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An Assessment of the Competitiveness and Health of Peru's Mining Industry

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Table of Contents

Executive Summary

The mining industry is, and will continue to be, the engine of growth in Peru. Historically, as it is today, it has been one of the sectors with the greatest growth and contributions to the economy in terms of GDP, exports, and tax input, among others. Looking to the future, of the 6-7 points that the country is projected to grow at annually , in at least the next four years, it is expected that mining will contribute 2-2.5 points; in other words, about one third of expected growth.

However, this growth depends on the implementation of projects in the portfolio, which is showing significant signs of delay. Despite having a symbiotic potential that would encourage development, employment, and other local benefits, it appears that ~ 40% of the projects in the portfolio have already been affected and/or delayed in one way or another, mainly due to social issues and conflicts.

Given this context, we decided to assess the country's mining competitiveness from four points of view:

- **Quality of mineral resources**, which shows that Peru is a leader in a large number of metals, with grades similar to the world average
- **Cost competitiveness and CapEx intensity,** where, despite a higher tax rate than comparable countries, Peru holds an advantage, given its position in relevant cost elements, such as energy
- **The institutional environment,** where one can see opportunities for improvement in the definition and implementation of the legal operating framework, and in the process of obtaining permits
- **The social arena,** where, as previously stated, one encounters the biggest bottleneck to development in mining, and hence, in the country

The findings of this assessment stipulate that cooperative efforts between the various stakeholders (private sector, central, regional and local government, general public, NGOs, independent thinkers and opinion leaders) are needed. These efforts should focus on solving social and institutional problems, working to place the mining industry in a position where it **becomes a source of pride for the country rather than a potential source of conflict**. Only by achieving "modern mining" where social, economic and ecological interests converge and collaborate, will the country accomplish the on-time economic development of mining projects, accompanied by human development in the surrounding communities and the country in general.

Methodology

The following report is the result of a four-month process of working with various stakeholders in the Peruvian mining industry, as well as national and international experts.

In general, we drew on three sources of information for our assessment:

1. More than fifty (50) interviews and follow-up meetings:

    — Private sector: CEOs, owners and presidents of national and multi-national mining companies, experts on water, environment, community relations, permits, and other legal issues, and members of the National Society of Mining, Energy and Petroleum (SNMPE).

    — Public sector: conversations with ministers, deputy ministers, advisers and chiefs of staff of the various ministries most relevant to the mining industry. Interviews with regional presidents, mayors and other regional and local government leaders.

    — Civil society representatives: thinkers, opinion leaders, national and international activists, and international experts on specific subjects, such as human development, regulation and mining trends.

    — International experts: Comparisons were made with over 20 different countries, including Chile, Brazil, Colombia, Canada, Australia and South Africa.

2. Workshops with members of the three aforementioned groups, in order to understand and propose better solutions to the country's social and institutional problems.

3. Analysis of databases and other resources from McKinsey's Basic Materials Practice, and analysis of public sources (e.g., the INEI, Ministry of Energy and Mines, Defensoría del Pueblo, etc.).

This report represents an independent perspective. The project was commissioned by the SNMPE, and included active participation by other sectors providing assistance to the working team. We are sincerely grateful for the time and commitment of all participants.

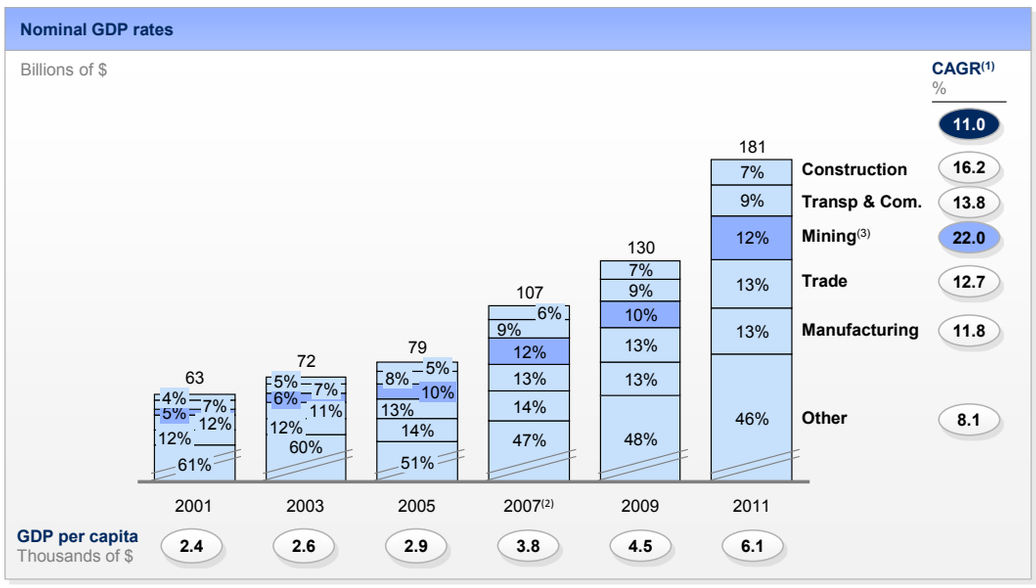
1 The mining industry has been – and is expected to continue to be –the mainstay of growth in Peru

1.1.The mining industry has contributed significantly to Peru's economic development

The mining industry has been one of the biggest contributors to economic development in the last decade. This contribution can be seen in many macroeconomic variables, such as growth in the country's Gross Domestic Product (GDP), impact on exports, tax input, job creation and attractiveness for investment.

Gross Domestic Product: In terms of GDP, the mining industry has been the fastest growing sector in the last decade. According to data published by the INEI, mining accounts for 12.0% of the Peruvian economy at 2011 prices[1]. Additionally, it is expected that this share will increase once the input-output matrix used is updated, from 1994 to 2007 (although at the time of this report, the grid had not yet been published).[2]

Figure 1: *The mining industry is the fastest growing sector and one of the largest contributors to GDP*



(1) Compound annual growth rate
(2) INEI 2007 input-output matrix (not yet published) shows the industry's share to be 14.4%
(3) Includes refining of non-ferrous metals

SOURCE: BCRP; INEI; IHS; MEF

1 Includes "Operation of mines and quarries" (11.3%) and "Non-Ferrous Metal Processing" (0.7%). At the time of publication of this report, the INEI had not yet published the data for 2012.
2 The share of mining in 2007, using the input-output matrix for that year, is 14.4%, compared to 12.3% if the 1994-based grid is used.

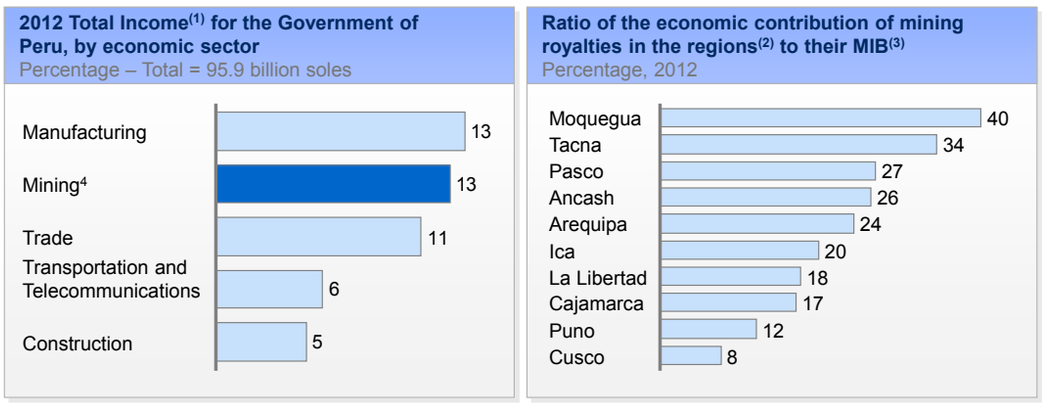
The mining industry is not only one of the main industries of the economy, but also the primary contributor to the country's growth.

