MINING CONFLICTS IN PERU

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1 Introduction

Peruvians worry about recent social conflicts that arise in relation to new mining projects. In those conflicts, large sectors of local population show a violent opposition to mining activities. The cases of Tambogrande in Piura[1] and Cerro Quilish in Cajamarca[2] are only two examples of those conflicts.

Although historically mining in Peru has caused severe environmental damages (pollution in Oroya[3] and Toquepala[4]), that situation was also due to lack of national regulations. To a large extent mining activity was developed by transnational companies, which took home the bulk of the profits, and provided limited benefits to local population. However, investments of nationals in some mining projects already exist, and there is a clear conscience of the need to regulate the industry with the objective to share benefits.

Environmental damages are the main argument of opponents to mining development in Peru. The opposition rejects technical studies as the basis for decision making in mining activities because they tend to be one-sided. However, modern mining has achieved technological developments that allow to avoid or to mitigate the main environmental problems that it used to cause in the past.

The second argument of the opponents is that mining does not contribute economic and social benefits to the communities and to the country. However, mining has been an important economic activity in Peru, accounting for over 50% of exports during many years.

Our thesis is that mining projects should not be rejected *a priori*, but only when they do not fulfill certain basic conditions. These conditions are, essentially, that environmental management be made according to international standards, and that Mining transfers some of its benefits to local communities.

The general objective of this paper is to analyze mining conflicts in Peru as well as the importance of mining in Peruvian economy, its relation with regional economic development, and its environmental and social impacts.

In particular, this study sets out (i) to quantify the importance of mining for national development, (ii) to analyze the environmental impacts of mining, (iii) to propose a set of basic environmental and social conditions, which mining would have to fulfill so that mining projects are approved by the public authorities. The

[1] Northern Coast of Peru
[2] Northern Sierra of Peru
[3] Central Sierra of Peru
[4] Southern Coast of Peru

final goal is to improve the contribution of mining to sustainable development and to local communities.

2. Mining Conflicts: The case of Tambogrande

San Lorenzo valley is a 50 000 hectares irrigation project made in the 1960s. San Lorenzo has about 7 500 medium-size proprietors, producing mango, lemon, cotton, rice. The locality of Tambogrande is in San Lorenzo northeast of the city of Piura, in the basin of the Chira River[5].

The zone was object of a mining concession, approved by the Ministry of Energy and Mines (MEM) in September 1979. An agreement was approved with French company BRGM to prospect, to explore and to possibly set off the Tambogrande mine.

Later, Law 25284 of 1990 declared mining activity in Tambogrande of national necessity. This law authorized BRGM to eventually yield its mining rights, it established limitations to the environmental impacts on the town and agriculture, and it transferred to the regional government the special rights of the State, equivalent to 25% of the shares of the company.

In 1998-1999, BRGM sold their mining rights to Canadian company Manhattan Sechura Minera SA. By Supreme Decree, Peru declared of public necessity mining investment, even though it is within 50 km of the border with Ecuador[6]. As a result of these regulations, the areas to exploit include the city of Tambogrande (gold and silver), and some countryside such as the community of Locuto and some areas of small proprietors. Tambogrande has approximately 30 thousand inhabitants, half of them in the town. The main preoccupation to consider is the conflict between mining and agriculture in the zone.

Objections to the Tambogrande project arose since the 1990s. A first report questions the project on the basis of diverse problems such as competition for the water, acid water handling once the mine is depleted, toxic residues, and strong winds of the zone. That report recommends not make decisions on the project until all studies are completed; it suggests to make independent environmental studies and to ask for financial guarantees to cover the environmental long-term risk.

The National Institute of Natural Resources (INRENA) formulated many observations to the project. First it indicates that there is insufficient information for a technical opinion regarding the environmental viability of the project. It affirms that the information is insufficient for a cost-benefit analysis of the project vis-à-vis agrarian development, that the project did not consider a process of citizen participation, it mentions risks of water contamination, and that measures to mitigate damage would be insufficient.

[5] Postigo (2005)

[6] A Peru-Ecuador international treaty establishes that land property within 50 kilometers of the border is reserved only to Peruvian nationals.

The Pontifical Catholic University of Peru (PUCP) also makes objections. The PUCP argues that the information on the environmental impact study (EIS) is too general and has little deep. In addition, there exists a lack of rigor in methods to obtain data, and problems of consistency and absence of important indicators. PUCP concludes that the EIS requires revision and correction to guarantee the quality of life of the involved population and the safety of future generations.

