

China's Rising Demand for Minerals and Emerging Global Norms and Practices in the Mining Industry

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Introduction

This FESS *Working Paper* examines the disjunction between the current mining practices of Chinese state companies and emerging international norms and host community expectations in the global minerals market. The paper argues that if China does not move toward the observance of new international norms for responsible mining, especially those dealing with interests and concerns of local communities, the result may be increased tensions and conflict in those parts of the world where Chinese mining companies are operating, with potentially negative consequences for China's own interests and economic development.

China's Search for Minerals

China's growing presence in many developing countries in pursuit of mineral exploration and extraction has been noted widely in press reports (*Global News Wire-Asia Africa Intelligence Wire* 2006; *Ottawa Citizen* 2006; *Latin America News Digest* 2006; Reed 2006; Macartney 2006; Namjil 2006; Foley 2006), and its imports of a long list of minerals have been increasing rapidly. Data for the increase between 2004 and 2005

Table 1

China's Imports of Selected Minerals: Change from 2004 to 2005	
Minerals	Change (%)
Silver sands and concentrate	172
Tungsten sands and concentrate	115
Tin ingot	97
Tungsten products	95
Refined zinc	64
Refined tin, tin alloy	63
Copper concentrate	41
Coal	40
Iron ore	32
Lead concentrate	24
Antimony concentrate	22
Scrap copper	22
Alumina	19
Crude oil	4
Crude oil	3
Refined copper	2

Source: *Mining Magazine* 2006

are typical of the recent surge (see Table 1).¹ The total value of China's mineral imports reached \$660 billion in 2005 (*Mining Magazine* 2006).

In order to sustain its high rate of economic growth and an increasingly affluent and expanding middle class, China needs huge amounts of minerals, from metallic and non-metallic minerals to energy minerals.² In 2005 alone, China used 26 percent of the world's steel and 47 percent of its cement (World Watch Institute 2006). China is both the world's largest producer *and* consumer of coal, with a record high 2.2 billion metric tons of coal mined in 2005. It is already the world's largest consumer of refined lead (*Mining Magazine* 2006). By 2020, China also is expected to take up more than one fifth of the world's copper consumption.³

China's success in winning access to resources all over the world is linked to an effective strategy that combines trade inducements, increased investment flows, aid for infrastructure and construction (mainly transportation projects to enable better delivery), technology transfers, and very importantly, a willingness to ignore human rights violations and other questionable practices of authoritarian host countries. The high demand, coupled with the resulting rise in mineral prices, has caused the governments of many mineral-rich countries, particularly the poorer ones, to respond positively to China's overtures.

Community Concerns

Communities in many parts of the world, however, are reportedly wary about China's entry due to the poor record of the Chinese mining industry in relation to environmental, social, health, and safety issues (Mineral Policy Institute 2006a, 2006b, 2006c, 2006d; Yadi 2005; FESS Interviews 2006*).

Given the growing access to diverse news media and the Internet in the developing world, many communities are aware of news reports about mining-related incidents in China such as blasts, spills, and associated damages and casualties. Some communities also are informed about China's own deteriorating and dangerously poor environmental quality, which in some cases poses serious health risks to human settlements. They further are aware of the growing environment-based social unrest in China. Such knowledge easily intertwines with existing grievances in developing countries as well as the mistrust of many communities toward their local and national governments who, in their view, are much likelier to allow Chinese companies to abuse environmental and human resources than to champion the interests of their community.

In these circumstances, communities facing the potential entry of a Chinese mining company may be anxious about the negative environmental, human health, and social impacts it can bring. With many countries having laws requiring at the very least prior consultation with local communities, plus the growing involvement of local and international NGOs, communities increasingly are able to challenge or block suspect mining operations. Indeed, in some cases communities have resorted to violent conflict in light of real or perceived abuses by mining companies.

As will be elucidated in the discussion below, in order for Chinese or other foreign mining firms to successfully tap mineral resources in the new global investment climate, they increasingly will be expected to show evidence of good practices. The principal means of doing this is by demonstrating observance of emerging international standards on good mining practices.

Emerging International Standards

As a result of the increasing awareness and rising expectations of communities, both governments and international businesses are beginning to see the institutionalization of good environmental practices, respect for human rights, and community development as necessary for their own long-term success. For decades, multinational mining companies paid insufficient attention to sound environmental and community practices until a number of high-profile environmental disasters, lawsuits, and public pressure led to a reassessment of industry standards. Under the threat of stricter government regulations and an unstable operating environment, businesses began to develop standards and codes of conduct for responsible business practices in the extractive industries that companies would adopt on a voluntary basis. A flourishing of such codes took place in the late 1990s and early 2000s.

*The author was part of a research team from the Foundation for Environmental Security and Sustainability (FESS) that traveled to the Philippines to visit mine sites and conduct interviews in Albay, Benguet, Manila, Palawan, Sorsogon, Surigao del Norte, and Zamboanga del Norte in October 2005 and February 2006.

International codes of conduct, operating guidelines, declarations of industry standards, and voluntary norms relevant for better mining practices are numerous and growing in number. Below are major efforts initiated by a broad spectrum of institutions and groups that have been instrumental in pushing for responsible mining; a more complete list can be found in Appendix A. These efforts are divided into the following categories: a) cross-cutting guidelines that cover more than one of the issue-areas that follow; b) environmental practices and standards; c) approval processes, public consultation, and community benefits; d) health and safety practices; and e) human rights. Within each category, those that are general or non-sector specific are presented first, followed by mining specific ones. In general, the cross-cutting efforts are the most prominent guidelines observed in the mining industry.

Cross-Cutting Efforts

Companies worldwide, especially multinational or transnational corporations, have begun to recognize the need for *corporate social responsibility* and better practices in all aspects of corporate conduct, including environmental, employee and community relations, human rights, and transparency and accountability. This has affected their operations both at the corporate level and in terms of site-specific monitoring and oversight of individual projects. Most companies have instituted some form of corporate ethical and governance policy endorsed by their board of directors. Most companies also incorporate risk management systems, such as the ISO 14001 established by the International Organization for Standardization, which integrates a range of environmental, health, and safety issues.

International financial institutions have provided another major impetus for corporate responsibility and better corporate governance over a wide range of issue areas. Their initiatives can be collectively and broadly referred to as *socially responsible investment* and are epitomized by the World Bank and International Finance Corporation's (IFC) environmental and social policies and procedures, and the wider adoption by other lenders of practices built on similar rules commonly known as *The Equator Principles* (Kosich 2006; Amalric 2005; Miranda et al. 2005; The Equator Principles Financial Institutions 2003, 2006).

Based on recommendations developed by governments for multinational enterprises and corporations, in 2000 the Organization for Economic Cooperation and Development also issued the *OECD Guidelines for Multinational Enterprises*.

There are a number of mining-specific groups that promote standards in support of responsible mining. Chief among them is the International Council on Mining and Metals (ICMM), formed in 2001 and made up of 14 of the largest mining and metal companies and 24 national mining and global commodities associations, which requires its members to "integrate sustainable development principles into company policies and practices."

Other influential guidelines in this area include the 2001 guidelines on responsible mining by the Mineral Policy Center; the guidelines on sustainable development and mining of 2002 put forth by the Mining, Minerals, and Sustainable Development (MMSD) project managed by the International Institute for Environment and Development in London; the World Bank's Extractive Industries Review (EIR) of 2003, which contains recommendations for the Bank's future lending activities in this sector; the benchmarks for the mining industry set by Oxfam in 2004; and most recently, in 2005, a comprehensive framework for responsible mining put forth by the World Resources Institute and the Center for Science in Public Participation.

There also have been efforts initiated by the corporate world specific to mining, including the *Citigroup Sustainability Mining Index*, which identifies companies that are "best positioned to create value from sustainable development and those which are at risk of destroying value" (Kosich 2006).

Environmental Practices and Standards

Codes and standards dealing with environmental practices that are relevant to mining include the ISO 14000 Standards on Environmental Management by the International Organization for Standardization and the

Overseas Private Investment Corporation's (OPIC) environmental handbook of 2004. There is also the more specific code on cyanide management, the International Cyanide Management Code, established by the International Cyanide Management Institute in 2002. The most prominent environmental guidelines specific to mining are found in the World Bank's *Pollution Prevention and Abatement Handbook on Base Metal and Iron Ore Mining*, which was published in 1998.

Approval Processes, Public Consultation, and Community Benefits

Governments, civil society groups, and many investors and mining companies increasingly recognize that mining operations need to ensure that living conditions (e.g., income, education, health) in affected communities improve in measurable ways, while not damaging the environment. Governments and companies also increasingly recognize that the depletion of a nonrenewable resource should provide direct benefits (e.g., schools, hospitals, roads) to locally affected communities. A crucial way to ensure that both benefits and potentially negative social and economic impacts are identified, acknowledged, and addressed is by having a well-designed and executed multistakeholder participation process throughout the project lifespan.

It has become an increasingly accepted norm that projects affecting indigenous peoples must secure free and prior informed approval from the affected indigenous communities. This norm is built on the recognition by the United Nations Working Group on Indigenous Populations that indigenous peoples have the right to govern themselves. The World Bank's "Operational Directive on Indigenous Peoples" also recognizes this right and requires that on its projects there must be free, prior, and informed consultation with the affected indigenous communities.⁴

There also have been multiple efforts to bring in more public participation at all stages for projects that could alter the environment in a significant way. An important example of this is the Inter-American Development Bank's *Annex: Strategies and Procedures on Socio-Cultural Issues as Related to the Environment (1990)*.

In recent years, a particular emphasis has been given to enhancing revenue transparency in extractive industries. In this regard, the Extractive Industries Transparency Initiative (EITI) is a landmark, as it is the first government-level commitment to such an effort. Signatory governments and companies adopt practices in accordance with the guidance provided by the EITI Sourcebook. Another push for revenue transparency has come from the International Monetary Fund (IMF) which, through its *Guide on Resource Revenue Transparency*, asks governments, particularly resource-rich governments, to assess and improve their revenue transparency.

The Guidelines for Sustainability of the Global Reporting Initiative (GRI) is another important standard in this area. A large, voluntary network of thousands of experts in dozens of countries, GRI promotes the reporting of the social, economic, and environmental impacts and related risks of mining projects by continuously updating a set of guidelines through a multistakeholder, international process. More recently, it has developed sector-specific supplements and technical protocols. The GRI has been adopted by several mining companies in the preparation of their corporate sustainability reports (Lehni and Chort 2002). A recent study commissioned by the UN Environment Program and written by the Global Public Policy Institute, however, has raised concerns about the prospects for wider GRI adoption, particularly among smaller, domestic companies (Williamson 2006).

Health and Safety Practices

The International Labor Organization (ILO) has established standards for a wide range of work-related issues over the years, many of which are relevant to mining, including the standards on employment practices, occupational safety and health, social policy, child labor, migrant workers, and indigenous peoples.

These standards were created through multiple ILO Conventions, including its eight core labor conventions (No. 87, 98, 29, 105, 111, 100, 138, 182) and the 1995 ILO “Convention on Safety and Health in Mines” (ILO 176), among others. All ILO Conventions are subject to ratification by its 179 member states. Member states are expected to respect the conventions and recommendations regardless of whether they have ratified them or not. There are also practices that the ILO upholds through recommendations that are non-binding. The sections addressing labor in the UN’s “Proposed Human Rights Code of Conduct for Companies,” effective as of 2000, serve as additional guidelines on international labor practices. The international financing community also has contributed to the improvement of labor practices worldwide with the IFC’s “Policy Statement on Forced Labor and Harmful Child Labor,” of 1998 and its *Handbook for Preparing a Resettlement Action Plan* of 2002.

A major mining-specific guideline with respect to health and safety is the IFC’s 2004 draft on “Environmental Health and Safety Guidelines for Precious Metal Mining.”

Human Rights

According to Miranda et al. (2005), longstanding declarations, such as the preamble of the Universal Declaration of Human Rights, and newer international instruments, such as the OECD “Guidelines for Multinational Enterprises” and the ILO “Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy” constitute a body of “soft law,” which applies standards explicitly to companies. While these instruments are not yet strictly binding, many believe that they are becoming increasingly effective.

The recent work of UN bodies also reflects the growing insistence in the international community that transnational corporations should comply with a common minimum standard of human rights practices across national boundaries. This is especially evident in the work of the Sub-Commission on the Promotion and Protection of Human Rights, which in 2003 drafted the UN “Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights.”

Additional guidelines on human rights practices specific to private enterprises include, in chronological order, Amnesty International’s 1998 *Human Rights Principles for Companies*, the US/UK’s *Voluntary Principles and Human Rights* released in 2000, the International Council on Human Rights’ 2002 document on the evolving human rights legal obligations of companies, and the 2004 assessment of the liability of business entities for violations of international law by the International Peace Academy.

China’s Global Reach

China’s search for minerals extends across the globe. China has been most aggressive in Africa, where mineral deposits are relatively untapped and the need for Chinese investment is particularly great. China also has secured access to large reserves of mineral resources in Latin America, historically a major region for international mineral exploration for both precious and base minerals (Wilburn 2005). In Southeast Asia, China greatly expanded its presence through trade and security cooperation, while gaining access to large reserves of mineral resources. China’s mineral interests do not end with Africa, Latin America, and Southeast Asia. China has important oil interests in Iran and Russia. Those ventures, however, have been more limited in scope. The discussions that follow, therefore, focus on Africa, Latin America, and Southeast Asia.