This growth in the mining industry was strongly influenced by the increase in mineral prices globally. While production (tons produced) increased by 4.3% annually between 2001 and 2011[3], prices rose by 14.7%. Thus, 77% of growth was due to the increase in prices, while only 23% can be explained by an increase in production. Calling on all those involved, Peru should seek to create the conditions necessary for production to increase faster and thereby reduce the impact of price fluctuations.

Exports: Since the early 2000's, mining has accounted for more than half of Peru's exports. In 2012, the mining industry was responsible for 57% of them, with an annual growth in the period slightly higher than that of all other industries combined (21% annual growth in mining exports at nominal prices vs. 19% for Peru's other industries).

Tax Collection: In terms of government revenue, mining is one of the primary taxpayers, both nationwide and regionally. In 2012, the industry accounted for 13% of government revenues[4] and a significant portion of the income for certain regional departments (e.g., 40% in Moquegua, 34% in Tacna, 27% in Pasco and 26% in Ancash). This is shown in Figure 2. If both the mining and petroleum industries were combined to make up the extractive sector, it would account for a 17% share, the highest in the country.

Figure 2: *Mining is a major contributor to the national and regional tax bases*



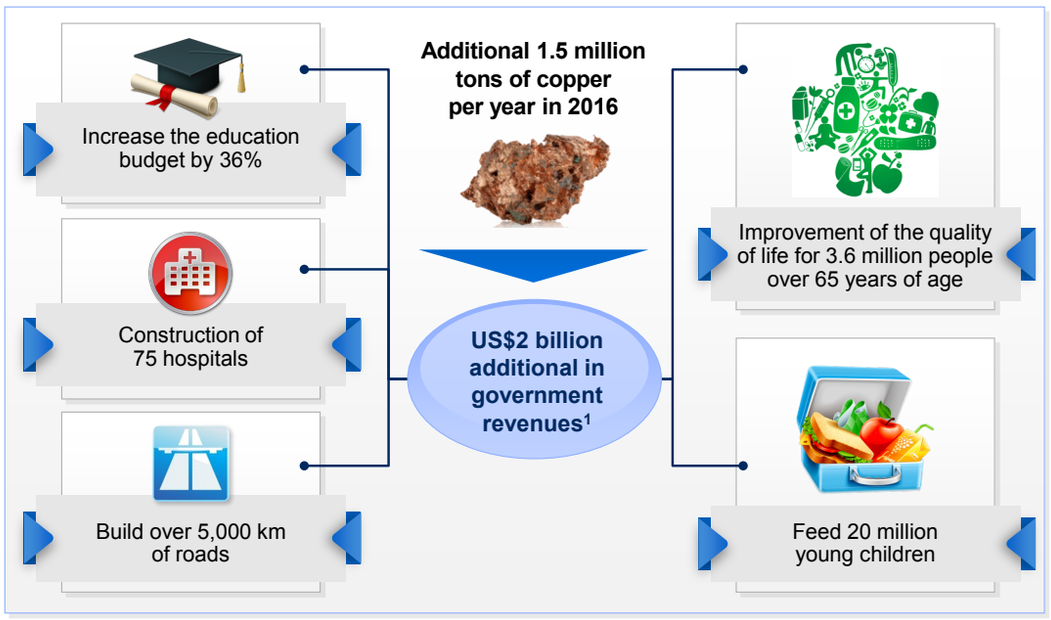
(1) This includes: Taxes, Non-Tax and Social Contributions
(2) This includes: License Fee transferred, and transfers of Royalty and Term Rights (Derechos de Vigencia). These were calculated taking into account the share of the total transferred in 2011, since they have not been published for 2012
(3) Modified Institutional Budget
(4) If the revenue produced by the petroleum industry is included, the share would be 17.3

SOURCE: SUNAT; Anuario Minero 2011 MEM; MEF-SIAF

3 At the time of writing this report, 2012 data was not yet available
4 Includes tax and non-tax revenue

Looking to the future, the projected growth of mining will generate significant tax collection benefits. The revenue produced by increased copper production in 2016 would be ~US$2 billion,[5] which could generate significant economic and social benefits for Peru.

Figure 3: *Tax revenues generated by increased copper production in 2016 would provide the resources required for projects that would have a significant effect on public welfare*



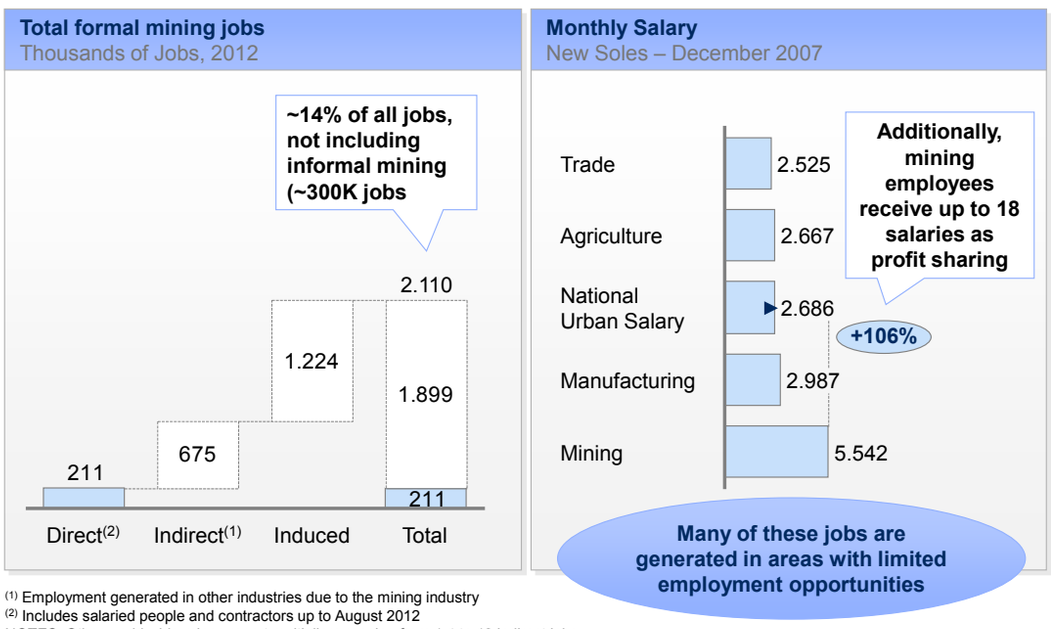
(1) This assumes the average major bank copper price for 2013 – Bloomberg assumes: $8,000/ton

Employment: While mining generates fewer jobs directly compared to other labor-intensive industries, if one includes indirect and induced employment, its actual contribution is greater. The ratio of direct to indirect employment in the Peru mining industry is 1/3.2.[6] Recent private studies, based on the 2007 input-output matrix, show the ratio of direct to indirect and induced employment to be closer to 1/9. As a result of using this multiplier, approximately 14% of jobs among the Economically Active Population (EAP) are due to mining, whether direct, indirect or induced. In other words, mining generates more than eight hundred thousand direct and indirect jobs, with salaries above the national average. By adding those that are induced, the number of jobs increases to about two million.

5 According to the average copper price in 2013 for major banks: According to Bloomberg, the price is $8,000 USD/ton.

6 This is in line with other countries, such as Chile, which falls between 1.7 and 5.7 depending on the age of the mine, or Australia, where this multiplier is between 1.4 and 3.3.