The opposition strategy to the Manhattan Mine is based on the illegality of mining concession because it is less of 50Km of the border, and on the illegality of mining concession in urban areas. Therefore, the strategy raises the rejection to the culmination of the EIS, the refusal to accept independent audit of the EIS, the rejection to the accomplishment of informative factories and public hearings, and the refusal to new norms on consultation and participation. The only exit from this mess is a referendum to the population.

The beginning of the conflict was the call for a 48-hour general strike on 27-28 February 2001. At the request of leaders of Tambogrande, the Defensoría[7] supervised the strike, with the objective to avoid abuses on the part of the National Police against the demonstrators. The results of the strike were acts of violence (15 wounded settlers and 25 police) and vandalism (robberies and fires with damages over $600.000).

After the conflict worsened, it was decided to carry out a dialogue that would allow a consensus solution. This dialogue would be carried out between the representatives of the local community (Tambogrande and San Lorenzo) and the executive authority (Ministers of Mining and Agriculture, Head of INRENA).

The first meeting took place on October 21 2001 at the premises of the Defensoría, with participation of 19 representatives of organizations and local authorities of Tambogrande and San Lorenzo. The standpoint of the local community was the concern for mining activity in an agricultural zone, and the distrust on the independence of the consulting company contracted to elaborate the EIS.

The opinion of the executive authority was that legal procedures must be followed for approval of the EIS and for final authorization of the mining operation. Also, given the distrust respect to the EIS, the State suggested the hiring, with public resources, of an independent consultant chosen by the local community.

The immediate response of the representatives was to reject the offer of the Government and propose to call for a voting of the local population as a mechanism to resolve the conflict.

The consultation was made on June 2 2002. The question to people was: *Are you in agreement with the development of mining activity in the urban and agricultural areas or in favor of agricultural expansion of the district?* The results

[7] Ombudsman of the people of Peru

of the consultation were that 94% of voters pronounced against mining activity in the district.

Another dialogue was made on October 11 2002, with the additional participation of two NGOs : Oxfam and Transparencia. Representatives of the local community presented the results of the consultation, demanding that they should be accepted and recognized by Government. The government argued a different position. In this situation, the Mayor of Tambogrande (and President of the Defense Front) communicated to the Defensoría his decision to distance himself from the table, arguing breach of commitments by the executive authority and the Manhattan Company.

As a result of broken negotiations, the Tambogrande project has been filed. The failure of the dialogue to save a project of great potential for regional development may be explained as an awful enterprise practice of public relations with the local communities, an absence of leadership on the part of the State, a generalized distrust, the presence of political interests and local economic interests, and the interested presence of some NGOs.

3. Impact of mining in Peru

3.1 Importance of mining in Peru

At the macroeconomic level, mining represents nowadays in Peru over 50% of total exports, a 15% of GDP, and nearly 25% of tax collection.

One of the most objective indicators of the importance of mining in the national economy is the value of mining exports for the period 1990-2004. The growth has been impressive, from less than $1500 million to $6768 million dollars in the period 1990-2004. The average rate of growth is 9.2% annually.

The high growth of mining exports is explained because in the decade of 1990s there was a recovery of mining investments in Peru, induced by the process of privatizations of state companies. As we know, Peru is especially rich in mining resources and the favorable conditions for investment of transnational companies occurred in that decade.

Mining in Peru continued its expansion in 2000-2004; there are at present approximately 10 million hectares of land under exploration and operation, and there are five thousand petitions for concessions in other 3 million hectares.

Next we concentrate ourselves in the most important mining commodities, gold and copper.

3.2 Gold exports in Peru: Importance and Impacts

Favorable conditions for mining investment of transnational companies in 1990s allowed the implementation of investments in gold mining in Peru, especially the Yanacocha project in Cajamarca and Pierina project in Ancash. These projects have contributed to turn gold into the first export item of Peruvian economy.

Gold production has become one of the engines of growth of Peruvian economy. But in addition, around gold mining other activities like the sale of equipment, inputs, and services, as well as the marketing of metallic products are crowded together, which contributes to spread the impact of gold mining.

The following table provides data on total exports and gold exports of Peru in period 1991-2004.