Africa

The two-way trade between China and Africa has soared in recent years. Between 2003 and 2005, bilateral trade more than doubled from \$18.5 billion to \$39 billion (Macartney 2006; Leonard 2006). In terms of investment, the number of Chinese-funded enterprises in Africa reached 715 as of 2004, bringing in \$135 million worth of investment, with plans for additional investments totaling \$432 million (*Ottawa Citizen* 2006).

As a reflection that in the future China intends to deepen its presence in Africa, top Chinese officials have been visiting the continent with increasing frequency. Within the first half of 2006, Chinese officials made three high-level trips to parts of the African continent. The first trip took place in January, and involved a tour by China's foreign minister, Li Zhaoxing, which included six nations: Nigeria, Cape Verde, Senegal, Mali, Liberia, and Libya (*Ottawa Citizen* 2006). Three months later, President Hu Jintao followed with a second tour, visiting Nigeria, Morocco, and Kenya. This was, in fact, Hu's second trip to Africa since becoming president of the People's Republic of China in 2003 (*Xinhua Online* 2006).⁵ Most recently, in June 2006, two months after the trip by President Hu, the Chinese premier, Wen Jiabao, took a seven-country tour of Africa, with stops in Egypt, Ghana, Congo-Brazzaville, Angola, South Africa, Tanzania, and Uganda (*BBC* 2006b).

It is in this context of economic diplomacy that China has had significant successes in securing oil agreements with African nations. China already obtains about 28 percent of its oil imports from Africa—mainly from Angola and Sudan (Macartney 2006). Through February 2006, Angola accounted for 13 percent of all oil imports to China, making it the country's largest supplier. China has committed at least \$3 billion in loans to Angola for additional oil rights, and has supplied engineers and trained workers to develop fields. It is now Angola's largest aid donor (Markman 2006). With respect to Sudan, China already has a 40 percent share in its oil resources (Roux 2006).

Recent developments between China and Nigeria may mean that Nigeria will become another major source of oil from Africa. The acquisition by China's top offshore oil producer (CNOOC) of a Nigerian oil and gas field in January 2006 at the cost of \$2.3 billion made headlines in the business press around the world.⁶ China also has obtained preferential access to four blocks of oil exploration rights in Nigeria in return for assuming management of a money-losing refinery in the northern city of Kaduna. In the area of infrastructure, China has agreed to build a hydroelectric power station in Nigeria and a fast-rail system linking the government capital, Abuja, with the economic capital, Lagos. In addition, two Chinese telecommunication firms will install rural telephone service with the help of a \$200 million loan from the Chinese government (Mbachu 2006; Ashby 2006).

Elsewhere in Africa, China has started to drill for oil in western Ethiopia and acquired the right to the first production of crude oil in Mauritania (Roux 2006; *Creamer Media's Mining Weekly Online* 2006; Xinhua News Agency 2006a). China has shown considerable interest in African offshore oil. It recently signed several bilateral agreements to explore and drill off the coast of Congo-Brazzaville (*People's Daily Online* 2005). The agreements were facilitated by significant Chinese donations of medical supplies for treating malaria (*People's Daily Online* 2006). China also has begun prospecting oil in Mali, Mauritania, Niger, and Chad (Macartney 2006).

Beijing's interest in Africa's natural resources is not limited to energy. One of the biggest Chinese mining operations in Africa is the Chambishi copper mine in Zambia (Alestron 2006; *BBC* 2006a). China has become the third largest investor in Zambia (after South Africa and Britain); its investments in the country reached \$41 million in 2005 (*BBC* 2005b). China also has been exploring copper mines in Congo-Brazzaville (Lyman 2006).

In Zimbabwe, a Chinese consortium has been constructing a multi-billion-dollar high-carbon ferrochrome smelting plant, located in Selous, about 80 kilometers west of Harare.⁷ The plant is scheduled for completion in 2008 (Africa News Service 2005). China also has been working to mine significant deposits of uranium for electric power generation. China's heavy investment in Zimbabwe's rich mining sector responds to President Robert Mugabe's "Look East" policy. Under that policy, Zimbabwe has been working to establish greater economic ties with East Asian countries in the context of tensions with the nation's traditional trading partners in the West, who have objected to Mugabe's authoritarian practices (*BBC* 2005c).

China is also involved in mining in South Africa, among other countries. Since 2003 the South African firm Gold Fields, one of the world's largest gold producers, has had an ongoing strategic partnership with China's

largest gold producer, Zijin Mining (Macartney 2006). Additionally, Chinese-controlled ASA Metals is planning to triple its output of ferrochrome in South Africa by 2008. Elsewhere in Africa, Chinese investors have been seeking nickel deposits in Burundi (Macartney 2006).

Latin America

China's quest for oil to meet the surging energy and commodity demands of its economy also has propelled trade expansion with Latin America, another important source of natural resources.

Bilateral trade between China and Latin America rose by 54 percent between 2003 and 2004, and reached more than \$50 billion in 2005 (Slavin 2006, Yin 2006). China is now Latin America's second-largest trading partner, surpassing Europe (Markman 2006). From 2000 to 2005, exports from the region to China rose by more than fourfold to reach \$26.8 billion, while imports into the region from China rose by more than threefold, reaching \$23.7 billion (Yin 2006).

The free trade agreement (FTA) that Chile and China signed in late 2005 was the first such accord between a Latin American country and China (*Latin America News Digest* 2006). In February 2006, China and Chile reached an agreement to create a joint copper mining company designed to allow China to import copper from Chile for the next 15 years.

Chinese investments in Latin America as a whole have risen substantially in recent years. By 2004, China's total investments in Latin America had reached \$4 billion. This might appear low compared with the \$300 billion in investments by U.S. companies but President Hu Jintao announced in 2004 that in 10 years China plans to multiply its total investments in Latin America to \$100 billion. Indeed, the rate of growth of Chinese investments in Latin America exceeds that of any region outside Asia (Slavin 2006).

With respect to oil, China recently has purchased one oil field in Ecuador and is negotiating for more (Markman 2006). Venezuelan President Hugo Chávez has stated his intention to double Venezuela's oil exports to China to 300,000 barrels per day (bpd), the equivalent of about a fifth of the 1.5 million bpd that Venezuela currently sends to the U.S.⁸ The Venezuelan government has said that in the medium term it aspires to supply about 20 percent of China's oil needs (Markman 2006).⁹ Additionally, the Shandong Gold Group, China's largest gold company, will start mining the Sosa Mendez gold mine in Venezuela late this year (*China Metals Weekly* 2006a).

Bolivia has opened the door to Chinese investment in its natural gas sector in exchange for large orders of soybeans and minerals. During the January 2006 visit to China by Bolivian President Evo Morales, the two countries agreed on a \$1.5 billion investment for gas fields in eastern Bolivia to be undertaken by the Chinese oil and gas giant Sinopec. China is also among five groups bidding on a \$5 billion project to develop Bolivia's iron-ore deposits at El Mutun, although local business interests have expressed a preference for other foreign companies. China's access to Bolivia's energy resources is linked to President Morales's plans to nationalize the country's energy sector; Morales shares the vision of Venezuelan President Hugo Chávez of establishing a regional "network of state-directed energy companies." An official from the Movement for Socialism (MAS) party, to which President Morales belongs, told the *Washington Times* that Bolivia's agreements with China and Venezuela would offset any losses in investment from U.S. and European interests that may oppose the nationalization policies the Morales government plans to pursue (Chávez 2006; Arostegui 2006).

On the minerals side, Chile's state-owned Codelco, the largest copper mine in the world, reached a \$2 billion deal with China's Minmetals, a state-owned metals trading house, in which Minmetals would initially invest \$550 million in a 50-50 joint venture. In return, China would receive a long-term copper supply contract with Chile (*Sinomedia-EuroBiz Magazine* 2005).

Brazil's producers of iron ore and soybeans both have been prospering thanks to China's voracious demand. One of the world's largest minerals companies and the largest private investor in Brazil, Companhia Vale do Rio Doce (CVRD), sold 55 million tons of iron ore to China in 2005; 80 percent of its \$4.6 billion in new investments in 2006 is linked to meeting Chinese demand. Brazil's state-owned oil company, Petrobras, also is pursuing cooperation with China's Sinopec to refine Brazil's high-sulfur oil at Sinopec's facility in Qingdao. Overall, trade between China and Brazil has more than quintupled since 1999 (Lynch 2006).

In addition to natural resources, China is seeking to secure a supply route through Latin America, according to R. Evan Ellis of Booz Allen Hamilton. This means securing the entire physical supply chain—not only raw materials but also the means to transport the materials, the infrastructure to support the effort, and the means to bring products to market. Ellis also states that this strategy is notably present in China's efforts to secure a pipeline that parallels the Panama Canal to transfer materials from the Atlantic to the Pacific sides of the continent.¹⁰ Ellis further points to the growing importance of ports as part of the infrastructure of the trade links in the manufacturing and distribution chain. These include Pacific ports like Valparaiso, Chile, and Lima, Peru, which are becoming increasingly important for Latin America's trade with China and the rest of Asia (Johns 2006).

Southeast Asia

China's influence in Southeast Asia has grown considerably in the last decade, utilizing not only economic but also security cooperation as a tool of engagement. Unlike its influence elsewhere, China's influence extends to almost every country in Southeast Asia. By furthering trade as well as security ties, China is becoming an increasingly powerful player in the region, especially vis-à-vis Western nations (Dillon and Tkacik 2005). Once perceived as a threat to some of the nations in Southeast Asia, China has transformed its image into that of a constructive actor and the preeminent regional power (Kurlantzick 2006).¹¹

Thanks to multiple bilateral FTAs and the establishment of the Free Trade Zone (FTZ) between China and the Association for Southeast Asian Nations (ASEAN), China's trade with the region has hit a new high.¹² China is the number one source of imports for Vietnam; the second one for Indonesia, Thailand, and Laos; and the third source of Cambodian imports. China is also the third-largest export destination for Vietnam, Thailand, and the Philippines (*Economist Intelligence Unit* 2006a, 2006b, 2006c, 2006d, 2006e, and 2006f).

China has been expanding military relationships in Southeast Asia as well. Beijing has orchestrated a new series of high-level regional security conferences. Additionally, it has developed multiple "military aid" initiatives with ASEAN countries that provide a wide range of engagement opportunities, including military-to-military initiatives, joint military and maritime rescue exercises, military training courses, and Chinese-language training (Dillon and Tkacik 2005).

In terms of natural resources, the authoritarian regime of Myanmar has been providing China with a wide range of minerals.¹³ Some of these minerals have been completely depleted based on demand from China alone (Xinhua News Agency 2005a; Thu 2005a, 2005b). In some cases, the high rates of demand and depletion are driven by China's attempt to amass raw materials purchased at low costs for resale both domestically and internationally (Thu 2005b).

Elsewhere in Southeast Asia, the Aluminum Corporation of China, the world's second largest alumina producer, has formed a joint venture with the Vietnam Charcoal Group, a subsidiary of Vietnam Coal and Minerals Industries Group, to undertake \$1.3 billion worth of investments in bauxite mining, alumina production, and associated railway and transport infrastructure (*WWP-Business Opportunities in Asia & the Pacific* 2006). The China Import and Export Bank recently gave Yunnan Copper Industry Group, the third-largest copper smelter in China, a five-year credit line for the prospecting, acquisition, and exploration of mines in Vietnam (copper, lead, and zinc) and Laos (copper) (Interfax News Agency 2006).

Elsewhere, China is involved in a \$950 million nickel mine redevelopment project (Nonoc Mining) in Surigao del Norte in the Philippines. The two countries also are drawing up an economic cooperation plan to further bilateral trade and local business partnerships in various sectors, including tourism, agriculture, and mining (*Business World* 2006, *Global News Wire-Asia Africa Intelligence Wire* 2005a). In August 2006, China's Export-Import Bank offered the Philippines an extraordinary package of \$2 billion in loans per year for the next three years (Perlez 2006b).

In 2003, the Indonesian government tried to push its national parliament to resume mining activities, largely for fear of missing the boat while China's demand for minerals and mineral prices remain high (*Miningindo Weekly e-Newsletter* 2003). However, there have not been major changes to the country's mining policies, and China's mining activity in Indonesia has remained limited.

Chinese Practices, International Standards, and Community Concerns

The observable gap between China's mining practices and emerging international standards in the mining industry is evident in the following areas: a) environmental practices and standards; b) approval processes, public consultation, and community benefits; c) health and safety practices; d) human rights; and e) mine site rehabilitation and reclamation. The discussion in this section is divided into three parts. The first part describes China's current domestic practices in these five areas based on available information. China does not have detailed, formally stated rules and regulations governing its extractive practices overseas, at least none that are publicly known. China's domestic mining practices, however, can stand as a surrogate and shed light on China's likely practices overseas. The second part then delineates emerging standards and practices in the five areas, including brief discussions about their nature and evolution. The third part presents a few examples of uneasiness around the world toward China's potential entry into mineral exploration.

China's Current Mining Practices and Standards

Environmental practices and standards. A set of writings by China's Deputy Director General of the Ministry of Land and Resources, Dr. Zhong Ziran, has argued that China's priority of continuous economic growth needs to move in tandem with "rational exploitation of natural resources." The latter, he elaborated, means that "attention should focus on both rational mineral development and protection of the environment against pollution and degradation resulting from mineral development" (Zhong 1999, 2000). Along the same lines, Beijing has recently declared a "two-way development strategy" in which the mining industry pursues sustainable economic development by paying "equal attention to the exploitation and efficient use of mineral resources" (*AsiaPulse News* 2005; *China Daily* 2005). Environmental regulations in the mining sector are crucial for environmental protection in China; according to the State Environmental Protection Administration (SEPA), the Chinese mining industry produces 85 percent of China's solid waste and 10 percent of its wastewater each year, with less than 4.2 percent of the latter properly treated (Macbride and Wang 2001).