Figure 4: *Mining generates more than 2 million jobs with salaries significantly above the national average*



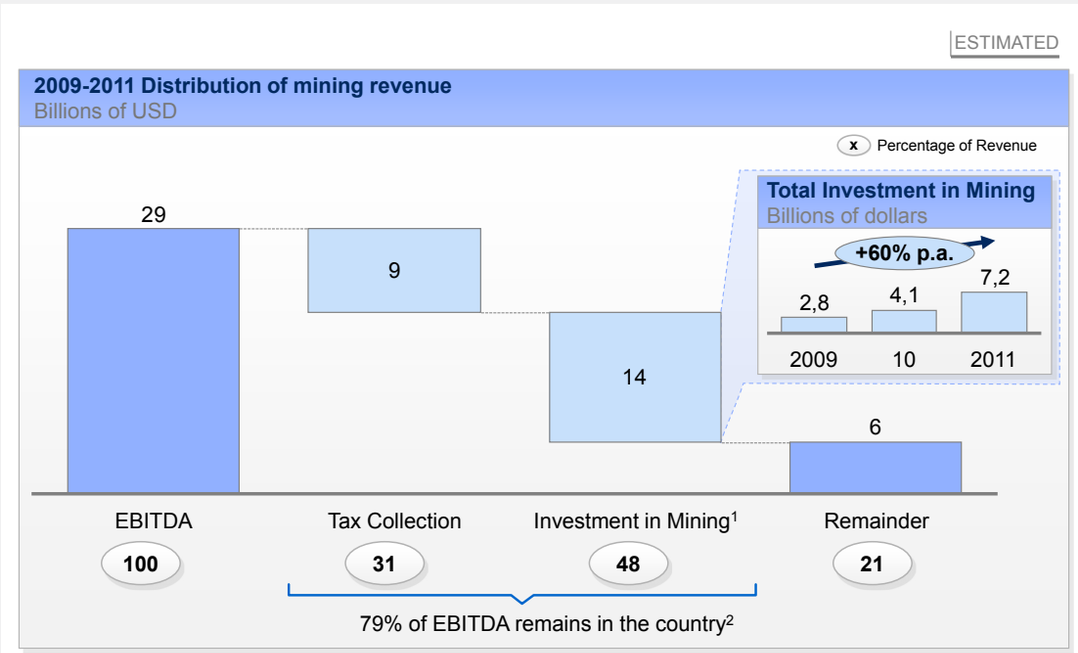
(1) Employment generated in other industries due to the mining industry
(2) Includes salaried people and contractors up to August 2012
NOTES: Other world wide mines report multipliers ranging from 1.4 to 13 indirect jobs

SOURCE: INEI; IPE; Macroconsult; Ministry of Labor

Investment: Investment in the mining industry increased by about 60% annually from 2009 to 2011, to a total of US$14 billion. To put this growth in perspective, during this same period, total investment in Peru grew by 21% annually (for a total of US$110 billion). Therefore, infrastructure investment in the mining industry exceeded the budgets of central and regional governments ($12 billion), and was 60% higher in 2011.

It is equally important to note that much of industry profits stay in Peru. Investment and reinvestment of the industry in the country, either as tax collection or investments by new and existing companies in local mining projects, is equivalent to 80% of what was produced by the industry (see Figure 5).

Figure 5: *The mining industry invests in the country and contributes to government revenues in amounts up to ~80% of the profits produced*



NOTA: Does not include social responsibility investment by firms
(1) US$14 billion pertain to the total amount invested by the mining industry – new and existing companies
(2) If, we add local spending prior to EBITDA to these $23 billion, the amount remaining in the country totals $37 billion

SOURCE: Wood Mackenzie; BCRP; MEM; SUNAT; SBS

1.2 Looking to the future, the industry is expected to continue to be the growth engine for the country

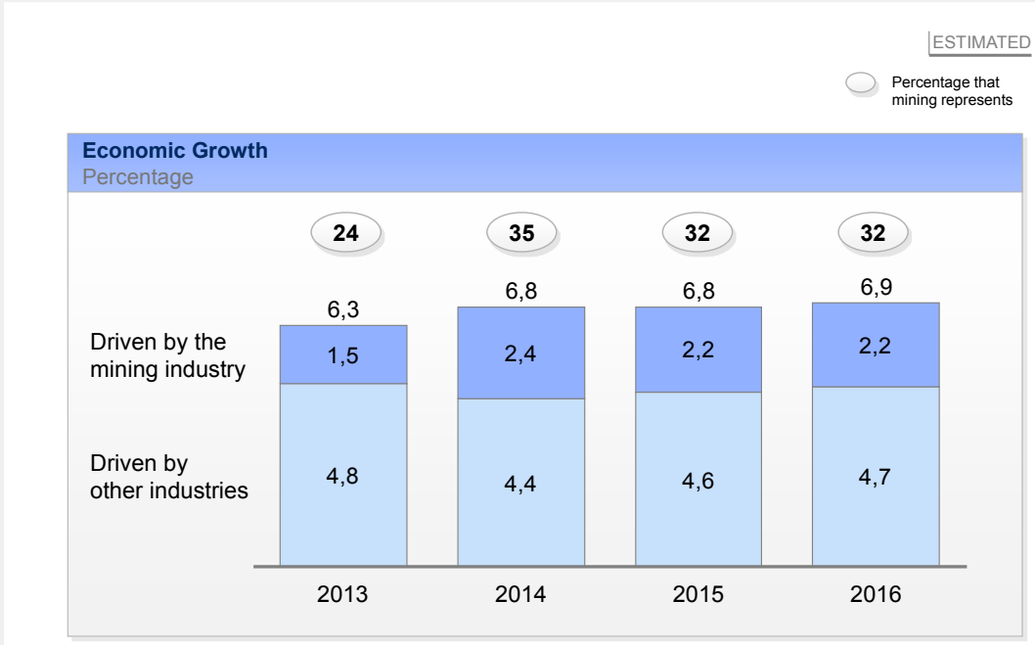
In coming years, the mining industry is expected to remain the growth engine for Peru, as it is one of the fastest growing industries. This growth will be due to the significant level of investments announced, which, if implemented in a timely manner, will allow the industry to grow in real terms, mainly by increasing copper, gold and iron production in the near future.

As shown in Figure 6, a third of the expected growth pertains to announced mining projects. This real output growth will not only boost mining GDP, but also other sectors of the economy with indirect[7] and induced[8] effects (each additional mining dollar generates $0.4 of GDP in other industries (0.13 indirect and 0.27 induced).

7 Indirect Effect: increased input purchases from mining industry direct suppliers. This creates a chain effect that increases economic activity.
8 Induced Effect: increased household spending resulting from higher wages and direct and indirect income

These two incremental points per year equal an additional US$57 billion in GDP by 2016. In other words, in terms of GDP per capita, mining will allow the average Peruvian to be 10% richer in 2016.[9]

Figure 6: *Looking to the future, the industry is expected to continue to be the growth engine in Peru*



SOURCE: BCRP; BCP; FMI; INEI; Financial institution interviews

1.3 Although the investment portfolio is at record highs, it is already showing signs of delay in implementation

The published mining industry investment portfolio is at historic highs. In the last six years, it has grown from $12 billion in 2007, at an annual 35% growth rate, to the current US$55 billion. This latest figure means that Peru captures 3.7% of global investments in mining, more than double Peru's share of global production (1.7%), which means that, should the portfolio be effectively implemented, Peru's global standing in terms of production should improve.

However, the portfolio announced is already showing signs of delay in implementation. Depending on the scenario, project delays and cancellations could delay close to 40% of the mining investments announced for the next few years.

9 Per capita GDP would be US$7,800 instead of US$7,100

Among the most emblematic projects suspended and delayed, due to having received significant press coverage, we can mention Conga (a US$4,800 million investment), which was delayed at least two years due to social conflicts in Cajamarca; Tía María (a US$930 million investment), the EIA of which at the time this report was written remained unknown following violent protests; and the Santa Ana project (a US$71 million investment), the mining concession of which was revoked, due to community mobilization and foreign ownership of companies in border areas. These are just three examples of those that have received the most attention from the local press.

A scenario analysis shows a real possibility of experiencing delays which, on average, would be 2-3 years compared to the original time announced, producing a negative impact on the national economy in many ways:

- The loss of at least one percentage point of GDP growth per year over the next five years (10% of expected growth)
- A failure to create 60-80 thousand direct jobs, and around 500,000 jobs, if one also factors in induced and indirect jobs.
- A reduced growth rate of indirect industries due to reduced mining industry development
- An aura of mistrust among investors from other industries, due to deterioration of the country-wide investment framework, and a long-term effect due to reduced investments in exploration.

1.4 In this context, the industry must aim to achieve a collaboration of interests through "modern mining", turning the industry into a reference worldwide

In this context, the primary aim for the industry's development and, as a result, Peru's development, should be to attain a predominance of "modern mining" practices. In this notion of modern mining, there must be a symbiotic relationship between communities and mining, in which the industry makes significant contributions at the local, regional and national levels, and communities help attract mining in order to help develop their areas. Economically speaking, projects would be executed on time and on budget, and the country could continue to grow its portfolio of future projects, capturing greater investment and creating a virtuous cycle of development.