Table 1.Gold exports of Peru 1991-2003 (million dollars)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Exports FOB	3408	3662	3384	4425	5492	5877	6824	5757	6088	6951	7007	7647	8986	11000
Exports GOLD	145	399	208	338	463	579	500	925	1193	1145	1166	1479	2044	2322

Source: Institute Cuanto "Peru in Numbers", 2004

The data shows the impressive growth of gold exports in the period. Export value has been multiplied sixteen times between 1991 and 2004, reaching $2322 million dollars. We estimate that the average annual growth of gold exports in 1991-2004 was equal to 24%.This is a very high rate of growth and shows the great advances in gold production in Peru. The explanation is the development of two great projects in Yanacocha and Pierina.

Minera Yanacocha SA is the main producing and exporting company, and is located in the department of Cajamarca in the north mountain range of the country. Yanacocha is a strategic alliance between the North American company Newmont Mining Corporation and the domestic mining group Buenaventura. Newmont is the greater gold producer of the United States and the second producer at world-wide level. The strategic alliance offers benefits to both companies. Newmont has the technology developed in its plant at Carlin (Nevada) and Yanacocha, by its low production costs, allows Newton to hold its position of leadership in the gold industry. Also, through Yanacocha, Buenaventura has become the first Peruvian group in developing large-scale mining. Sales of Yanacocha Mine have grown continuously in the period. Nowadays Yanacocha is the main exporting company of the whole Peruvian economy.

Finally, production of gold in Yanacocha has not been free of environmental impacts and it has also been involved in mining conflicts recently.

Economic Impacts

A crucial analysis is to consider the impact of gold exports from Yanacocha on the regional economy of Cajamarca and the Peruvian national economy. This may be done by calculating the indirect effects of gold exports. This calculation involves the concept of "multiplier" of exports.

INEI has calculated the multipliers for all sectors of Peruvian economy (INEI, 2001). For the "Non-Ferrous Metals" sector (where refined gold is classified) the income multiplier of gold exports is 2.18. The interpretation is that an increase of one dollar of refined gold exports generates an additional value added of 1.18 dollars in other sectors of the economy, as a result of the indirect impacts on all

markets of the national economy. Thus, if gold exports are equal to $2322 million in 2004, the impacts on the national economy will be greater than this value, and the economy-GDP will grow by $5062 million. This is caused by the indirect effects on all other sectors of the economy.

In the specific case of Yanacocha, the linkage with the national economy occurs basically through the suppliers of goods and services. Purchases of the company show a high concentration in 5 suppliers (60% of the purchases), but the number of suppliers of goods in 1993 was 232 whereas by 1998 it had increased to 566. A large participation of Lima companies and a small participation of Cajamarca companies are observed. Nevertheless, the number of regional companies has duplicated during the period of operation of the mine (CEPAL, 2002).

Among the suppliers one distinguishes between manufacturers of equipment and inputs and those that are merely traders. Yanacocha has had a rather weak linkage with manufacturers because Yanacocha uses a new technology in the country. In addition the domestic companies have suffered with the opening of the economy in 1990s. With exceptions, the domestic companies cannot compete with foreign suppliers that rely on lower costs and more efficient distribution systems.

In conclusion, importers have greater participation in the purchases of Yanacocha. That is the case of companies that commercialize trucks and mining equipment, such as Ferreyros, and subsidiaries of foreign leading companies (Ingersoll Rand, Copco Atlas, Baker Hughes). These companies also provide spare parts and offer technical service. Although these companies are located in Lima, we note that Ferreyros is already operating a deposit near Cajamarca. In spite of the predominance of the trading companies, it is important to indicate that some national companies are among the suppliers with greater invoicing figures.

The important inputs are ammonium nitrate and explosives (22% of purchases). Fuels are also important and they are bought from Mobil Oil. Other important inputs are sodium lime and cyanide. A company of the Buenaventura Group is mounting a project to extract the sodium mineral.

Suppliers are numerous due to Yanacocha´s policy to subcontract workings. This allows the company to maintain low production costs; the company is a pioneer in extensive use of outsourcing in the country. Yanacocha only controls directly the workings of exploration, perforation, lixiviation and processing; the contractors are in charge of the blast, and the transport of materials towards the lixiviation plant.

A high concentration in purchases of services exists and there is greater participation of Cajamarca companies in this line. This is explained by the nature of services, it is non-tradable and therefore it is required that productive units be near the client.

3.3 Copper exports in Peru: Importance and Impacts

The following table provides the evolution of total exports and copper exports of Peru in period 1991-2004.