In concrete terms, a set of environmental management systems that affect mining have been formulated in China in the past two decades. Just as is the case in many other developing countries, there is no shortage of environmental laws. Broadly speaking, mineral development in China is subject to the Mineral Resources Law and the Environmental Protection Law, along with local rules and regulations. The Mineral Resources Law (MRL), adopted March 19, 1986, and effective as amended on January 1, 1997, is the principal mining law. The categories under this law focus on the definition of exploration rights, mining rights, and the transfer and registration of these rights. Under the MRL and the Chinese Constitution, all mineral resources within China's territorial boundaries belong to the state (Macbride and Wang 2001).¹⁴ The 1996 amendments were necessary to respond to changes in the structure of China's mining industry since the mid-1980s, when a formerly largely state-owned sector was transformed by the entry of many foreign and domestic enterprises, including private firms based in Hong Kong, Macao, and Taiwan. The new mining industry in China included new forms of ownership, such as joint-stock companies, and totaled 140,000 non-state-owned mining enterprises (*People's Daily Online* 2003; Chen and Huang 2001). The 1996 amendments set out a variety of measures to improve mineral investment conditions for foreign investors (Macbride and Wang 2001).

With regard to environmental regulations, the basic laws governing environmental protection that affect mining are part of the Environmental Protection Law.¹⁵ In China, some level of assessment of environmental impact is required as part of the Environmental Protection Law, which was adopted provisionally in 1979 and finalized in 1989 (Wenger et al. 1990). It was not until 2002, however, that the Environmental Impact Assessment Law was passed, becoming effective in September 2003. Under this law, requirements with respect to EIAs became clearer and more formal. An EIA is required for any project that can have negative environmental effects, regardless of which sector the project falls under (e.g., agriculture, industry, forestry, energy, water, transportation, urban development, tourism, or natural resources development).

With regard to mining, even prior to 2002 an EIA had been required for any large or medium-size mining project. All mine construction projects must file an EIA report as part of the feasibility study of the project. According to Chinese law, an EIA report must contain the following:

- Project summary;
- Environmental status of the area surrounding the project site;
- Impacts of the project on the surrounding environment;
- A cost-benefit analysis of the environmental impacts;
- Recommendation of measures to respond to the potential environmental impacts;
- Technical and economic comments on the feasibility of environmental protection measures;
- Measures to maintain water and soil quality (Zhong 1999; *XinhuaNet* 2002).

One obvious gap between China's EIA requirements and internationally accepted standards is the lack of community consultation and public participation, discussed in greater detail below.

Aside from the public participation component, however, there have been a number of implementation issues surrounding EIAs in China, despite several amendments to the procedures (Che et al. 2002). As part of the effort to strengthen EIAs, the "Interim Measures on Administration Permission Hearings for Environmental Protection" took effect early in 2006 after a crisis in Songhua in Northeast China, where water supplies were cut off due to toxic contamination of the Songhua river. Penalties were established to punish officials who approve projects that have not fulfilled the EIAs or engage in other improper enforcement of environmental laws. However, since the incident and the new regulation, the problems have continued, including a chemical spill in Sichuan in November 2005 that disrupted water supplies to 20,000 people (*PlanetArk* 2006).

Other environmental requirements in relation to mine projects include the design, construction, and operation of facilities intended for mitigating environmental pollution. There have been problems with mitigation facilities, which suffer from a low level of capital investment. Additionally, such investment in environmental protection facilities is not required to cover any new sources of pollution. Stricter minimum environmental standards for pollutants, therefore, are necessary (Zhong 2000; Pottinger et al. 2004).

A number of taxes, charges, and fees apply to the mineral industries in China, including value-added tax, resources tax, mineral resources compensation (royalties), corporate income tax, city construction tax, land use tax, business tax, and other assessments (Macbride and Wang 2001). With respect to fines, industrial and mining enterprises that release pollutants exceeding the allowed minimum are fined based on the amount of overage. These fines, however, are very low despite two increases, and require further significant increases to provide real behavior-changing incentives (Zhong 2000). Projects with foreign capital face the same environmental management requirements as domestic ones.

There is also a significant problem with respect to revenue sharing of mining proceeds. The distribution of mining proceeds in China is heavily in favor of the central and provincial governments. Local governments often receive less than 25 percent of total mining proceeds, leading to the prevalent scenario of "rising-star" provinces enriched by mining revenues while the actual mining communities within their borders responsible for producing the wealth remain among the poorest areas in the nation (*ChinaRen* 2006).

Approval processes, public consultation, and community benefits. In Zhong's 1999 paper on "Environmentally Sustainable Development of the Mineral Industries in China Toward the 21st Century," only the following was said in relation to public participation:

It is *recommended* [emphasis added] that public or local communities are allowed and encouraged to participate in the environmental matters of mining activities. For example, a hearing forum or round table conference can be held prior to the issue of a mineral title by the relevant mineral development management agency, if needed together with a general environmental agency, in order for the public or the local communities to give their comments on or even present objections against the environmental aspects of a mining plan.

One might take this to mean there are no provisions in China requiring public participation. However, the Environmental Impact Assessment Law of 2002 made public participation part of its requirements. In this law, Articles 11 and 21 state that public hearings or other forms of public consultation are required to get community and expert feedback on a project or construction that is likely to have environmental impacts, with the exception of "projects of confidentiality according to national code." Despite the explicit requirements of Articles 11 and 21, analysts have written about the still-limited public participation in EIA processes (e.g., Wang and Dien 2005). This has been attributed to three main factors: the Chinese institutional context, a lack of funds, and the large population.

Most crucially, China lacks the legal infrastructure for civil participation despite recent laws, policies, and statements relating to greater civil society participation. For instance, even though there are policies that protect the rights of local farmers to voice concerns and defend their rights, the Chinese legal system does not provide channels for exercising these rights. Villagers in most communities in China lack formal education and are unfamiliar with concepts such as due process. Many villagers do not even know what a lawyer is, according to Li Bo who is the head of the Center for Biodiversity and Indigenous Knowledge, one of the few influential environmental NGOs in China (Buckley 2006).

This is in spite of the fact that the Chinese government passed a new law on June 23, 2004 to supplement the EIA law on the question of public participation. In the "Interim Measures on Administration Permission Hearings for Environmental Protection" promulgated by the State Environmental Protection Administration (SEPA), the procedure for public involvement in the EIA was laid out in greater detail. The regulation specifies who can appoint the chair of EIA hearings, eligibility requirements for organizing a hearing, and procedures on how to organize a hearing. The new law also provides an official channel for the public, especially those who are directly affected, to voice their concerns (Wang and Dien 2005). The new law was precipitated by the large and growing number of environmental disputes in the country. Severe pollution prompted some 51,000 public disputes in 2005, which "caused a great threat to social stability," according to SEPA (Xinhua News Agency 2006b; Beech 2006; *Agence France-Presse* 2006). It is perhaps relatively early to judge whether this law has benefited local community interests, but thus far most analysts agree that no significant change in the public participation of the EIA process has occurred.

On a more positive note, despite limited public consultation, some mining enterprises in China are contributing certain social benefits to host mining communities through the provision of hospitals and schools (Zhong 2000).¹⁶ In the context of prevailing international norms, these may not rise above the level of "minimum" social benefits from mining. Still, their emergence is an encouraging development.

Health and safety in the mining industry. Regarding the health and safety of miners, China's record is inarguably one of the worst in the world. Official figures show that in 2005 alone around 3,300 coal mine blasts, floods, and other accidents killed nearly 6,000 people (State Administration of Work Safety China 2005, Chan and Liu 2005). These figures, according to some trade union and human rights activist groups, underreport the actual figures, which may be as high as 12,000 to 15,000 incidents per year. Additionally, as of 1998, the mining industry had more than 600,000 cases of pneumoconiosis, with the toll increasing at an alarming rate of around 60,000 per year (Liang et al. 1998).¹⁷

Two main reasons can be cited to explain this poor record. Ninness (2005) notes the barriers to successfully monitoring and enforcing safety regulation in China. The need for jobs and heavy reliance of many small villages on local community coal mines for economic and social stability mean that many local mines frequently over-employ and overproduce, leading to practices that jeopardize mine safety and miners' health. Simply rationalizing the industry and closing down unsafe and inefficient mining operations in small villages might seem like the answer, but that would result in significant economic hardship for tens of thousands of people. Another barrier to mine safety is the familiar one of weak law enforcement, as highlighted by the director of *China Labour Bulletin*, Han Dongfang, who recently wrote in the *Asian Wall Street Journal*: "the problem in China's mining industry is not a lack of work safety laws and regulations but a near ubiquitous lack of serious enforcement. Terms like legal and illegal when applied to a mining operation usually mean little more than whether or not the mine owner has paid off the right authorities" (Han 2005).

An additional reason for mine safety problems in China relates to cultural norms in regard to mining. The industry has accepted loss of life as normal. When told about zero fatalities in mining in Australia, managers and CEOs of Chinese mines showed amazement since to them "it is a dangerous industry... it is normal to lose a relative and friend in a mining accident" (Ninness 2005).

Only very recently has the Chinese government finally committed significant funding toward improving mine safety and workers' health. For the introduction of the new safeguards to have real and significant impact on miners' health and mine safety, however, the government will have to take a harder look at the incentive structure of the mining companies, especially the smaller operations, which are induced to overproduce at the cost of miner's health and mine safety (Chan and Liu 2005).

Labor and human rights surrounding mining. With regard to China's mining practices as pertains to labor rights, R. Evan Ellis of Booz Allen Hamilton has made the following observation about Chinese practices in Latin America:

Chinese companies typically tie their investment contracts to the use of Chinese labor, and when they do use local workers, it's important to note that management practices are not congruent with those in Latin America, especially in terms of organized labor. In a well known example, Chinese mining companies traditionally pay workers significantly less and are willing to accept more risk than those in the Americas, an imbalance that can lead to labor unrest and strikes (Johns 2006).

Beijing also has been clearly less critical than developed countries of the human and labor rights practices of their partnering host country governments. China has been willing to enter into many agreements with countries that have a troubling record on dictatorship, corruption, and human rights abuses. A few examples help illustrate this point:

- In 2005, the IMF declined to finance Angola's oil projects due to a lack of revenue transparency. China, however, stepped in with a \$3 billion oil-backed loan. China has also been refurbishing several railways in Angola, which is viewed as a means to ensure access to that country's oil (Reuters 2006a).
- About 60 percent of Sudan's oil goes to China, and revenues from selling oil to China are believed to have at least partially financed Sudan's devastation of Darfur (Kristof 2006).¹⁸ A Chinese company, North China Geology Survey Bureau (NCGSB), will be developing gold mines in a 6,000-square-kilometer area in Nile State in Sudan. Despite two kidnappings of NCGSB workers in March 2004, NCGSB has expressed faith in the Sudanese government's guarantee of worker safety. China recently also has spoken of its "good relationship with the Sudanese government," and the support the Sudanese government has shown for the Chinese projects there (*China Business News* 2006).
- Outside of Africa, China has been criticized for aiding and investing in Myanmar, another country with a poor human rights record, in return for access to oil and gas supplies (Reuters 2006b).

- China also has developed a number of projects in Iran. Aside from the recent \$998 million deal with Iran's aluminum industry for the construction of a plant, China has built the Yazd zinc smelter, the Faryab ferroalloy plant, the Arak aluminum smelter, and the Khatoon Abad copper plant (*China Metals Weekly* 2006b). Given such investments, China has been reluctant to condemn Iran's development of its nuclear program (O'Rourke 2006).

As Lyman (2006) has pointed out, China's willingness to collaborate with authoritarian states with questionable human rights practices is especially problematic because China is a permanent member of the UN Security Council, which allows it to use its veto to protect its partners from sanctions or other international pressures.

Mine site rehabilitation and reclamation. In the late 1990s, China closed down many coal mines due to oversupply and concerns about excessive environmental degradation. This affected coal mines of all sizes, state-owned or not. As a result, a legal framework for mine closure was developed (Shen and Andrews-Speed 2001).

Policies surrounding mine closure and reclamation in China are reasonably progressive. Application for and approval of mine closures are required at least one year prior to the termination of mine operations and include a site survey, geological report, and approval by the government agency that issued the mining license. Conditions for mine closure include reclaiming mined-out areas and eliminating "hidden dangers." A resettlement plan and subsidies for staff and workers also are required, as well as the transfer of welfare facilities such as schools and hospitals to the local government (Zhong 2001). However, experience demonstrates that the key lies in enforcement. Ambiguities in policy language and requirements are present in the provisions and provide opportunities for evading enforcement.

Emerging International Standards

An effective way to mitigate the potential contribution of mineral extraction to heightened social tensions or even violent conflict is to institute clear codes of conduct and standards linked to environmental and social outcomes. There are a variety of different standards with varying scope and oversight. Generally speaking, those having to do with environmental stewardship have made greater inroads in terms of benchmarking and stakeholder buy-in.