Modern mining involves the collaborative participation of various agents (national and regional governments, the private sector, communities, civil society, etc.). This type of collaboration comprises three types of interests: economic, social and ecological. These interests converge and pave the way to development. Broadly, these interests are:

- **Social Interest:** Promoting the fulfillment of people's basic needs (e.g., basic services, infrastructure), thus achieving sustainable, continuous improvement of their living conditions because of mining. Also, finding mechanisms for social participation, in order to listen, understand and incorporate feedback from surrounding populations concerning the changes a mining project may entail.

- **Economic Interest:** Achieving growth in Peru's revenues by managing them in a way that promotes the country's economic health and attractiveness. Similarly, increasing and maintaining levels of investment, so as to assure companies they will be able to implement projects on time as long as they meet regulatory guidelines.

- **Ecological Interest:** Establishing and updating environmental standards in line with technological advances and the real circumstances of the country, taking advantage of Peru's resources to achieve progress for its people.

Currently, agendas of the various parties involved are not necessarily aligned with this notion of modern mining practices. Distrust of counterparts, and individual or short term interests, are just some of the reasons. Later in this report, we will address in greater detail this social problem that, in and of itself, is causing the greatest delays and uncertainty in investments, and in economic and human development in Peru.

2 An analysis of competitiveness shows areas of opportunity

To achieve the goal of being a global leader in mining, a country must be competitive in the following four areas:

1. **Quality of mineral resources:** attractiveness of available minerals (attractiveness in minerals that are forecasted to be important in the future, sizes of reserves, variety) and their characteristics (mineral grade, strip ratio).

2. **Cost structure and CapEx intensity:** production cost competitiveness (including effective tax rate, direct and indirect costs) and capital requirements (including, for example, necessary infrastructure investments).

3. **Institutional framework:** clear and stable rules, enforcement of the law, and the time required to obtain permits.

4. **Social framework:** perception and societal receptivity to mining, levels of conflict and State support for mining projects.

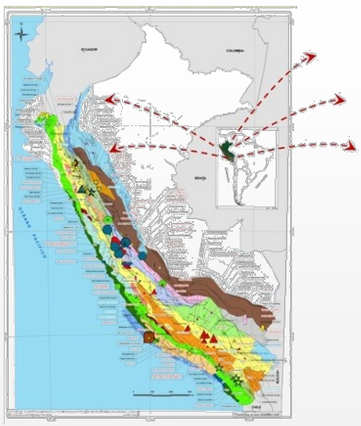
We will review Peru's situation based on these four areas.

2.1 Peru has high quality mineral resources

Peru is in a very good competitive position with regard to the quality of its mineral resources. On one hand, it has many mineral resources that are financially attractive. On the other hand, it has a competitive average grade, and is ultimately favored due to its rich polymetallic deposits.

Figure 7: *Peru is a leader in metallic and nonmetallic minerals*

Mineral	Production Ranking	
	Latin America	Worldwide
Zinc	1	3
Tin	1	3
Lead	1	4
Gold	1	6
Silver	2	3
Copper	2	3
Molybdenum	2	4
Mercury	2	4
Selenium	2	9
Cadmium	2	10
Phosphate	2	13
Iron Ore	5	17



SOURCE: MEM

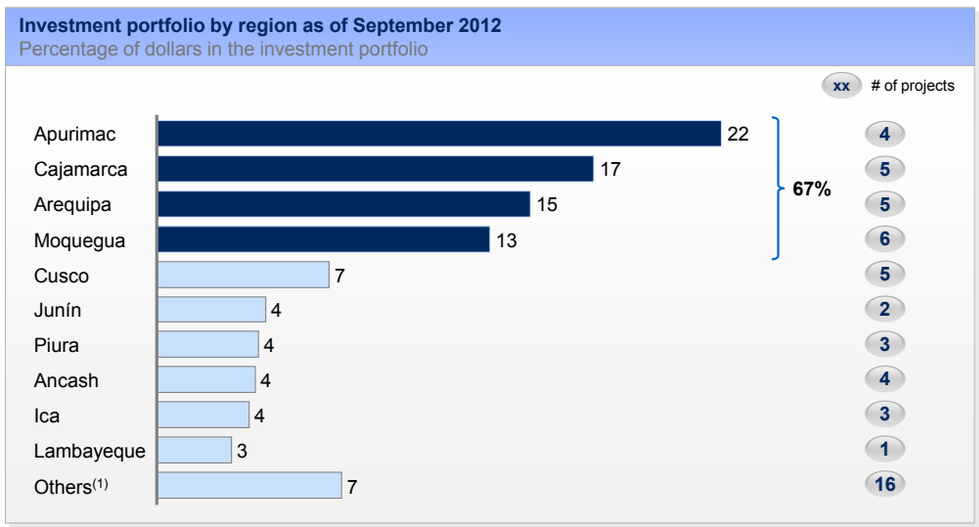
The country is a regional leader in the production of metals, with a claim, for example, to be number one in tin, gold, lead and zinc in Latin American. Worldwide, it is also among the largest producers, ranking third in the global production of silver and copper.

For the future, the investment portfolio of US$55 billion focuses on three minerals that account for over 90% of total investment: copper (66%), gold (13%) and iron (13%).

The development of these projects in upcoming years will involve robust growth in production. In copper, for example, production will double between 2011 and 2016 (~125%), going from ~1,200 FMT to 2,800 FMT. This increase will signify becoming the second global copper producer by 2016, and closing the gap with Chile by more than half (from ~440% in 2011 to ~200% by 2016). In other minerals, production will also increase substantially, with a growth of ~20% in gold and silver, and ~25% in zinc and lead by 2016.

Geographically, the investment portfolio is concentrated in four regions: Apurímac (22%), Cajamarca (17%), Arequipa (15%) and Moquegua (13%).

Figure 8: *The portfolio is highly concentrated geographically in four regional departments that account for ~70% of the investment portfolio*



(1) Includes Puno (1.4%), Lima (1.4%) and Tacna (1.3%). Remaining are <1%

SOURCE: MEM

In the longer term, Peru has great potential due to a good standing in terms of attractive mineral reserves. Among the main ones, silver and copper stand out, and make up 23% and 13% of world reserves.[10]

10 Other minerals include: Lead (9% of world reserves and 4th global position), Zinc (8% and 3rd), Tin (6% and 6th), Gold (4% and 8th) Phosphate (1% and 9th) and Iron Ore (1% and 13th)

In terms of mineral properties, Peru is competitive due to its territory's wealth in a wide variety of minerals, allowing the exploitation of deposits with various sub-products. There is a tendency in the industry to think that competitiveness in Peru is deteriorating, because the grades in its mines are seen to be decreasing. However, this is a global phenomenon. By projecting, for example, average copper grades from 2012 to 2025, we can see that Peruvian grades will decrease on average by 19%, while the world average grade will fall in line with this (21%).