Table 2.Copper exports of Peru 1991-2003 (million dollars)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Exports FOB	3408	3662	3384	4425	5492	5877	6824	5757	6088	6951	7007	7647	8986	11000
Exports Copper	742	756	650	824	1198	1052	1096	779	776	933	987	1187	1261	2424

Source:Institute Cuanto "Peru in Numbers", 2004

The table shows an important growth of copper exports in the period. Export value has been multiplied by 3.25 between 1991 and 2004, reaching $2400 million dollars. We estimate that the average growth of copper exports in period 1991-2004 was equal to 5.4% annually. This is explained by the expansion of the great copper projects in south-Peru in 1990s (Southern, Tintaya and Cerro Verde) and, more recently, the new Antamina project in the northern region.

Southern Peru Company has been traditionally the greater copper producer in the country. Southern was clearly the dominant company in 1990s reaching 65% of total exports in 2000, followed by other great companies in the South (Tintaya and Cerro Verde). In the present decade the leadership of Southern is being disputed by Antamina in Ancash.

Economic Impacts

The productive complex of copper in south-Peru already has important backward and forward linkages. The refined copper is the nucleus of the cluster[8] and is produced by a furnace process at the Ilo refinery and by a lixiviation process (CEPAL, 2002).

Regarding backward linkages it is possible to infer the following: (i) strong relations with producing companies of some important domestic inputs have formed, such as chemical explosives and mill balls to concentrate the mineral; (ii) a lesser relation with producing companies of construction equipment (cement, refractory, steel); (iii) other inputs, like machinery and equipment for extraction-concentration-smelting, and vehicles and machinery are imported (some spare parts can be internally produced); (iv) there is relation with domestic producers of generic power (electricity and petroleum); (v) finally, engineering services are being provided in greater proportion by domestic companies. Progress has been remarkable, and more domestic construction companies are selected in biddings for infrastructure for new projects. Regarding forward linkages, although most of refined metals are exported, a small proportion is destined to processing inside the country.

Southern Peru has operated for several decades the deposits of Toquepala and Cuajone. It has contributed to development of the infrastructure of the zone

[8] Porter (1990).

through roads that link the mines with the coast, a port in Ilo dedicated to copper exports, and other investments.

Southern is the first mining company in using lixiviation plants on great scale in Peru. Southern maintains good relations with communities and civil society of the region. The company provides communitarian services for its workers (facilities for education and medical attention).

In conclusion, a copper mining cluster has been developed in south-Peru. Most inputs are supplied by domestic suppliers and 35% of machinery and equipment are of national origin. Forward linkages are still limited because most refined copper is exported.

4. Environmental and Social Conditions

4.1 Environmental Impacts of Mining in Peru

Mining is an activity that generates important environmental challenges. Nevertheless, environmental management in Peru in the early 1990s was characterized by a deficiency of norms, lack of environmental controls, and limited environmental conscience of mining companies.

We note however the appearance of a new strategic vision of transnational mining companies. According to this new vision, long-term sustainability of a company depends on the capacity to improve its environmental performance and its capacity to promote a process of local economic development.

Mining environmental management has evolved in recent years in Peru. Today the Environmental Impact Study or EIS is compulsory for all new mining projects. Also, the Program to Assist Management of the Environment or PAME is compulsory of old projects in operation.

Sixty nine PAMEs have been approved by the Ministry of Mines in Peru, from 1997 to this date. The total programmed investment of these PAMEs reaches $1013 million. This may be considered a first indicator of the economic cost of environmental impacts of mining in Peru.

On the other hand, we have the old environmental damages located at old abandoned mines. To attend these damages the Minister of Mines created the project Environmental Liabilities Assistance or ELA. A first estimate of the ELA project is that the needed budget for the recovery of the environmental liabilities of mining is $200 million. This may be considered another indicator of the economic cost of environmental impacts of mining in Peru. (Vidalón, 2005)

4.2 Environmental conditions

Economic theory says that some activities can generate distortions that make necessary intervention by the Government. The economic problems that can be

generated are explained by "market failures" which include monopolies, externalities, public goods, and other.

In general, when an activity generates certain undesired effects on the environment or conflicts with civil society, the solution is not to close the industry firms but the regulation of its activity. Following standard economic theory, regulations should be applied up to the point where marginal social cost equals marginal social benefit.

In the case of mining, this regulation can be a responsibility of central or local governments and requires a norm, being this economic, social or environmental. In this section we discuss the role of regulations so that a market economy obtains an efficient allocation of resources, an allocation that is also socially acceptable and friendly to the environment.