The standards governing public participation (greater revenue transparency, free prior informed consent, etc.) have gained mounting support worldwide through high-profile efforts such as the Extractive Industries Transparency Initiative (EITI) and the Global Reporting Initiative (GRI), to which many countries and companies have become signatories. However, enforcement remains highly variable. Standards having to do with social or community benefits have proved more problematic, and their specific content is still evolving. Typically, they may include some combination of health care, education, job training, and the provision of basic utilities. There is also a relative lack of attention to social and environmental issues that arise after mine closure, an inevitable end faced by all mines. This unsurprisingly coincides with the comparatively weaker standards for mine closure both in terms of benchmarking and actual observance.

The emerging international standards described in this paper are not necessarily synonymous with what have been called "leading edge" practices, which have yet to be widely adopted. The practices that *are* included are instead those that are increasingly widespread and reflective of broadly accepted norms. These are presented in the following discussion by category. The most important source of information on these emerging standards is the *Framework for Responsible Mining: A Guide to Evolving Standards*, by Miranda et al. (2005).

Environmental practices and standards. As a result of the increasing awareness and rising expectations of communities, local governments, and civil society organizations, businesses around the globe have come to see good environmental practices as necessary for their own profitability and sustainability. This has resulted in the pursuit and development of voluntary but increasingly effective partnerships with national governments and local communities. In the environmental area, important milestones have included the "Type II" agreements that emerged from the 2002 World Summit on Sustainable Development and, most

recently, the Equator Principles (Kosich 2006; Amalric 2005; Miranda et al. 2005; The Equator Principles Financial Institutions 2003, 2006). The following is a list of emerging international environmental standards regarding mining.

Exploration – Details of the exploration projects and potential impacts should be made available to affected communities. Companies should provide adequate guarantees to pay for prompt cleanup, reclamation, and long-term monitoring and maintenance.

Environmental Impact Analysis – Stakeholders should be given adequate access to information so that participation in the process is effective; companies should collect adequate baseline data as part of the Environmental Impact Assessment (EIA); analyses should include a worst-case scenario and appropriate response strategies.

Water Contamination and Use – Companies should make publicly available discharge reports of contaminants to surface and ground water sources.

Acid Mine (Rock) Drainage – Companies should conduct pre-mining and operational mine sampling and analysis for acid-producing minerals in accordance with the best available practices and techniques.

Air – Companies should monitor and publicly report airborne hazardous emissions (particularly mercury, lead, and greenhouse gases).

Energy Consumption – Reducing energy use and greenhouse gas emissions should be a stated mine management goal.

Noise – Maximum noise level requirements should be implemented at the project boundary.

Waste Management – Tailings impoundments and waste rock dumps should be constructed to minimize threats to public and worker safety; tailings impoundments and waste rock dumps should be constructed to minimize the release of contaminants; hazardous materials management plans should be publicly available; rivers should not be used for the disposal of mine waste.

Cyanide – Mine operators should adopt the Cyanide Management Code, and third-party certification should be utilized to ensure that companies implement safe cyanide management (Miranda et al. 2005).

Approval processes, public consultation, and community benefits. Emerging international standards are also increasingly demanding that mining projects of a certain scale, whether public or private, adhere to a set of procedural guidelines with respect to community and public participation. This is to be done from the project development stage through the full life span of the project's operation. Specific requirements have included multistakeholder oversight, transparency, observation of indigenous peoples' rights, and negotiation of community benefits. Specific initiatives have included the World Bank's "Operational Directive on Indigenous Peoples," EITI, GRI, and the *Framework for Responsible Mining: A Guide to Evolving Standards* by Miranda et al. (2005).

Participation in Decision Making/Consultation – Companies should negotiate with affected indigenous peoples and local communities before exploration. Such negotiations should continue throughout the life of the mine, with the understanding that indigenous peoples and local communities may withhold consent at each stage of mine development.

Access to Information/Disclosure – The mining company should provide full disclosure of pertinent information to potentially affected communities, including employment opportunities for both women and men as well as for marginal groups. Information should be provided in culturally appropriate forms and in locally intelligible languages.

Indigenous Peoples and Free, Prior, and Informed Consent – Companies should obtain the free, prior, and informed consent of indigenous peoples before any exploration begins and prior to each subsequent phase of mining and post-mining operations.

Consent-Benefit and Compensation Agreements – Companies should enter into binding contracts with communities that specify the terms under which a particular phase of a mining project may proceed. Such agreements should be mutually entered upon and enforceable through the national court system or through mutually acceptable arbitration procedures. Indigenous peoples and

communities have the right to deny consent to a project if the project changes substantially or if the company does not honor its binding agreement with the community. If a community has withheld consent for a mining project, no further requests for consultation by that company or any other should be made within a certain period of time unless the community indicates otherwise (Miranda et al. 2005).

Health and safety in mining. The International Labor Organization (ILO) is the most prominent source of international standards and guidance on employers' conduct with respect to workers' health and safety in mining and other industries. In recent years, the absence or relative weakness of workers' health and safety policies for specific groups, such as women and indigenous populations, also has prompted calls for guidelines on the work environment that respond to their specific circumstances and needs.

ILO Conventions

- The 1995 ILO Convention on Safety and Health in Mines (ILO 176) – Companies are asked to adhere to ILO 176 even when operating in countries that have not yet ratified this convention. ILO 176 ensures:
 - Adequate training, retraining, and instructions;
 - Supervision and control on each shift;
 - Investigation of all accidents, followed by remedial action and an incident report;
 - Regular health surveillance of workers;

The convention also enshrines the principle that the responsibility to coordinate safety lies with the employer.

Other ILO provisions include:

- ILO 148 (1977) regarding the working environment;
- ILO 155 (1981) regarding occupational health and safety;
- ILO 161 (1985) regarding occupational health services;
- ILO 162 (1986) regarding asbestos;
- ILO 170 (1990) regarding chemicals.

Recognizing Female Mine Workers' Needs With Respect to Health and Safety – Companies must address the issue of a lack of suitable equipment, clothing, and protective gear for women; job training; sexual harassment; and violence in the workplace.

Labor and human rights in the mining industry. Efforts to establish international standards for human rights in business operations are relatively recent. The adoption of these standards is still unfolding. Many businesses still do not wish to be held globally to broad human rights requirements.

In March 2004, the U.N. Human Rights Commission passed the “U.N. Human Rights Norms for Business.” This immediately drew opposition from prominent business groups. The U.S. Council for International Business, for example, expressed serious opposition on two fronts: the fact that the new UN requirements exceed the existing national norms in most countries and the existence of clear “outliers,” such as China, that will not sign on to any standards (*Strategic Forecasting Inc.* 2004).

Some oil and mining companies have maintained their investments in conflict zones but have tried to institute policies that minimize their responsibility for human rights violations. An important example is the “Voluntary Principles on Security and Human Rights,” which many of the largest U.S. oil and mining companies, including ExxonMobil and ChevronTexaco, have adopted (Arriaga 2004).

Other efforts, more regionally based and much less ambitious, have gained some traction. In late 2003, Human Rights Watch (HWR) called for a halt to all oil operations in Sudan and, more recently, a halt to energy projects in Angola. Both calls sent a clear signal to investors. The U.K.-based Catholic Agency for Overseas Development has had some success in convincing the U.K. electronics sector to improve the

working conditions of its contractor facilities in China (*Strategic Forecast Inc.* 2004). These are just a few of a large number of efforts to push for more human rights-conscious business practices.

In essence, although a widely adopted international standard for business practices regarding human rights that satisfies advocates is not likely to be seen anytime soon, there exists both a grassroots drive outside and a movement within the international business community for better human rights-based business decisions and practices.

Beyond the debate concerning a human rights-based business code of conduct, the emerging standards on human rights are as follows:

ILO's Eight Core Labor Conventions (No. 87, 98, 29, 105, 111, 100, 138, 182) – These conventions cover freedom of association (forming unions), the abolition of forced labor, equality, and the elimination of child labor, captured in ILO's 1998 *Declaration on Fundamental Principles and Rights at Work*.¹⁹

The UN Declaration on Human Rights, particularly Articles 23 and 24.

Resettlement/Relocation and Compensation – Resettlement should be avoided if at all possible and should not occur without the free, prior, and informed consent of affected individuals. Affected individuals should be consulted, compensated, and allowed a channel to voice complaints after resettlement. All payments and expenses related to resettlement and compensation should be publicly disclosed to ensure accountability and transparency and to counter charges of corruption or misuse of funds.

Recognizing the Rights of Female Miners – Companies also should comply with international labor standards that safeguard women with equal pay for work of equal value. Additionally, companies are responsible for ensuring that the actions of their local employees do not negatively affect local women.

Recognizing the Rights of Small-Scale and Artisanal Miners and Addressing Risks to their Livelihoods – Mining companies should engage small-scale miners and their communities, help them obtain legal status, integrate them into the formal sector, help them gain access to markets, and provide technical and educational resources that will allow them to work in a more environmentally and socially sustainable fashion.

Security Issues and Human Rights – Companies should conduct an independent peace and conflict impact assessment to assess the risk of provoking or exacerbating violent conflict through their operations. Companies should avoid investing in areas where the risk of violent conflict is high (e.g., in areas of civil war or armed conflict). Companies operating in conflict zones or using armed security guards should abide by major international human rights agreements, international humanitarian law, and refugee law (Miranda et al. 2005).

Mine site rehabilitation and reclamation. Through the experiences and expressed concerns of local communities, governments of mineral-rich countries and the mining industry have begun to recognize that proper mine closures and mine site rehabilitation and reclamation are integral to responsible mining. Previous disregard for proper mine closures and post-closure policies has contributed to the negative legacy of mining in many developing countries and spurred anti-mining sentiments. Emerging international standards on mine site rehabilitation and reclamation include the following:

Reclamation and Rehabilitation – Companies should develop a reclamation plan before operations begin. Companies should restore all disturbed areas so that they are consistent with future uses.

Financial Guarantees – Financial sureties should be reviewed by the permitting agency and evaluated by independent analysts, and the results of the review should be publicly disclosed; the public should have the right to comment on the adequacy of the reclamation and closure plan, the adequacy of the financial surety, and provisions for the completion of reclamation activities prior to release of the financial surety.

Post-Closure – Reclamation plans should include plans for post-closure monitoring and maintenance of all mine facilities, including surface and underground mine workings,

tailings, and waste disposal facilities. The plan should include a funding mechanism for these elements (Miranda et al. 2005).

Concerns Surrounding China's Growing Presence in the Global Minerals Market

China's poor reputation and standing in the world with respect to mining practices, combined with the preexisting grievances of communities in many developing countries concerning suspected collusion between public officials and foreign companies, has generated anxiety regarding China's potential entry in the mining sector. Events in a number of locations exemplify some of the sources of these fears.

Case of Papua New Guinea. The Ramu Nickel mine at Kurumbukari, a site south of the Ramu river in Papua New Guinea (PNG), is a case in point. This site was the scene of considerable controversy for years, even before China's involvement. In 1999, an environmental assessment done by Natural Systems Research (NSR), a private company, was found by PNG's Department of Environment and Conservation to be highly inadequate. In 2001, despite local controversy and significant evidence of unacceptable risks, the PNG Office of Environment and Conservation approved the Ramu Nickel Environmental Plan (Mineral Policy Institute 2005a).

However, the project failed to attract any major investors until 2004, when the China Metallurgical Construction Company, a state-owned steel company, agreed to pay \$500 million for control of the mine. Concerns arose within affected communities, particularly those living downstream of the mining operation and along the coastal area where mine waste was to be dumped. Their concerns were aggravated by a study done by the National Fisheries Authority which concluded that "the Ramu Nickel mine project is an unsustainable project, socially, economically, and environmentally and cannot be allowed to proceed ... mining tailings dumped will gradually create food losses to Papua New Guinea's rich and renewable fisheries" (Mineral Policy Institute 2005b; Mineral Policy Institute 2005c).

The controversy took a violent turn in February 2005, when the coordinator of a local NGO, Simon Warr, a spokesperson of the opposition to Ramu mining, was attacked by the staff of the mining operation. The NGO that Warr represented, the Rai Coast Environment Foundation, had been placing advertisements in local media and gathering signatures for a petition in a campaign against the dumping of waste from the Ramu mine processing plant into the sea. According to Warr, the attackers tried to coerce him into withdrawing the petition because they feared it could lead to the cancellation of Asian Development Bank funding and imperil the company's continued operation (Mineral Policy Institute 2005d).

More recently, a local landowner clan stated that the local communities are "particularly concerned about the Chinese mining ethics and whether or not the company will respect the laws of the country, especially in the areas of environmental conservation and cultural promotion" (BBC 2005a, Yadi 2005).

Case of the Philippines. The Philippines is another relevant case, where there is both strong Chinese interest in mineral extraction and a very negative national mining legacy, including many abandoned mines of various sizes scattered throughout the country. The 2004 reversal of a challenge to the 1995 Mining Law by the country's Supreme Court marked the beginning of recent efforts to resuscitate the industry. A new era of "responsible mining" was declared by the government of the Philippines, and a strategy was developed to promote and facilitate mining involving the cooperation of many government agencies working at different levels.

However, two FESS three-week field research trips, covering many different parts of the country, found that most local communities and many NGOs remain highly skeptical about the government's resolve as well as technical capacity to ensure responsible mining right. Rather, the widely held view is that the government will let in companies that do not have a good track record, leading once again to *irresponsible* mining. Fears about the government's willingness to overlook China's weak environmental and social track record for the sake of foreign investment were bolstered by remarks made recently by President Gloria Macapagal Arroyo to a

Chinese delegation led by Minister of Commerce Bo Xilai: “The Philippines is well poised as far as mining is concerned. We have 1 trillion dollars in mineral wealth and the Philippines is one of the world’s top five source countries for deposits of copper, gold, iron, and nickel” (Pañares 2006).