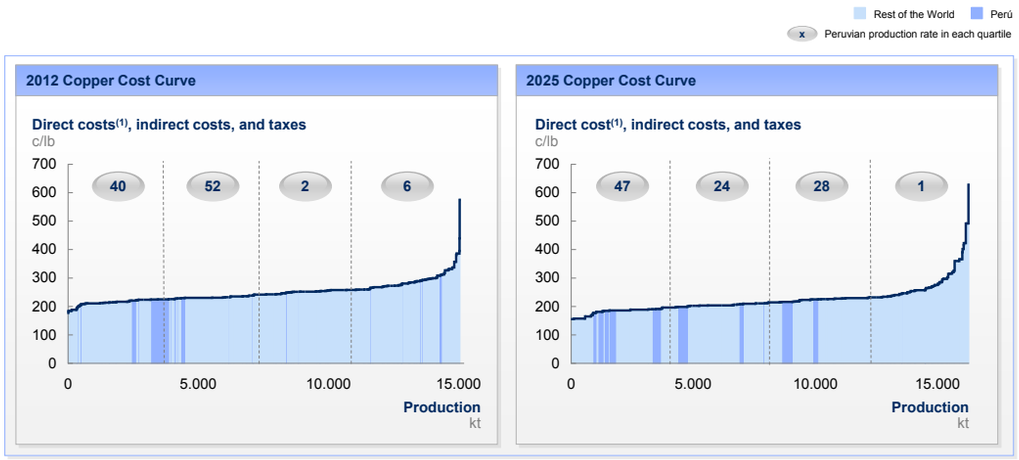
2.2 Peru has a globally competitive cost structure and CapEx intensity

A country's competitive position with regard to its cost structure is reflected in the position of its mining assets on the global cost curve. The cost curve is representative of the market supply curve. This curve shows the marginal cost of producing an additional pound of mineral for each asset. Production and assets are ranked based on the cost of producing one pound, from the cheapest to the most expensive. Those assets placed toward the back of the cost curve, in other words, in the third and fourth quartile, are more sensitive to changes in demand. When demand for a mineral diminishes, assets with higher costs are the first to stop producing (or to be abandoned, when projects are involved).

A country's competitive position is stronger when it has more asset production in the first quartiles.

An analysis of Peru, taking into account the structure of total costs (direct and indirect costs and taxes), shows an advantageous position. For example, when considering the case of copper shown in Figure 9, over 90% of production is in the first half of the curve and over 70% will continue to be so in the future.

Figure 9: *When factoring in all costs, including taxes, Peru is and will remain competitive in the future*

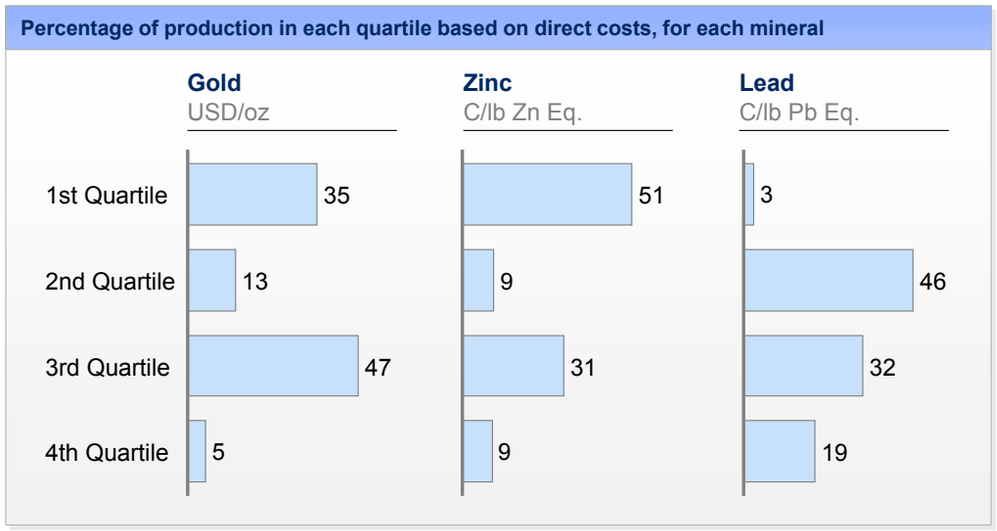


(1) Includes cost to cathode concentrate, transport, and treatment and refining costs
NOTE: Normal production cost normalized by copper equivalent. Price used for the calculation 362.7 c/lb. in 2012 and 300 c/lb. in 2025

SOURCE: Wood Mackenzie

Peru has a competitive position in its primary minerals, which places more than half its production on the first half of the curve.

Figure 10: *Similarly, the country has a favorable cost structure in other minerals (half or more in the first two quartiles)*



SOURCE: Wood Mackenzie

Direct costs:

Low direct production costs[11] in all minerals are due to:

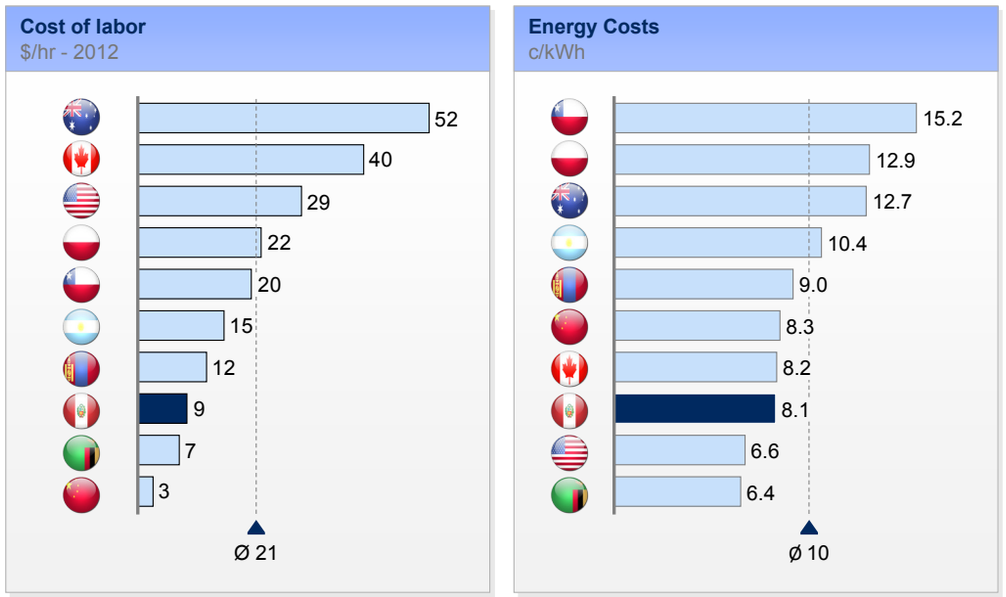
- **Resource quality:** as mentioned above, good mineral grades and the country's wealth in multiple metals reduces production costs per pound of mineral[12]
- **Cost of inputs:** energy and labor costs,[13] which account for 15-25% of the cost, are low compared to other jurisdictions

11 Direct costs reflect all costs incurred by each operation for obtaining an additional pound of mineral ready to be used by end-users. These include costs at the mine associated with producing an additional pound, the cost of land and sea transport, and refining and treatment costs.

12 For two operations at the same cost of extraction and processing, the one with the greatest mineral wealth will have a lower weighted average cost of production, since it will provide a greater amount of resources for sale to cover the same costs.

13 This does not include profit sharing, which is included in the effective tax rate. It factors in a portion of outsourced service expenses.

Figure 11: *Peru's competitive standing is due in part to the low costs of labor and energy*



(1) Does not include profit sharing – factored into the Effective Tax Rate

SOURCE: Wood Mackenzie, press

- **Shipping Costs:** demand for minerals is primarily located in Asian countries that have high rates of growth and high urbanization. The geographical distance from these countries, especially China, plays an important role in these costs. These costs account for 5-7% of the total cost. If one adds the costs of maritime and land transportation Peru is located at about the world average

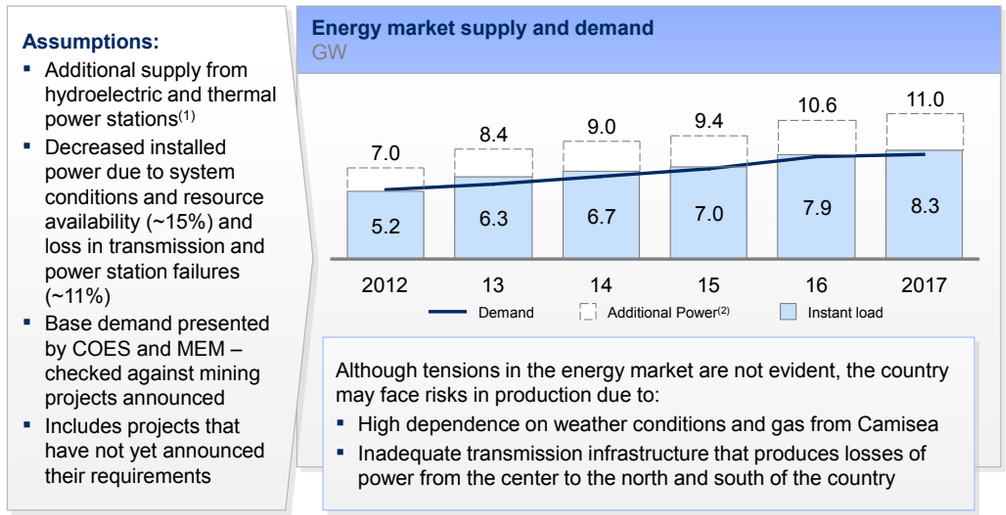
It is estimated that, in the future, Peru's preferential position with regard to costs will be maintained. However, the industry does face some risks:

The first is that transportation costs would increase as projects are located in more remote locations lacking infrastructure.