The actors involved in a mining project are: the investor, the state, and the civil society. The investor or mining company has as an objective to generate business profits. The state must establish acceptable minimum norms so that the conflicts –social or environmental- are solved fast and effectively.

Our objective here is to elaborate on a set of environmental and social conditions that mining projects would have to fulfill, in order to be approved by public authorities. We divide the work in: (a) environmental conditions and (b) social conditions.

Mining activity has three phases: (i) Concession, (ii) Project, (iii) Operation and closing. Concession includes exploration and culminates with the authorization granting the concession to the mining deposit (through a MEM resolution). The project stage includes evaluation of environmental impact and evaluation of economic feasibility (cost-benefit analysis). In this stage physical works are executed to implement the project (camping sites, roads). The operation stage is the phase of mineral extraction; it is the exploitation phase of the mine. The closing stage includes the disposition of wastes.

Our thesis is that environmental conditions to guarantee a sustainable handling of the mining must be considered at each stage. This raises commitments and obligations of all actors. Each agent will have responsibilities in each stage but some agents will be the high-priority ones in certain stages. Next we present a proposal of environmental conditions for the different phases of mining activity.

The Concession stage conditions are: the concession stage must be participative and transparent[9] (it is not sustainable that MEM be the one actor that makes all decisions regarding concession to mining companies in Peru); mining concessions under urban areas will not to be granted except for very specific cases; mining concessions in agricultural areas must be subject to special restrictions; mining concessions that affect water sources would be granted only for very specific cases. The above should emphasize the

[9] Transparency may be implemented by posting all information on an internet webpage.

importance of a Territorial Planning that allows distinguishing between agricultural areas, mining areas, or urban development areas.

The Project stage conditions are: The project stage must be participative and transparent in all instances; Institutional strengthening of all instances that regulate operation of mining companies is required; Approval of the EIS of the project must be participative; The EIS of the project must be prepared by a neutral and independent organization.

The Operation stage conditions are: Independent Environmental Monitoring; Regulation of transport of materials towards and from the mines; Control of fulfillment of EIS commitments: handling of wastes and environmental standards; Scheme of Environmental Sanctions.

4.3 Social conditions

The social conditions must be interpreted as mechanisms for prevention of social conflicts. It was already mentioned that populations located in zones of mining influence feel that those mining resources and their operation do not benefit them; they perceive that the projects will only bring disturbances to their way of life; they sense great chances of pollution; and finally they anticipate conflicts that are related to land property and water resources.

Other studies go beyond, denouncing the awful environmental and social practices of mining companies. They argue that political and institutional crisis in Peru will necessarily lead to an association between mining, environmental pollution and greater poverty of the bordering population (Arana, 2005). All this supported by a legal frame that promotes private investment in mining and unprotect the rights of communities, farmers and the environment.

The causes of social conflicts in mining are diverse and include (a) a historical-cultural-social process that has not achieve integration of some regional groups to the national culture; (b) asymmetric relations that last because there is no mechanism of solidarity and respect of diversity; (c) Andean farmers poverty which is a factor that is difficult to revert; (d) lack of communication and equalitarian relations of communities with representatives of the state and the enterprise groups.

A solution to the impasse may be greater citizen participation. The State recognizes that citizen participation is needed to integrate the citizenship in decision-making, since beginnings of 1990s. The problem may be that participation has begun only recently in mining. Even now the concession and mining exploration are not subject to participation yet. In addition, a limited concept of participation prevails, confined mainly to access to information. The result is that often the citizenship ends up considering that participation is a mere bureaucratic requirement (Soria, 2005).

A high-priority social condition refers to communities´ participation in the profits that companies obtain from mining. This already occurs through the mining canon and through the recently approved Law of Royalties. An important social

condition is to assure the appropriate use of the mining canon on the part of its beneficiaries, the local governments. This will allow the population located in the zone of influence to feel as a stakeholder of the benefits from mining resources.

The mining canon represents the effective participation by local and regional governments in the rents obtained by the State. According to present legislation, the amounts transferred by the canon should be equal to 50% of the income tax and should be used exclusively for investment expenses.

The mining royalty is the economic rent that the holders of the mining concessions pay to the State for the exploitation of mineral resources. The law of Mining Royalties (Law 2825824 of June 2004) regulates its determination, administration, distribution, and use. The transfers that local and regional governments receive from mining royalties should be used exclusively for financing investment projects.