In those areas where Chinese mining firms already have shown an interest in mineral exploration, many local residents are particularly uneasy. In Zamboanga del Sur, for instance, leaders of the Subanen tribe have rejected the entry of a Chinese firm into their ancestral domain. A manifesto signed by 34 Subanen tribal leaders said that they hoped that the Chinese company (Gami) would never try to enter their villages again. This was in spite of an offer from Gami to improve local infrastructure through the construction of schools, hospitals, roads, and bridges (Philippine Daily Inquirer 2006).

In Surigao del Norte, local communities are nervous about the potential establishment of Chinese nickel mining operations. When asked about what the community would do if the Chinese operation were to cause serious environmental or social problems, one local official said, perhaps for effect, “it’s all right, we know how to kill managers” (FESS Interviews 2006).

Russia and Peru. Another case involves the Berezov iron ore project in the Chita region of Russia, an area on the border of China and Mongolia rich in natural resources useful for industry. The Chinese firm that won the bid to develop the project is the Luneng group, a Shandong-based company in which the Chinese government holds a 50-percent share. The residents in the region have protested against Luneng based on the suspicion that it was planning to mine not only iron ore but also rare earths, which may threaten the environment (Prime-Tass Business News Agency 2005; *China Metals Weekly* 2005).²⁰

In Peru, citizens and environmental groups in Marcona have denounced the low-wage and limited community benefits that the Chinese mining company, Shougang Hierro Peru, a main employer in the area, has been providing for the past ten years. The company is perceived to have brought little investment into the community amid frequent job cuts and poor safety standards. The water and electricity supply for which the company is responsible also has been unstable. Peru’s Energy and Mines Minister, Glodomiro Sánchez, stated that if the company does not change its ways, it will bring on the demise of its own mine (Emmott 2005).

Implications of the Disconnect and Some Positive Signs

These are only a fraction of the total number of communities that are anxious about the consequences of unsustainable mining and might mobilize to resist the entry or operation of Chinese mining. In principle, stories like the ones above should serve as lessons for China. But if China fails to learn from these lessons and adopt responsible mining practices, some of the negative scenarios delineated below might be the result. In that case, neither the host countries nor foreign investors would benefit.

There do appear to be a few steps in the right direction in China’s domestic policies toward mine safety and environmental safeguards. However, it is not clear whether these represent the start of a new trend and potential drivers for responsible mining abroad or merely piecemeal adjustments meant to cope with widespread domestic grievances at the community level.

Negative Outcomes

Cautionary tales. Without real and resource-backed environmental management and social development initiatives, the prospects for the success of a mining operation in today’s operating environment are limited. The disconnect between emerging international standards (which increasingly are internalized by communities in the form of expectations) and the actual practices of Chinese mining companies raises the prospect of increasing tensions and instability. Of course, China’s mining enterprises are not the only ones facing such problems. Indeed, even as international mining standards and codes of conduct have been more widely adopted, Western mining companies have continued to experience protests and disruptions. The worst scenarios are mining-induced violent conflicts, which have occurred in various parts of the world.

A case in point is mining and conflict in Indonesia. On March 19, 2006, some 50 protesters destroyed a workers camp on the Indonesian island of Sumbawa operated by the U.S.-based Newmont Mining Corporation, the world's largest gold mining company, forcing the company to shut down operations. The company had evacuated all 200 workers prior to the rampage after being warned of an impending attack (*Strategic Forecasting Inc.* 2006).²¹ This was despite a \$250,000 offer from Freeport to set up a foundation for the local clan, plus a \$100,000 annual award. The offer was deemed insignificant by the locals given the tens of millions of dollars Freeport is believed to make on a daily basis (Perlez 2006a). The locals also argue that they have never received a fair proportion of the estimated \$33 billion in direct and indirect benefits the company says it provided to Indonesia from 1992 to 2004, or the \$150 million the company says it has spent on community development. Instead, they say they have lost their most precious assets: their land, their river system, and their sago plants (Perlez 2006a). The better educated and informed younger-generation residents have stated that Papuans can no longer be appeased as they once were with the promise of a few sacks of salt. Because of these tensions, protection from local security forces has usually been necessary to shield Newmont's mining operations from protesters in Indonesia.

The situation in Papua provides an example of what can happen when a natural resource company, backed by an unpopular host government and a military with a reputation of excesses, fails to pay careful attention to local people whose lives have been disturbed and who feel the riches in the ground are theirs, not the foreigners'. As Mark Logsdon, an American geochemist familiar with the Freeport mine, has observed, "whether in Indonesia, Latin America or Africa, the increase in communications capability means that the essential isolation of 'resource colonies' is largely a thing of the past" (Perlez 2006a).

A similar observation was made by Dan Jensen, executive director of the Association for Mineral Exploration based in British Columbia, Canada: "it is not possible to build a mine today without the support of the local communities and the indigenous peoples' groups" (Hoekstra 2006). Additionally, in March 2006, a Citigroup report showed that multinational companies can no longer afford to ignore environmental and social issues, as "in recent years, a groundswell of public opinion has caused sustainable development to become a serious business consideration for investors" (Perlez 2006a).

If China's entry into other countries for minerals were to result in conflict and early closure of a mining operation, it would be a "lose-lose" outcome for all parties involved, including the host communities, host country national and local governments, and the mining enterprise itself.²²

Abortive or failed investments. Even if Chinese mining operations do not encounter violent conflict as Newmont and Freeport did in Indonesia, other examples indicate that either the perception or reality of the neglect of emerging international standards on mining may lead to a costly early closure.

For example, in early 2005, the Vancouver-based exploration company, Manhattan Minerals, pulled out of Peru when less than two percent of the residents in Tambogrande valley voted in favor of the project. The main reasons for opposition to the project were the fear that blasts from the open-cast mine would damage fruit trees and hurt an industry worth \$105 million a year and the fear that the mine would follow in the footsteps of past mining projects in Peru and damage the environment (*PlanetArk* 2002). The firm had held information-sharing forums to explain its mining methods, which included high-tech explosives that would not produce vibrations, noise, or dust, and announced that it would pay immediate compensation for any damages incurred. Even so, local residents overwhelmingly voted no. This demonstrates that, in parts of the world where there is a highly negative mining legacy, companies run a high risk of premature terminations. The uneasiness local communities already feel about mining, amplified by the activism and advocacy of NGOs, can call an end to a mining operation that already might have invested huge sums of money in the project. In the case of Manhattan Minerals, the pullout followed the investment of \$60 million. The company's inability to find a local partner (a condition required by law) due to the strong anti-mining sentiments also led it to announce it would not invest in Peru again (*BNamericas* 2005).

Another developing case in point is the Rapu-Rapu controversy in the Philippines. The recent and highly publicized case of the mine operated by Lafayette Philippines Inc. (LPI) for the extraction of gold, copper, and zinc on the island of Rapu-Rapu in the province of Albay illustrates how, handled improperly, mining incidents can arouse the passions of local communities and even reach the level of national controversy. As described earlier, the Philippines has a negative mining legacy that remains fresh in people's minds. This legacy, in combination with a deep mistrust toward the government and the lack of credible information sources, means that one serious misstep may lead to a mining company's closure. LPI's mine operations in Rapu-Rapu had two tailings pond accidents toward the end of 2005, leading to two toxic spills. The spills led to a panic associated with fears of mercury and cyanide contamination and damage to the fishing industry. In fact, the actual contamination and economic losses were not major.

Nevertheless, the natural conditions of Rapu-Rapu island that contributed to the accidents (rainy climate and steep terrain) were well known, and LPI had had only mixed results in winning local support for the mine from the outset. Among the factors contributing to negative local perceptions were arrangements for capital income tax breaks (32 percent as opposed to 5 percent), a lack of local hires, limited social and community benefits, and a lack of environmental safeguards in case of mine spills. The outcome of the spills was not only the suspension of LPI's license for operation, which meant a sudden net loss of \$7.5 million in revenue, but also a widespread call for reconsidering mining in the entire mining sector in the country (*Agence France-Presse* 2006).

A closed door policy? A number of precedents also exist where poor mining practices have led a municipality or even a country to declare a moratorium on mining. One mining disaster that has taken on mythic proportions in the Philippines and is still fresh in the minds of citizens and government officials alike is the Marcopper mine on the island of Marinduque. Through the 1970s and 1980s, Marcopper mine tailings were dumped into Calancan Bay, damaging the local fishing industry. Marcopper was mandated to pay for a Calancan Bay Rehabilitation Program. In 1982, a dam failure led to the inundation of agricultural land with tailings up to 1.5 meters in depth. In December 1993, the Maguila-guila siltation dam collapsed, causing the death of two children, lost livestock, and the flooding of downstream communities (*Philippine Indigenous Peoples Links* 2003).

The greatest disaster, however, occurred in March 1996, when a cement plug in an open pit drainage tunnel burst and millions of tons of tailings filled the Makulaquit and Boac river systems. Five villages had to be evacuated, and an estimated 20,000 villagers were affected (UNEP 1996). Damages have been estimated at \$80 million or higher (UNEP MRF n.d.). The government of Marinduque sued Placer Dome, a Canadian company that had a 40 percent share in Marcopper, for \$100 million (Aglay and Ferrer 2005). The experience of Marcopper in Marinduque is one of the main reasons for the moratorium on mining in four local government units (LGUs), including a 25-year moratorium in Marinduque, a 15-year moratorium in Capiz, a 25-year moratorium in Mindoro Oriental, and an indefinite moratorium in Eastern Samar (Mines and Communities Organization 2003).

Another somewhat different example has to do with the Australian firm Sino Gold, which pulled out of eastern Tibet in 2003. The pullout occurred after the company's development activities of a mine in the region led to an effective international opposition campaign, "Hands off Tibet! Campaign Network" backed by several international NGOs such as the Mineral Policy Institute, the Mercy Foundation, AID/WATCH, and the Australian Tibet Council (ATC). The campaign not only led to the withdrawal of Sino Gold from Tibet, but also caused Sino Gold to commit to a cessation on the exploration and exploitation of Tibetan resources until Tibetans are free to decide how their resources are to be used (Australia Tibet Council 2003).

If China's aggressive drive to explore and mine minerals is not matched by increasing adherence to emerging responsible mining practices, China also may find certain countries and communities closing their doors. But other factors may enter the equation that might allow China to secure continued access. Large loans from China may enable some countries to forego other donors' participation without fear of a loss of revenues (Reed 2006).²³ China has almost a trillion dollars in hard currency available for "loans for big projects to

countries that used to be the sole preserve of the World Bank, the Asian Development Bank, the United States, and Japan” (Perlez 2006b).

Yet, the entire matter is complex, as countries have to weigh geopolitical costs as well. China’s large appetite and aggressive strategy, such as securing transport routes for its exclusive use, has led to the accusation from various developed countries that China is “locking up” resources, an accusation some small countries may fear will involve them in geopolitical tensions (Giacomo 2006).

Some Positive Signs

Mine safety. Despite the forgoing concern, China’s recent initiatives to revamp the management of its own mines show that the country gradually may be moving in the right direction in terms of good mining practices and standards of conduct in the extractive industries (Firman 2005, *Global News Wire-Asia Africa Intelligence Wire* 2005b, Xinhua News Agency 2005b). In February 2005, the Chinese State Administration of Work Safety (SAWS) allocated US\$6.3 billion over the next three years to improve mine safety at all state-owned mines (*M2 Presswire* 2006). In response to high fatality rates in the mining sector, China has deployed a wireless mine management and safety device called iPMine that provides real-time tracking and monitoring of mobile mineworkers throughout any underground mining operation. The SAWS also has issued the order that at least one member of a coal mine’s management team must descend into the shafts with the miners (Chan and Liu 2005).

Environmental stewardship. The importance of environmental stewardship has gained greater attention in China for several reasons. The first is the realization that if environmental protection does not improve, the cost of cleaning up pollution will rise exponentially. Second, the lack of environmental protection has led to widespread social unrest. In 2005, there were more than 50,000 environmental disputes involving mass protests. More alarming is that the rate of such protests has been growing by 30 percent per year (*China Daily* 2006). Third, environmental mishaps in 2005 alone caused up to 105 million yuan (US\$13 million) in economic losses (Xinhua News Agency 2006b). China is also eager to gear up environmental protection and improve environmental quality for fear of negative impressions when it hosts the 2008 Olympics in Beijing.

These and other conditions led to the “Interim Measures on Administration Permission Hearings for Environmental Protection” by the State Environmental Protection Administration in 2004, and, in June 2006, the “White Paper on Environmental Protection” by the Information Office of China’s State Council. Actual measures to improve environmental conditions thus far include earmarking \$3.3 billion to clean up the Songhua River in the northeast; adopting emissions trading measures to curb emission; a plan to clean up heavily polluted regions and reverse degradation of water, air, and land by 2010; and a plan to transform all existing buildings into energy-saving buildings (saving an additional 65 percent of energy per square meter) by 2020 (*Catholic News Times* 2006; *Xinhuanet* 2006; Beck 2006; Predd 2005; World Business Council on Sustainable Development 2006).