The second risk is related to the cost of energy. There is currently a positive balance of energy supply and demand, which produces a competitive advantage for mining (and for other energy-dependent industries). Going forward, the country must manage to maintain this advantage, not only for the benefit of the mining industry, but also for all industries. To do so, it must provide assurance that the installed capacity will be sufficient to meet the demands of all users. Our analysis of energy projects announced shows that the increasing demands of the Peruvian economy can be handled, and bottlenecks avoided. However, the country may face threats to energy production due to a high dependence on weather conditions and gas from Camisea, and to an inadequate power transmission infrastructure from the center to the northern and

southern regions of the country (the latter case is due to the fact that approximately 80% of new installed capacity since 2004 is located in the central region, which has produced an increase in the transmission needs at both ends of the country, especially during peak hours).

Figure 12: *As long as announced energy projects are completed, the country will be able to deal with increasing demand and thus avoid bottlenecks*



(1) Approach used by MEM to factor in a conservative scenario, not including solar and wind sources (2% additional capacity by 2017)
(2) This includes the difference between installed capacity and the highest instantaneous load the system can provide, given system conditions, loss due to unavailability of input (e.g., water), and transmission losses

SOURCE: MEM; BBVA; COES; SNMPE

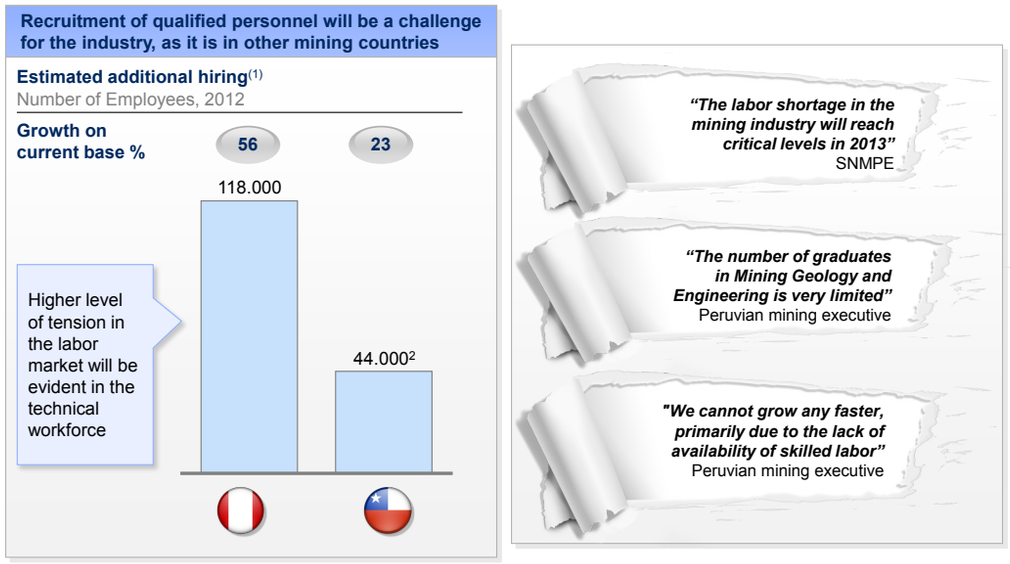
The third risk, more relevant to the industry, is the potential shortage of labor. This shortage can be demonstrated for three different skill levels – general, operational and professionally trained:

- **General:** The mining industry will compete with other industries for labor with a general level of skills. The mining industry is not the only one experiencing a financial "boom"; other industries, such as infrastructure and construction, are experiencing similar levels of growth. The country could cope with the increasing demand by promoting employee training.

- **Operational:** A second bottleneck will occur in the technical field. These are professionals who not only require provision of basic education, but also greater training in mining. The industry should make every effort to enhance this profile in the communities it is a part of in order to obtain workers with technical skills locally.

- **Professionally trained:** Finally, skilled labor market is a global market. Demand and supply are global. All countries compete for the same pool of professionals, and given the current and expected growth of the global mining industry, there will be a shortage of supply in this segment.

Figure 13: *Future labor availability could become a bottleneck*



(1) This includes new job creation and replacements due to retirement
(2) 2011 Chile Information

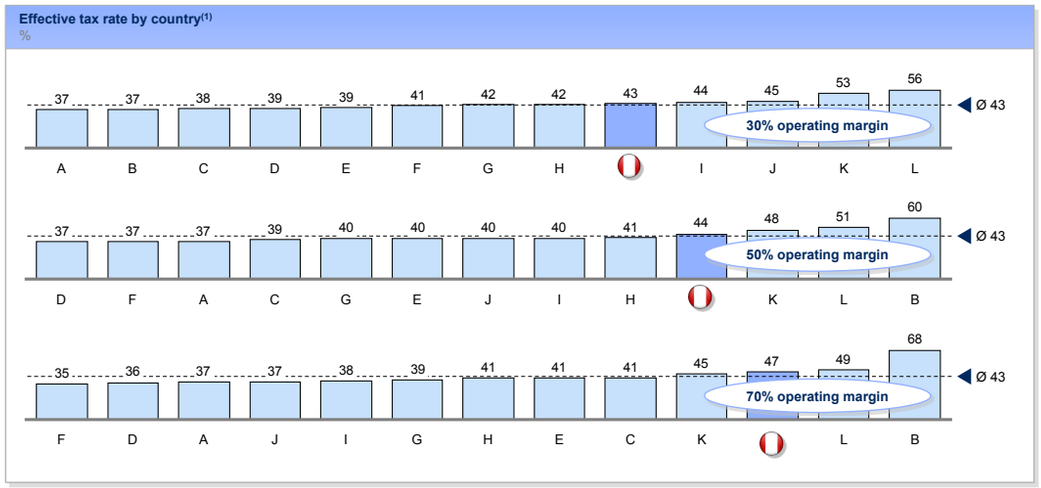
SOURCE: SNMPE; Mining Council of Chile; Chile Foundation; IPE; BNAmericas; COES; Osingermin; BBVA research; interviews

Tax rate:

The tax rate in Peru is higher than that of comparable countries (for example, it is about 5 percentage points higher than Chile for all operating margins, and between 3-12 points higher than Australia, depending on the margin). However, the country's cost structure is attractive.

Given the existence of various tax systems in each country (e.g., type of taxes and method of calculation), our comparison is done using the effective tax rate. This rate is obtained by comparing the net present value of taxes paid (income tax, royalties, profit sharing, and tax on repatriation of profits) by a mining operation throughout its life, on the present value of net income before taxes and interest. The effective tax rate in Peru, considering the new tax system that includes the Specific Mining Tax (Impuesto Específico a la Minería), varies between 40% and 50%, depending on the company's operating margin.

