to comply with host-country policies. The same year China's State

Environmental Regulatory Commission and the State Environmental Protection Administration (SEPA) announced the “green credit policy” that stipulates stricter lending policies based on environmental assessments, stricter inspections of companies suspected of violating environmental standards, and linking environmental regulations and compliance to company listings. The same year Zijin Mining closed five of its polluting mines in order to receive SEPA’s approval for listing shares on the Shanghai stock exchange (Bosshard 2008). Also in 2007, Sinopec and the government of Gabon reached an agreement on environmental standards and audit protocols for the exploration of oil deposits in the Laongo National Park (Deutsch 2010).

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