Finally, Peruvian law makes distinctions between the superficial land property (that belongs to communities) and the property of the mineral deposit underground (that belongs to the state). For the communities, it is difficult to understand why a wealth that is inside their property does not belong to them. Within this context, the law allows that the mining companies directly negotiate the purchase of the land above their concession with proprietors of the superficial land. An asymmetric relation is generated, in which money breaks the way of life scheme of the “comunero”. Some companies have taken notice and they are initiating after-purchase support programs. The fact that land bought at different times may have different valuations also originates a problem that can later evolve into a serious social conflict.

In synthesis, the social conditions that are responsibility of the State may include:(a) economic zoning and territorial planning; (b) advise for the efficient use of canon-and-royalties resources oriented to local development; (c) economic reintegration of the populations displaced by mining; (d) participation of communities in the decision-making process and in control; (e) public institutions perceived as impartial entities that protect rights and control and promote sustainable development.

Also, the social conditions that are responsibility of the companies are: (a) recognition of communities´ rights; (b) total transparency by presenting clear and complete information; (c) support of sustainable development of the localities where they operate; (d) support of economic reintegration of the displaced farmers.

Finally, the social conditions that are of responsibility of civil society, the communities and the State are: (a) social actors be properly informed and organized; (b) citizen participation in all processes of social evaluation of the project (information workshops); (c) advise in the dialogue between the communities and companies; (d) total transparency by presenting clear and complete information.

Note that we are not advocating a referendum in order to give every mining project a “social license”. One problem with mining is that the probable winners are mining companies and the society at large (new income and employment). But the eventual losers may be the local communities, farmers, and land owners. If we only poll the probable losers the results of a referendum will be a denial of a social license, as was the case in the Tambogrande project.

6. Summary and Conclusions

1. We emphasize the impressive growth of gold exports in 1991-2004; export value reaches $2322 million at end of period (it has been multiplied 16 times). We also we note the important growth of copper exports in period 1991-2004, with export value reaching $2400 million in 2004 (it has been multiplied 3,25 times).

2. Impacts on regional and national economy of gold operation are significant; the linkage of Yanacocha with the national economy occurs basically with the suppliers of goods and services. Despite the predominance of importing and trading companies in Yanacocha purchases, it is important to note that some domestic companies (i.e. explosives) are among the suppliers with greater invoicing.

3. The copper cluster in south-Peru already has important linkages. Relations have formed with producers of some important domestic inputs (explosives, chemistries, mining mill balls), and of construction equipments (cement, refractory, steel). Other inputs, as machinery and equipment and vehicles are basically imported. Nevertheless, it is expected that a future increase in the scale of domestic demand would allow the establishment of a domestic industry of machinery.

4. We note the appearance of a new strategic vision of transnational mining companies. According to this vision, long-term sustainability of a company depends on the capacity to improve its environmental performance and its capacity to promote a process of local economic development. The challenge consists of articulating the aspirations of the local communities with a social and environmental corporate policy, and with an efficient and transparent public management.

5. Environmental management in Peru in the 1990s was characterized by a deficiency of norms, lack of environmental controls, and limited environmental conscience of mining companies. An innovating vision consists of strengthening the institutions in charge of regulation and environmental ordering.

6. There are 69 PAMES approved, from 1997 to this date, and the total programmed investment reaches $1013 million. This may be considered a first indicator of economic cost of environmental impacts of mining in Peru.

7. A first estimate of project ELA is that the necessary budget for the recovery of the environmental liabilities of mining is $200 million. This may be considered another indicator of economic cost of environmental impacts of mining in Peru.

8. When an activity, like mining, generates certain undesired effects on the environment or conflicts with civil society, the solution is not to close the industry firms but the regulation of its activity. This regulation is responsibility of central and local governments and requires economic-social- environmental norms.

Recommendations

Regulations must assure that concession and design of mining projects must be participative and transparent. Particularly, mining concessions in urban-agricultural areas or water sources will only be granted subject to special restrictions.

Also, institutional strengthening of all instances that regulate operation of mining companies is required; the EIS of the project must be prepared by an independent.

Regulating the operation of projects include environmental monitoring by the regulator. Regulation of transport of materials towards and from the mines; control of fulfillment of EIS commitments (waste handling and standards) are made by the regulator.

A high-priority social condition is the strengthening of capacities of communities of the mining regions, to be able to design feasible development projects, to be financed by the mining canon and the new Law of Royalties.

Finally, we stress that social conditions are responsibility of the State, responsibility of the companies, and responsibility of civil society and local communities.

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