Figure 14: *The tax rate in Peru is higher than that of peer countries, for any operating margin*



(1) NPV accrued taxes (income tax, repatriation tax, mining royalties) divided by financial NPV EBIT
(2) With Peru, a scenario was considered under the new mining royalty system

SOURCE: E&Y: "Preliminary analysis of taxes on a representative copper mine investment in Peru and Chile," 2011; PWC; SUNAT

Figure 15: *There is a global trend toward higher rates*

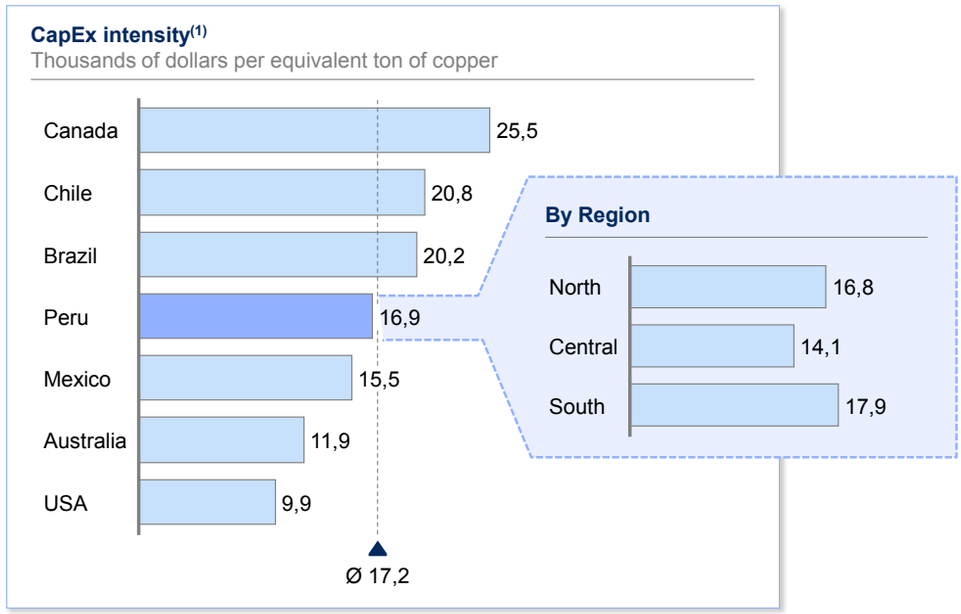
	Current Legislation	Proposed Legislation
	▪ Mining royalty collection began in 2005 ▪ Royalties between 1% to 5%	▪ Royalty increase subject to the mine's operating margin – amounts range from 5% to 14% of the company's operating income, depending on the margin
	▪ Royalties that fluctuate between 0.3% and 3% are charged ▪ 2% is charged for most minerals and 1% for gold – this is among the lowest in the region	▪ New mining code under discussion ▪ Potential changes include increased mining royalties – there is speculation it could increase up to 10%
	▪ Each state has its own tax system and royalties are charged according to their own laws ▪ Royalties are 3% to 7% on average, excluding 30% federal income tax	▪ In 2012, mineral resource rent tax (MRRT) was regulated ▪ Effective tax rate is 22.5% of the proceeds from each operation (not at the corporate level), of the amount before processing

SOURCE: World Bank; Chile Ministry of Mining; DNPM Brazil; PwC

CapEx intensity:

The capital intensity required to initiate operation is comparable to that of other countries. Despite private companies having to address the lack of infrastructure (e.g., ports, access, rail), the capital required per operation is within the average of other comparable countries.

Figure 16: *Peru has a need for capital at around the world average, with a very slight difference by region*



(1) CapEx intensity in new greenfield projects by country, including infrastructure CapEx plus mine CapEx

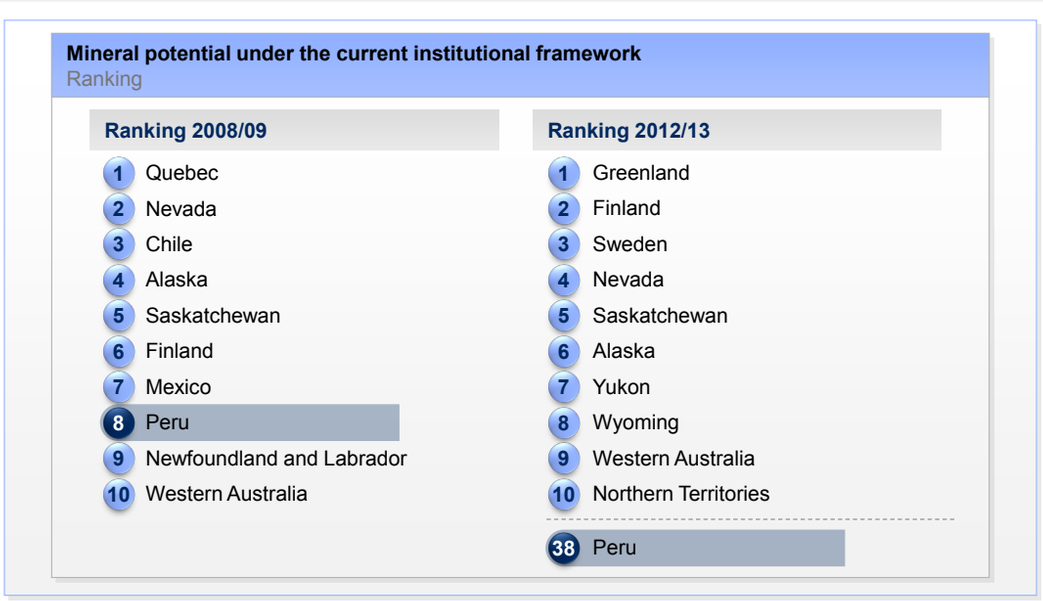
SOURCE: Wood Mackenzie

No significant differences were found, on average, among the various regions (north, center, south), with a difference of ~20% noted between the highest and lowest capital intensity requirements.

2.3 The institutional framework poses challenges to the country's attractiveness and currently places it at a crossroads

In the view of national and international investors, Peru has worsened significantly (the country dropped from 8th place (of 71) in the Fraser ranking in 2008/09, to 38th place (of 96) in 2012/13).

Figure 17: *Investors believe that there is substantial opportunity to improve the country's institutional structure and encourage new investment*



SOURCE: Fraser Institute

This institutional deterioration is due to three causes:

1. The uncertainty produced by growing regulatory changes (e.g., the prior consultation law, implementation of the SENACE [National environmental certification service], the development of Ecological Economic Zones or ZEE, and the definition of environmental quality standards) and the lack of enforcement of the law (e.g., in Puno, the national government revoked a mining concession granted to Bear Creek in the Santa Ana project).

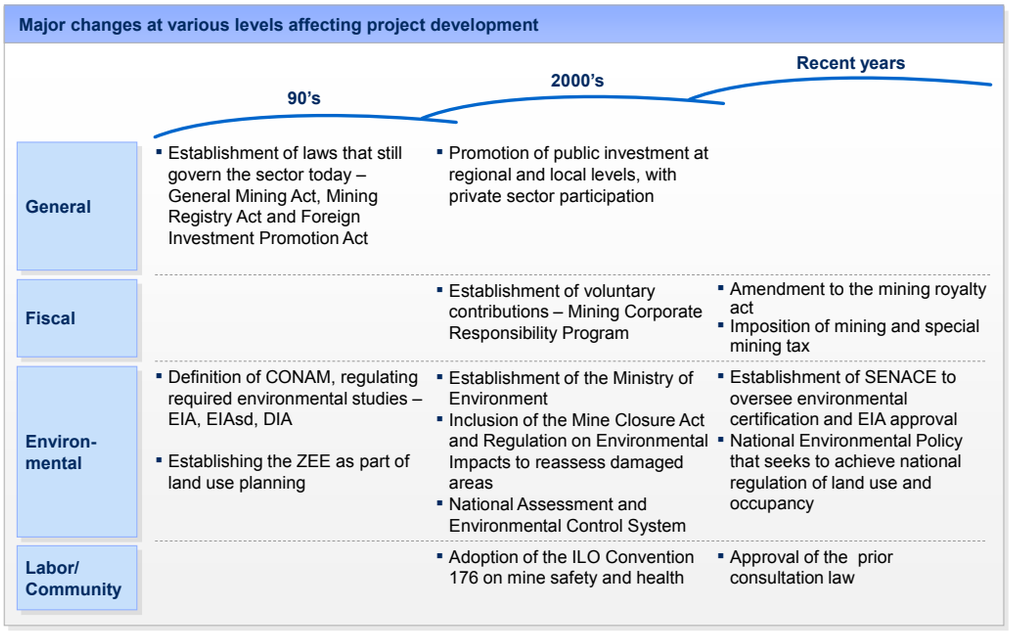
2. A confusing permit approval process with many government agencies involved, which, although in line with comparable countries, could and should be improved.