Timber import bans. Developments in the timber sector, although not directly related to mining, may augur China’s increasing engagement with international norms pertaining to trade in natural resources. In March 2006, the Forest Stewardship Council (FSC) of the World Wildlife Fund (WWF), a WWF initiative to eliminate illegal logging and promote better management of threatened forests, launched a program in China that marks the first steps toward the development of a forest certification scheme within the country (Global Forest & Trade Network 2006). This was the fruit of an effort made by the FSC China Working Group, which elected an 18-person Council that will lead the development of the forest certification standards. As part of the initiative, a Chinese chapter of WWF’s Global Forest & Trade Network (GFTN) was created. The China Forest & Trade Network (China FTN), a joint program between WWF China and WWF Hong Kong, also was formed with a mandate to eliminate illegal logging and improve the management of threatened forests in China and in countries from which China imports wood and fiber. China FTN also serves as a forum for Chinese companies to demonstrate that they produce and purchase forest products in a responsible manner (China Forest & Trade Network).

Aside from WWF and Global Witness-assisted initiatives, China is also working with the European Union and Indonesia to reduce illegal logging and timber smuggling from Southeast Asia (Viet Nam News Agency 2006). China's recent participation in the efforts to block timber imports from Liberia and Burma, countries experiencing particularly serious illegal logging, are hopeful signs that China can respond positively to international initiatives in extractive industries (GlobalTimber.org.UK).²⁴ Given the role China still plays in illegal timber consumption and supply, however, additional initiatives are necessary before there can be any significant reduction in the illegal trade.²⁵

New proposals also are needed in the mining area, where international NGOs and advocacy groups can play an important role in encouraging China to participate in responsible mining practices. Clearly there is a fundamental need to connect China with international networks in which numerous initiatives and frequent dialogues dealing with responsible mining are already taking place.

Recommendations

China

China appears to be at a potential turning point with regard to environmental protection. China's realization of the importance and urgency of greater environmental protection, coupled with mounting concerns expressed by stakeholders both inside and outside of the country, have caused it to rethink in a more balanced fashion the issue of the relationship between the environment and economic growth. New or revised rules and regulations, as captured in the recently published "White Paper on Environmental Protection," have focused on implementing stricter environmental standards and heavier penalties for violators as well as greater economic incentives for environmentally friendlier technologies and production processes.

For more responsible mining both at home and abroad, China needs to take substantial and tangible steps toward improving public participation in its mining activities, from the earliest to the last stages. Although the country has passed an interim law to facilitate greater public participation in environmental decision-making (especially through the EIA process), public participation was mentioned in the White Paper only in the context of promoting environmental technologies. Public consultation and public participation, however, are of key importance to the emerging international standards on responsible mining.

One of the most effective ways for China to move closer to international norms and best practices in mining is by involving its state enterprises with emerging codes of conduct and international networks working on mining issues.²⁶ However, unless China has the political will to work toward responsible mining, being a member of these networks and signing agreements will not help it avoid any of the numerous possible negative outcomes that could result from its mining operations abroad.

China finances its mining activities mainly through its own banks, hence the lower relevance of the socially responsible investment initiatives governing the worlds' major international financial institutions. However, China could choose voluntarily to align itself with or adopt these guidelines for responsible investment. If not, China may eventually suffer from low ratings in such international rankings as the *Citigroup Sustainability Mining Index*.

Based on the experience of developing countries, NGOs in China can play the important role of 1) communicating government policies and relevant laws to local leaders and communities, 2) formulating and advocating policies on behalf of the disadvantaged, 3) paralegal training of local leaders and communities to enable them to better exercise their rights, and 4) linking up with international NGOs for resources and greater impact. At present, however, the room for maneuver of NGOs in China remains limited.

A number of normative statements, guidelines, and directives at the international level also should be especially helpful to Chinese NGOs, who have only recently turned their attention to China's mining practices domestically and internationally. The *OECD Guidelines for Multinational Enterprises*, the global business

network of *Business for Social Responsibility*, the World Bank's "Operational Directive on Indigenous Peoples," the IFC's "Policy Statement on Forced Labor and Harmful Child Labor," EITI, GRI, and the *Framework for Responsible Mining: A Guide to Evolving Standards* by Miranda et al. (2005) are just a sampling of a large and growing set of emerging international standards for mining projects.

Host Countries

Host governments include all levels of government, from the central government to the local level that most directly governs the mine site's host community. In all cases, the most important issue in relation to host governments can be summed up with one concept: fair revenue sharing.

In many developing countries, in order to entice mining investments, host governments offer financial perks that leave them with very low mining proceeds. Although mining firms are required in some cases to put up a bond to dispense funds in the event of mine accidents and for mine management after closure, the size of such bonds typically has been low compared to the potential long-term damages. In conjunction with the sometimes low revenues and funds generated from mining for the central government, there is the problem of local governments getting an unreasonably small share of an already small pool of mining proceeds.

In general, there is a need for the host governments of mineral production operations to look closely at the issue of financial returns, particularly in light of the greater environmental awareness now observable in communities around the globe. In order to justify the large-scale physical transformation that commercial mining requires and the environmental, health, social, and cultural risks taken by the host communities, governments must build into mining contracts ample financial safeguards against risk. Additionally, the local governments and communities most directly affected by the mine should receive financial benefits and contributions to social welfare from mining proceeds.

Host communities facing the entry of Chinese or other mining firms should at the very least be fully informed about relevant norms and best practices for community and social benefits from mining. They should then work closely with both other levels of government and local and international NGOs to ensure respect for the communities' rights and wishes.

Conclusion

There are clear gaps between China's current practices and emerging international norms and standards in the mining sector. A few recent hopeful signs in China include the large amount of government funding now budgeted for improving mine safety, the passage of a new law for greater public participation in the EIA process, the official White Paper on environmental protection, and, as a positive normative example, the import ban on timber from Burma and Liberia. At present, however, one can only be cautiously optimistic based on these incremental measures. Whether the crackdown on environmental violations and the law for greater public participation in environmental decision-making reflect the beginning of a new era in natural resource management in China remains to be seen.

In regard to China's overseas practices, one also should view the recent import bans on illegal timber from Burma and Liberia with circumspection. Skeptics view these bans as modest steps that merely help to assuage the fears of the international community in regard to China's aggressive worldwide acquisition of natural resources. Similarly, China may or may not be willing to pursue mining in ways that consistently adhere to international norms. China's dealings with authoritarian mineral-rich governments shunned by the international community may serve as indicators of its chosen direction.

In addition to China's own reforms, it is important to sustain the actions of NGOs, financial institutions, and the governments of developed countries to encourage or pressure China to incorporate international mining norms into its operating practices. These efforts could have both direct and indirect beneficial effects on China's mining policies.

Absent substantial and extended policy reforms, there remains the possibility that China's search for minerals will result in failed investments, diminishing access to natural resources in the developing world, heightened instability, and conflict. That would be highly costly, in different ways, to both China and the host countries. The hope is that, before either China or the developing world has to experience such outcomes, China closes the gap between its current practices and emerging international norms and practices in the mining industry.

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Appendix A

International Standards, Codes of Conduct, and Reports Relevant to Mining

- 1941 — International Labor Organization (ILO) — ILO 81 Regarding Labor Inspection**
- 1977 — ILO — ILO 148 Regarding the Working Environment**
- 1981 — ILO — ILO 155 Regarding Occupational Health and Safety**
- 1985 — ILO — ILO 161 Regarding Occupational Health Services**
- 1986 — ILO — ILO 162 Regarding Asbestos**
- 1990 — ILO — ILO 170 Regarding Chemicals**
- 1990 — Inter-American Development Bank (IADB) — Annex: Strategies and Procedures on Socio-Cultural Issues as Related to the Environment**
- 1991 — World Bank — Operational Directive on Indigenous Peoples**
- 1992 — Agenda 21 or the Rio Declaration on Environment and Development.** Agenda 21 was adopted by more than 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, 1992.
- 1995 — Copenhagen Declaration for Social Development.** At the conclusion of the World Summit for Social Development in 1995, governments adopted a Declaration and Programme of Action that represented a new consensus on the need to put people at the center of development.
- 1995 — ILO — ILO Convention on Safety and Health in Mines (ILO 176)**
- 1996 — International Standards Organization (ISO) — ISO 14001 Standard for Environmental Management Systems**
- 1997 — Organization for Economic Cooperation and Development (OECD) — Convention on Combating Bribery of Foreign Public Officials in International Business Transactions**
- 1998 — Amnesty International — Human Rights Principles for Companies**
- 1998 — IFC Policy Statement on Forced Labor and Harmful Child Labor**
- 1998 — ILO Declaration on Fundamental Principles and Rights at Work**
- 1998 — World Bank and International Finance Corporation (IFC) — Environmental and Social Policies and Procedures**

- 1998 — World Bank — Pollution Prevention and Abatement Handbook on Base Metal and Iron Ore Mining**
- 1999 — OECD Principles of Corporate Governance**
- 2000 — OECD Guidelines for Multinational Enterprises**
- 2000 — UN Proposed Human Rights Code of Conduct for Companies**
- 2000 — United States and United Kingdom –Voluntary Principles and Human Rights**
- 2001 — Mineral Policy Center (MPC) —“A Platform for Responsible Mining, Community Rights, Company Responsibilities, and Responsible Practice”**
- 2002 — IFC Handbook for Preparing a Resettlement Action Plan**
- 2002 — International Cyanide Management Institute — International Cyanide Management Code**
- 2002 — Mining, Minerals, and Sustainable Development (MMSD) — “Breaking New Ground: Mining, Minerals, and Sustainable Development” Report.**
- 2002 — The Equator Principles.** In October 2002, a small number of banks convened in London, together with the World Bank Group's International Finance Corporation (IFC), and decided jointly to develop a banking industry framework for addressing environmental and social risks in project financing. This led to the drafting of the first set of Equator Principles, which subsequently were adopted by over 40 financial institutions during a three-year implementation period.
- 2002 —United Nations Report on the Workshop on Indigenous Peoples, Private Sector Natural Resource, Energy, Mining Companies and Human Rights**
- 2003 — Extractive Industries Transparency Initiative (EITI).** EITI is supported by an International Secretariat presently based in the UK’s Department for International Development. The Secretariat works closely with the World Bank and the IMF and receives support from donors, mining companies, and civil society groups. The primary beneficiaries of EITI are the governments and citizens of resource-rich countries.
- 2003 — Guidelines for Sustainability of the Global Reporting Initiative (GRI).** The GRI refers to the large multistakeholder network of thousands of experts, in dozens of countries worldwide, who participate in GRI’s working groups and governance bodies, use the GRI *Guidelines* to report, or contribute to the development of the GRI reporting framework in other ways – both formally and informally. To date, nearly 1000 organizations in over 60 countries have used the GRI Framework as the basis for their reporting.
- 2003 — International Council on Human Rights — “Beyond Voluntarism: Human Rights and the Developing International Legal Obligations of Companies”**
- 2003 — International Council on Mining and Metals (ICMM) — Sustainability Principles**

- 2003 — UN Sub-Commission on the Promotion and Protection of Human Rights — UN Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights**
- 2003 — World Bank’s Extractive Industries Review (EIR)**
- 2004 — IFC Environmental Health and Safety Guidelines for Precious Metal Mining, Draft**
- 2004 — International Peace Academy — Assessment of the Liability of Business Entities for Violations of International Law**
- 2004 — Overseas Private Investment Corporation (OPIC) – OPIC Environmental Handbook**
- 2004 — Oxfam Community Aid Abroad — Benchmarks for the Mining Industry**
- 2005 — World Resources Institute and the Center for Science in Public Participation — Framework for Responsible Mining**
- 2005 — International Monetary Fund — Guide on Resource Revenue Transparency**
- 2006 — Citigroup Research — Citigroup Sustainability Mining Index**

Endnotes

¹ For more detailed information on this trend, see <http://www.intracen.org/tradstat/>.

² In 2005, China's GDP increased by approximately 10 percent, exports grew by 23 percent, and imports rose by almost 18 percent. The imports and exports of minerals, metals, and processed products accounted for almost 22 percent of this trade (*Mining Journal* 2006). For a review of China's demand and supply of major minerals, see *Mining Magazine* (2006) and *Mining Journal* (2006).

³ World copper consumption could reach 24 metric tons by 2020 with China using about 5.6 metric tons (Menzie et al. 2004).

⁴ The bank chose the "free, prior, and informed consultation" provision in spite of the recommendation by its own Extractive Industry Review of 2003 to adopt the stricter requirement of "free, prior, and informed consent." The concern with respect to the latter was that "consent" might be blocked by a small and unrepresentative minority within a community.

⁵ President Hu took his first African trip in 2004, visiting Egypt, Gabon, and Algeria (Xinhua Online 2006).

⁶ CNOOC has also been active in Equatorial Guinea, Chad, and Gabon (Markman 2006).

⁷ Ferrochrome is a finishing material which contains about 70 percent chromium. It is used when it is desired to add chromium to steel (<http://metals.about.com/library/bldef-Ferrochrome.htm>).

⁸ Venezuela is at present the third most important source of foreign oil to the U.S. (Markman 2006).

⁹ However, as transportation costs to China are relatively high given the long distance and given that the oil is crude (and therefore hard for most refineries in China to process), analysts say the economic attractiveness of Venezuela oil is more likely to be an investment opportunity, where China develops the oil fields in Venezuela and sells the oil elsewhere (Graham-Harrison 2006).

¹⁰ China is a partner with Brazil in establishing a rail link to the Pacific to cut transportation costs of iron ore and soy beans (Adams 2006).

¹¹ The 'missteps' by the United States and Japan in Southeast Asia, including their response to the 1997 Asian financial crisis and generally low priority given to the region, form another important contributor to China's rise in Southeast Asia, according to Dillon and Tkacik (2005) and Kurlantzick (2006).

¹² The China-ASEAN Free Trade Zone grants a period of duty-free entry for ASEAN member states' goods into the Chinese market. The period generally lasts for three years, commonly referred to as the "early harvest," after which Chinese goods have reciprocal free entry (Dillon and Tkacik 2005).

¹³ The most important mineral thus far has been nickel; China has invested in two large nickel mines in Myanmar where the first investment alone was \$500 million (Thu 2005a).

¹⁴ There is a tri-level structure of legislative power whereby the lower levels are subject to, and must not contravene, the higher level. The three levels of legislative power consist of national legislation (the National People's Congress), followed by the state administrative rules and regulations, and finally, by the local regulations (provincial congresses) (Macbride and Bei 2001).

¹⁵ See, also, "China's Policy on Mineral Resources," issued by the Information Office of the State Council through the *People's Daily Online* in December 2003.

¹⁶ Sometimes this even includes provisions on the ownership and financing of these infrastructures after the mine's closure (Zhong 2000).

¹⁷ Pneumoconiosis is a diagnosable disease of the lungs produced by the inhalation of particulate matter (International Labor Organization). <http://www.ilo.org/encyclopedia/?print&nd=857400196>

¹⁸ A recent Council on Foreign Relations report on Africa notes that China has supplied Sudan with small and large arms. China has even established three arms factories in Sudan.

¹⁹ The complete list of ILO standards by subject and status may be consulted at the ILOLEX database available at <http://www.ilo.org/ilolex/english/convdisp1.htm>.

²⁰ Rare earths are made up of a composite of chemical elements. The "rare" part of rare earths comes from the difficulty in separating out rare earths into elemental minerals, and not due to a low abundance. The mass of rare earths is in fact many orders of magnitude greater than the sum of all precious metals. (Barrett and Dhesi 2001).

²¹ This attack actually marked the third incident of violence against U.S. operations in Indonesia in one week. Four Indonesian security officers were killed on March 16, 2006 in a protest against Freeport-McMoRan Copper and Gold, also a U.S.-based company, in eastern Papua. Three days later, Indonesian police were called in to suppress a demonstration in central Java over ExxonMobil's decision to tap the oil reserve in Cepu (Strategic Forecasting Inc. 2006).

²² Social unrest over environmental issues has been rising within China itself. In 2005 there were upward of 70,000 environmental protests, each involving a minimum of 50 people (Economy 2005, Beech 2006).

²³ More than 20 Chinese companies have joined together to establish a chamber of commerce in Angola (Reuters 2006).

²⁴ It should be noted, however, that the Burmese authorities have been taking action against illegal outflow of timber to China since 2005 (Global Witness 2006).

²⁵ China is one of the world's leading importers and suppliers of illegal timber; the countries China has imported from include Brazil, Burma, Cambodia, Congo, Equatorial Guinea, Gabon, Indonesia, Liberia, Malaysia, Papua New Guinea, Russia, and Solomon Island (Global Timber.ORG.UK)

²⁶ For a list of initiatives on responsible mining, see <http://www.responsiblegold.org/codes.asp>.

References

- Adams, David. 2006. China mines Latin America's riches: A succession of high-level visits to the 'backyard' of the U.S. *Ottawa Citizen*, May 23. www.nexis.com.
- Aglay, Dolly and Wendy Ferrer. 2005. Philippine lawsuit a reminder of mining pitfalls. *ABS-CBN Interactive*, October 11. <http://www.theminingnews.org/news.cfm?newsID=1493>.
- Africa News Service. 2005. Zimbabwe: Chinese consortium buys into chrome mining sector, July 6.
- Agence France-Presse. 2005. Death toll from China mine blast reaches 74 as relatives await news, December 8.
- . 2006. Foreign miners hope Philippines will stand by pledges to open up, May 25. http://www.breitbart.com/article.php?id=060525045752.6bp0phwa&show_article=1.
- Agence France-Presse (Beijing). 2006. China environmental woes threaten social stability, May 5. http://www.terraviva.com/reports/China_Environmental_Woes_Threaten_Social_Stability.html.
- Amalric, Franck. 2005. The Equator Principles: A step towards sustainability? Center for Corporate Responsibility and Sustainability Working Paper no. 01/05. <http://www.banktrack.org/doc/File/policies%20and%20processes/Equator%20Principles/050101%20The%20Equator%20Principles%3B%20a%20step%20towards%20sustainability.pdf>.
- Andrews-Speed, Philip, Guo Ma, Bingjia Shao and Chenglin Liao. 2005. Economic responses to the closure of small-scale coal mines in Chongqing, China. *Resources Policy* 30 (1): 39–54.
- Arostegui, Martin. 2006. U.S. rivals eye Bolivian gas, minerals. *The Washington Times*, January 24.
- Arriaga, Alexandra. 2004. Congressional human rights caucus corporate social responsibility: Human rights and transnational corporations. Address at the Congressional Human Rights Caucus, New York. <http://www.amnestyusa.org/business/csr.html>.
- Ashby, Tom. 2006. China seeks 'strategic partnership' with Africa. *Boston Globe*, April 27. http://www.boston.com/news/world/asia/articles/2006/04/27/china_seeks_strategic_partnership_with_africa/.
- AsiaPulse News*. 2005. Chinese mining industry to adopt development strategy. November 16.
- Australia Tibet Council. 2003. Human rights and environment groups call on Sino Gold to stay out of Tibet, press release, May 19. http://www.atc.org.au/news/media/20030519_sino_pr.html.
- Bakshian, Douglas. 2006. Revived Philippine mining activity renews debate over jobs and environment. *VOA News*, February 21. <http://www.allbusiness.com/government/3727471-1.html>.
- Barrett, S. D. and S. S. Dhesi. 2001. Introduction to the rare earths. In *The structure of rare-earth metal surfaces*, 1–18. London: World Scientific Publishing Ltd.
- BBC*. 2005a. Papua New Guinea landowner clan wants Chinese mining firm to respect laws. December 9.
- . 2005b. Zambia urges Chinese companies to open processing plants. December 25.

-
- . 2005c. Mugabe reportedly 'courting' Chinese to help mine uranium deposits. November 22.
- . 2006a. Chinese premier leaves Tanzania for Uganda. June 23.
- . 2006b. Diplomat says Chinese investment brings benefit to Zambia. May 17.
- Beck, Lindsay. 2006. China faces uphill battle to turn its growth green. *Environmental Valuation and Cost-Benefit News*, February 20. <http://envirovaluation.org/index.php?cat=192>.
- Beech, Hannah. 2006. Inside the pitchfork rebellion: Across China's heartland, anger at local authorities is growing violent. Is this the birth of a revolution? *Time*, March 5. <http://www.time.com/time/magazine/article/0,9171,1169902,00.html>.
- BNamericas*. 2005. Manhattan pulls out after US\$60mn Tambogrande Loww—Peru. February 7.
- Brown, Garrett. 2004. Vulnerable workers in the global economy. *Occupational Hazards* 66 (4): 29–31.
- Buckley, Lila. 2006. Local group nurtures indigenous voices in development of China's west. *China Watch*, February 21. <http://www.worldwatch.org/node/3882>.
- Business World*. 2005. RP, Indonesia seen benefiting from substantial mineral reserves. October 11.
- . 2006. RP, China eye 5-year cooperation program. June 1.
- Cabalda, Michael V., M.A. Banaag, P.N.T. Tidalgo and R.B. Garces. 2002. Sustainable development in the Philippine minerals industry: A baseline study. Mining, Minerals and Sustainable Development Paper no. 184. International Institute for Environment and Development. February 2002. http://www.ied.org/mmsd/mmsd_pdfs/184_cabalda.pdf.
- Catholic New Times*. 2006. China plans environmental revolution. May 7.
- Chan, Siu-sin and Josie Liu. 2005. 54 die, 2 missing in mainland mine blast, explosion is third major incident in two weeks involving scores of coal miners. *South China Morning Post*, December 8.
- Chávez, Franz. 2006. Bolivia: Campaign promise has natural gas investors shaking. IPS-Inter Press Service, January 11.
- Che, Xiuzhen, Jincheng Shang and Jinhua Wang. 2002. Strategic environmental assessment and its development in China. *Environmental Impact Assessment Review* 22 (2): 101–109.
- Chen, Jia-gui and Huang Qun-hui. 2001. Comparison of governance structures of Chinese enterprises with different types of ownership. *China & World Economy* 6. unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN003085.pdf.
- China Business News*. 2006a. Chinese company to develop gold mines in Sudan. March 16.
- . 2006b. Yunnan copper gets RMB 3bln credit line to develop resources overseas. April 13.
- China Business News Online*. 2006. Yunnan copper gets RMB 3bln credit line to develop resources overseas. April 13.
- China Business Weekly*. 2004. Chinese companies advance across the globe. October 23.

-
- China Daily*. 2005. Mining industry adopts development strategy. November 16.
- . 2006. Environment issues to be addressed more urgently. May 4.
- China Metals Weekly*. 2005. Chinese mining company announced tender for mine feasibility study. December 9.
- . 2006a. China's Shandong Gold to mine gold in Venezuela in December. April 14.
- . 2006b. China's 'not in my backyard, but in yours' resource development. April 14.
- ChinaRen*. 2006. Liao Wang: The “top one hundred provinces” are in fact poverty provinces. May 15.
- Christian Aid. 2004. Breaking promises, making profits: Mining in the Philippines. <http://www.christian-aid.org.uk/indepth/412philippines/index.htm>.
- Clark, Allen, L., Webster Callicutt, and William Samuel Pintz. 1994. The Philippine mineral sector to 2010: Policy and recommendations. Asian Development Bank Project Report TA no. 1894-PHI.
- Congressional Planning and Budget Department. 2005. Facts and figures—Philippine mining industry.
- Creamer Media's Mining Weekly Online*. 2006. Chinese firms pour billions into resource projects. April 21. <http://www.engineeringnews.co.za/eng/news/breaking/?show=84455>.
- Danilo, Israel C. and Jasmina P. Asiro. 2000. Mercury pollution due to small-scale gold mining in the Philippines: An economic analysis. Philippine Institute for Development Studies Discussion Paper no. 2000-06. <http://publication.pids.gov.ph/details.phtml?pid=1>.
- Deloitte and Touche Global. 2002. Mining for the best report. http://www.deloitte.com/dtt/cda/doc/content/MiningMinerals_CER-CSR_Survey-protected.pdf.
- Dillon, Dana and John J. Tkacik Jr. 2005. China's quest for Asia. *Policy Review* 134:29–45.
- Economist Intelligence Unit*. 2006a. Cambodia. Country report. *EIU.com*, June.
- . 2006b. Indonesia. Country report. *EIU.com*, August.
- . 2006c. Laos. Country report. *EIU.com*, July.
- . 2006d. Malaysia. Country report. *EIU.com*, June.
- . 2006e. Philippines. Country report. *EIU.com*, July.
- . 2006f. Thailand. Country report. *EIU.com*, July.
- Economy, Elizabeth. 2005. China's rapid development and the environment. Interview by Neal Conan. *Talk of the Nation*, December 21. <http://www.npr.org/templates/story/story.php?storyId=5064697>.
- Elliott, Larry. 2006. Poor nations ride high on commodity boom but aid agencies worry about the bust: High oil and metal prices have boosted economies of sub-Saharan Africa. *The Guardian*, May 10.

-
- Embassy of the Republic of the Philippines. 2005. A primer on mining in the Philippines. <http://philippineembassy-usa.org/other/miningprimerrp.htm>.
- Emmott, Robin. 2005. Peru miners feel oppressed by China's Shougang. Reuters, July 21. <http://www.minesandcommunities.org/Action/press686.htm>.
- Firman, Carl. 2005. China promises reform to attract mining investment. *The Mining Journal*. November 18.
- Foley, Meraiah. 2006. China signs US\$650 mining deal with Papua New Guinea at South Pacific forum. Associated Press, April 4.
- Giacomo, Carol. 2006. US and China to launch Latin America dialogue. Reuters, March 21.
- . 2005b. Tough hand to tighten control of mine sector. Business Daily Update, September 22.
- . 2006. Losing Africa to China. Indian Express, January 15.
- Global Forest & Trade Network. n.d. What is the China forest and trade network? <http://www.forestandtradeasia.org/guidance.html?cnt=China&lang=English&mID=94&cID=358>.
- Global Witness. 2006. China blocks timber imports from Burma, press release, May 30.
- GlobalTimber.org. 2005. China—illegal imports and exports. <http://www.globaltimber.org.uk/ChinaIllegalImpExp.htm>.
- Graham-Harrison, Emma. 2006. Chavez seeks Chinese support, Beijing wants oil. Reuters, August 19.
- GreenBiz.com*. 2006. New report: Oil companies using ethical transparency to great promotional effect. April 13. http://www.greenbiz.com/news/news_third.cfm?NewsID=30821.
- Gunson, A. J. and Yue Jian. 2001. Artisanal mining in the People's Republic of China. Mining, Minerals and Sustainable Development Paper no. 74. International Institute for Environment and Development. http://www.iied.org/mmsd/mmsd_pdfs/asm_china.pdf.
- Gunson, A. J. and Marcello M. Veiga. 2004. Mercury and artisanal mining in China. *Environmental Practice* 6:109–120.
- Han, Dongfang. 2005. China's mining tragedies. *Asian Wall Street Journal*, August 10.
- Johns, Elizabeth. 2006. China's Latin dance. Agence France-Presse, May.
- Kosich, Dorothy. 2006. Citigroup supports environmental, social responsibility. *Mineweb*, March 17.
- Kristof, Nicholas D. 2006. China and Sudan: Blood and oil. *New York Times*, April 23.
- Kurlantzick, Joshua. 2006. China's charm offensive in Southeast Asia. *Current History* 105 (692): 270–7.
- Latin America News Digest*. 2006. Chilean Codelco, Chinese Minmetals sign cooperation agreement. February 22.

-
- Leonard, Andrew. 2006. The new African queen: China. *Salon.com*, March 22.
- Liang, Youxin et al. 1998. Provision of occupational health services in China. *Asia Pacific Journal of Occupational Health & Safety* 2:1–5.
- Lo, Carlos Wing-Hung, Shui-Yan Tang, and Shek-Kiu Chan. 1997. The political economy of EIA in Guangzhou. *Environmental Impact Assessment Review* 17 (5):371–382.
- Lopez, Salvador P. 1992. *Isles of gold: A history of Philippine mining*. Oxford: Oxford University Press.
- Lyman, Princeton. 2006. China's growing role in Africa.
http://www.cfr.org/publication/8436/chinas_rising_role_in_africa.html.
- Lynch, David J. 2003. World's deadliest coal mines power China's progress. *USA Today*, July 7.
- . 2006. China's growing pull puts Brazil in a bind: South American nation swamped by imports. *USA Today*, March 21.
- M2 Presswire. 2006. I-Packets Intl Inc: Early bird messenger stock to watch IPKL makes gains in China, January 26.
- Macartney, Jane. 2006. China's battle for resources in Africa. *The Australian*, January 13.
- Macbride Jr., W. L. and Wang Bei. 2001. Chinese mining law overview. *Global InfoMine*, June 15.
<http://www.infomine.com/suppliers/supplymine-news/June15-2001.html>.
- Manila Standard*. 2004. Philnico, 2 Chinese firms negotiate \$1b rehab plan. November 23.
- Markman, ByJon D. 2006. How China is winning the oil race. *TheStreet.com*, April 27.
http://www.thestreet.com/_tsclsii/comment/investing/10281893.html.
- . 2005. Framework for responsible mining: A guide to evolving standards.
<http://www.frameworkforresponsiblemining.org/docs.html>.
- Mbachu, Dulue. 2006. China, Nigeria, sign big deals as Beijing pledges higher profile in Africa. Associated Press, April 28.
- Menzie, David, Pui-Kwan Tse, Mike Fenton, John Jorgenson, and Hendrik van Oss. 2004. US Geological Survey: China's growing appetite for minerals—review of reviewed item.
<http://pubs.usgs.gov/of/2004/1374/>.
- Mineral Policy Institute. 2005a. Ramu nickel mine: Ocean dumping mine source of controversy.
www.mpi.org.au/regions/pacific/png/ramu/.
- . 2005b. Ramu landowners: “We are not going to let this mine proceed.”
www.mpi.org.au/regions/pacific/png/ramu/.
- . 2005c. Ramu nickel alert: Rai coast environmental activist violently attacked by “the company men.” www.mpi.org.au/regions/pacific/png/ramu/.
- . 2005d. Local communities signal intent to prevent ocean dumping Ramu mine.
www.mpi.org.au/regions/pacific/png/ramu/.

-
- Mines and Communities. 2003a. Marinduqueños unite against mining. <http://www.minesandcommunities.org/Action/press227.htm>.
- . 2003b. Indonesian government again pushes parliament to approve 13 mining operations. *Miningindo Weekly e-Newsletter*, December 18. <http://www.minesandcommunities.org/Action/press239.htm>.
- Mining Journal*. 2006. Chinese growth continues. May 19.
- Mining Magazine*. 2006. Firm Eastern grip. July.
- Miranda, Marta, Philip Burris, Jessie Froy Bincang, Phil Shearman, Jose Oliver Briones, Antonio La Viña, and Stephen Menard. 2003. Mining and critical systems: Mapping the risks. http://www.wri.org/biodiv/pubs_description.cfm?pid=3874.
- Namjil, Gambat. 2006. Mongolians protest over mining policies. Associated Press, April 18.
- Ninness, John. 2005. Taking a world view of occupational health and safety. East Brisbane: Ninness Consulting, Australia.
- O'Rourke, Breffini. 2006. Iran/China: Oil deal reflects geostrategic realities. Radio Free Europe/Radio Liberty. February 22. <http://www.rferl.org/featuresarticle/2006/02/E4E2B10C-95F0-4B9C-826B-0C68922BFFF5.html>.
- Ottawa Citizen*. 2006. China looks to Africa to bolster its resources. January 12.
- Palaganas, Erlinda C. 2004. Save the Abra River movement gains international support. In *Ti Similla, Official Newsletter of the Academic Staff*. Baguio: University of the Philippines.
- Pañares, Joyce Pangco. 2006. Mining beckons, Gloria tells Chinese traders. *Manila Standard Today*, June 6.
- People's Daily Online*. 2003. China's policy on mineral resources. December 23. http://english.people.com.cn/200312/23/eng20031223_131048.shtml.
- . 2005. China hopes to expand trade, cooperation with Congo. http://english.people.com.cn/200502/25/eng20050225_174705.html.
- . 2006. Chinese premier holds talks with Congolese President, PM. http://english.people.com.cn/200606/21/eng20060621_275760.html.
- Perlez, Jane. 2006a. The Papuans say, this land and its ores are ours. *New York Times*, April 5.
- . 2006b. China competes with west in aid to its neighbors. *New York Times*, September 18.
- Philippine Daily Inquirer*. 2006. Subanens reject entry of China mining firm. February 18.
- Philippines Indigenous Peoples Links. 2003. A compilation of dam failures in gold mining areas.
- PlanetArk. 2002. Peru mining vote 'suspicious' —Manhattan Minerals. <http://www.planetark.com/dailynewsstory.cfm/newsid/16252/story.htm>.

-
- . 2006. China faces uphill battle to turn its growth green. <http://www.planetark.com/dailynewsstory.cfm/newsid/35237/newsDate/22-Feb-2006/story.htm>.
- Pottinger, Matt, Steve Stecklow, and John J. Fialka. 2004. Invisible export—a hidden cost of China's growth: Mercury migration. *Wall Street Journal*, December 20.
- Predd, Prachi Patel. 2005. A market for clean air: China adopts emissions trading to curb pollution. *Spectrum Online*, June 9. <http://www.spectrum.ieee.org/jun05/1220>.
- Prime-Tass Business News Agency. 2005. Russia's Chita region residents protest vs. Chinese mining co., October 11.
- Reed, John. 2006. China on track to win friends in oil-rich Angola: Beijing is more supportive and less critical partner than the west. *Financial Times*, March 4.
- Reuters. 2006a. China expands ties with oil-rich Angola, March 23.
- . 2006b. China denies human rights abuses in search for oil, April 27.
- Roux, Helene Le. 2006. Chinese firms pour billions into resources projects. *China Defense.com*, April 24.
- Rovillos, Raymundo D., Salvador B. Ramo, and Catalino Corpuz, Jr. 2003. Philippine case study. In *Meeting on Indigenous Peoples, Extractive Industries, and the World Bank*. Oxford, England: Forest Peoples Programme, Tebtebba Foundation.
- Shen, Lei and Philip Andrews-Speed. 2001. Economic analysis of reform policies for small coal mines in China. *Resources Policy* 27:247–254.
- SinoCast China Business Daily News*. 2006. Two Chinese firms to explore copper in Zambia. April 12.
- Sinomedia-EuroBiz Magazine*. 2005. EuroBiz briefs: Codelco, Minmetals sign deal. July. <http://www.sinomedia.net/eurobiz/v200507/briefs0507.html>.
- Slavin, Barbara. 2006. Beijing builds ties with Latin countries. *USA Today*, May 5.
- South China Morning Post*. 2004. Mainland miner gets Myanmar approval. July 23.
- State Administration of Work Safety China (SAWS). 2005. Accident statistics report.
- Strategic Forecasting Inc. 2004. The diverging worlds of human rights and the environment. January 30.
- . 2006. Violent protests in Indonesia: A message to multinationals? March 20.
- The Equator Principles Financial Institutions. 2003. World Bank and IFC specific guidelines (Exhibit III of The Equator Principles).
- . 2006. Financial institutions announce revision of Equator Principles underscoring the global application of environmental and social risk management. July 6. http://www.equator-principles.com/documents/EP_Readoption_Press_Release_FINAL.pdf.
- Thu, Kyaw. 2005a. Chinese buyers boost demand for rubellite. *The Myanmar Times*, August 25.

-
- . 2005b. Demand for galena mounts from China. *The Myanmar Times*, October 31.
- United Nations Environment Program/United Nations Department of Humanitarian Affairs (UNEP/DHA). n.d. Final report of the UN expert assessment mission: The Marinduque island mine disaster, Philippines. http://www.reliefweb.int/ocha_ol/programs/response/unep/unep4.html.
- United Nations Environment Program Mineral Resources Forum (UNEP MRF). n.d. Incidents: Marinduque (Marcopper mine)—tailings dam failure, Philippines. <http://www.mineralresourcesforum.org/incidents/Marinduque/index.htm>.
- US Embassy China. 1996. Gold mining in China: Taming the wild west. 1996. <http://www.usembassy-china.org.cn/sandt/goldw.htm>.
- Viet Nam News Agency. 2006. Indonesia, China, EU to cooperate against illegal timber trade, April 16.
- Walpole, Peter. n.d. Bridging corporate social responsibility and competitiveness: A civil society response to mining in the Philippines. <http://siteresources.worldbank.org/INTPSD/Resources/Philippines/Phil-Walpole-resized.pdf>.
- Wang, Z. Y. and Dien S. L. 2005. Public participation in Environmental Impact Assessment (EIA) law of China. <http://www.riel.whu.edu.cn/show.asp?ID=3082>.
- Wenger, R. B., H. Wang and X. Ma. 1990. Environmental Impact Assessments of the People's Republic of China. *Environmental Management* 14 (4): 429–439.
- Wilburn, David R. 2005. International mineral exploration activities from 1995 through 2004. USGS Minerals Information Team. Data Series 139. <http://pubs.usgs.gov/ds/2005/139/>.
- Williamson, Hugh. 2006. UN fears decline in non-financial reporting. *The Financial Times*, September 25.
- World Bank/FESS. 2005. The Millennium Development Goals and small-scale mining. A Conference for Forging Partnerships for Action. Communities for artisanal and small-scale mining, Washington, DC: The World Bank.
- World Business Council on Sustainable Development. 2006. Making tomorrow's buildings more energy efficient. <http://www.wbcds.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=MTk1MjU>.
- World Watch Institute (WWI). 2006. State of the world 2006: China and India hold world in balance. <http://www.worldwatch.org/node/3893>.
- WWF. 2006. WWF welcomes launch of the Forest Stewardship Council in China, press release, April 7. http://www.panda.org/news_facts/newsroom/index.cfm?uNewsID=66040.
- WPP-Business Opportunities in Asia & the Pacific*. 2006. Vietnam: Joint venture construction plans for proposed \$1,300,000,000 alumina plant and associated railway, ALUMINUM CORP. OF CHINA LTD.; CHALCO [China] & VIETNAM CHARCOAL GROUP [Vietnam] Order #: 0511306. May 1.
- Xinhua News Agency. 2005a. China, Myanmar sign mineral exploration agreement, August 15.
- . 2005b. China closes nearly 2,000 mines in safety drive, July 25.

-
- . 2006a. Chinese oil company starts drilling in Ethiopia, March 7.
- . 2006b. China to address urgent environmental issues, May 4.
- . 2006c. Over 500 Chinese poisoned in pollution accidents last year, June 6.
- Xinhua Online*. 2006. Ambassadors hail Hu's Africa visit. April 28.
http://news.xinhuanet.com/english/2006-04/28/content_4485344.htm.
- Xinhuanet*. 2002. The Environmental Impact Assessment law of the People's Republic of China. October 29. http://news.xinhuanet.com/zhengfu/2002-10/29/content_611415.htm.
- . 2006. Full text: Environmental protection in China (1995–2005). June 5.
http://news.xinhuanet.com/english/2006-06/05/content_4647221.htm.
- Yadi, Abby. 2005. Landowners want Chinese miners to respect culture. *PNG Post-Courier*, December 8.
- Yardley, Jim. 2006. China's leader signs oil deals with Africans. *New York Times*, May 1.
- Yin, Xingmin. 2006. New ways to the trade development between China and Latin America. Paper presented at the International Forum on Opportunities in the Economic and Trade Relationship between China and Mexico in a Latin American Context, Mexico City, Mexico.
- Zhong, Ziran. 1999. Natural resources planning, management, and sustainable use in China. *Resources Policy* 25:211–220.
- . 2000. Environmentally sustainable development of the mineral industries in China toward 21st century: Expert Group on Minerals and Energy Exploration and Development.
- . 2001. Mine closure and sustainable development in China—current status, problems, and policy. In *APEC/GEMEED Environmental Cooperation Workshop on Mine Closure and Sustainable Development*. Acapulco, Mexico: Expert Group on Minerals and Energy Exploration and Development (GEMEED).

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