3. Rapid decentralization of power (e.g., allocation, management and use of royalties, ZEE processes, political decentralization), which has not been accompanied by equal responsiveness on the part of the central government (although recently positive efforts have been made to achieve this decentralization, such as MEM-driven development roundtables) or the private sector.

Uncertainty about growing regulatory changes and law enforcement

In recent years, changes in the country's institutional framework have intensified.

Figure 18: *Rule changes in Peru have recently intensified with the prior consultation law and the creation of SENACE*



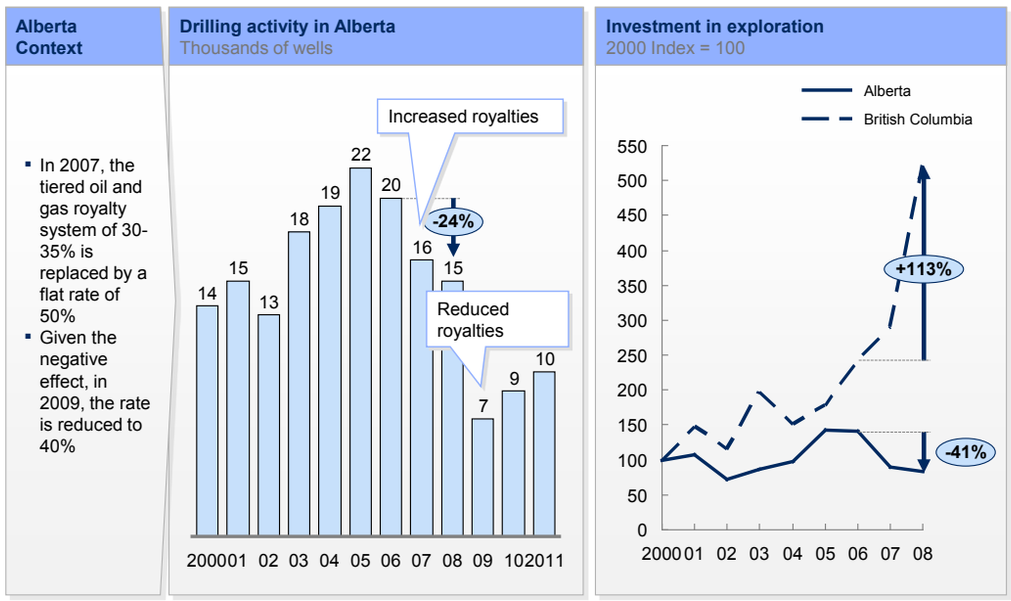
SOURCE: Interviews; SNMPE

Regulatory changes may have an adverse effect on investment

Investors look for countries with strong and stable institutional frameworks. Changes in these can lead to negative effects on the development – in terms of investment and production – of extractive industries. Several global examples illustrate this effect:

In Alberta, Canada, the oil and gas industry had a tiered royalty system. The rate ranged from 30-35%. In 2007, this system was replaced by a flat rate of 50%. As a result, investment and exploration activity fell sharply. For example, drilling activity in the region fell by 24% from 2006 to 2008. The drop is even higher (70%) if one compares the 2005 peak with the minimum of 2009. Given the negative effect in the early stages, the government decided to reduce the rate to 40% in 2009, which immediately had a positive effect, causing activity to increase by 40% again by 2011.

Figure 19: *There is evidence that royalties have a negative effect on other natural resource industries, such as oil and gas in Alberta, Canada*



SOURCE: Canadian Association of Petroleum Producers Statistical Handbook 2009-2011

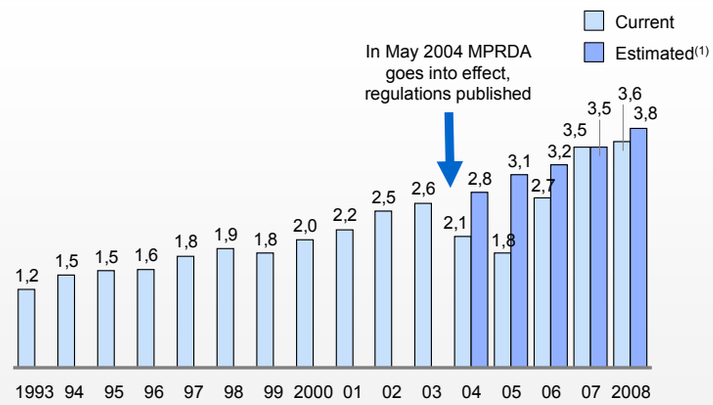
Investment in South Africa was also hindered when the 2003 mining reform was applied. In that year, the government imposed the law of mineral and oil resource development, which applied to projects already under way and in which capital investment had begun. The resulting uncertainty increased the country risk perceived by investors. After more than 10 years of sustained growth, investment in the industry fell for two consecutive years. After 2005, once the uncertainty decreased, investment grew back and managed to return to estimated amounts in line with the previous trend. However, during those years, the country lost investments of approximately three billion dollars. Additionally, the country lost share of mining investment going from 11% to 6%.

Figure 20: *Similarly, regulatory changes had a significant effect on investment in mining in South Africa*

South African Context

- In 2003, the government began a complex mining reform under the Mineral and Petroleum Resources Development Act
- This reform would apply to projects where capital investment had already begun
- The uncertainty led investors to see a political risk in the country

Gross capital formation in the mining industry, South Africa
1994-2008, billion USD (2000 real terms)



- Approximately US$3 billion worth of investments were missed between 2004 and 2008
- Investment in mining fell from 11% to 6% of total investments in the country

(1) Assuming the 1993-2003 trend, considering that global mining investments showed an upward trend between 2003 and 2007

SOURCE: Presentation by the Mining Chamber: 'Key opportunities and challenges facing South African mining,' 2006; press

Several areas have recently changed. For example, in the last decade, the Ministry of Environment was created and its roles began to cover those formerly with productive ministries (e.g., establishment of OEFA[14] and start of SENACE operations[15]). Tax law was also amended, including the revision of schedules for taxation and royalties, mining and other types of retirements, and employer contributions, with the approval of the prior consultation law. This Law recognizes the right of indigenous peoples to be consulted on project characteristics likely to affect their collective rights.

The three main changes that concern investors are the prior consultation law, and implementation of the SENACE and the ZEEs.

14 Office of Environmental Assessment and Control
15 National Environmental Certification Service

Approval of the prior consultation law: This law was passed in 2011. The law ratifies Convention 169 of the International Labor Organization (ILO), and develops the content, principles and applicability of the right of indigenous or native peoples to be consulted on legislative or administrative measures affecting their collective rights. Primary concerns pertain to how to carry out the process and what the average delay in project development will be.[16]

This uncertainty and lack of knowledge will affect investment. For example, prior consultation proceedings in neighboring countries have lasted for years, and the lack of an agreement has in the end meant the revocation of the company's mining concessions (for example, after four years of prior consultation, Muriel Mining Corporation's concession in Colombia was revoked).

A mechanism is being defined in Peru for consulting indigenous or native peoples identified in a database. At the time of publication of this document, the database of peoples requiring prior consultation had not yet been determined. The approval of this database should follow a prudent process allowing participation of those populations who require it, but such that it does not become a manipulative mechanism for special interests. Political use of the process would be a significant problem for maintaining competitiveness and development, not only of mining projects, but also for many of the sectors of the economy. Guarantees must be put in place to ensure that Peru's economic development structures are not weakened.

The process should also be transparent, with a holistic view of all the sub-processes that will be required. Today, each government agency is responsible for regulating the prior consultation law in its own sphere of influence. The Ministry of Energy and Mines stipulates prior consultation: prior to granting authorization to commence exploration activities, and before granting the use permit and the start of mining activities. For over ten years now, there has also been an active process of citizen participation workshops prior to and during EIA processing. It is unknown whether the SENACE will request an additional process for Environmental Impact Assessment, which would make things worse. International best practices encourage participation, but on a single occasion and before the investor has committed significant capital (when a project applies for a use permit [concesión de beneficio], about half of the investment has already been committed).

Finally, an analysis of the state's ability to conduct prior consultation processes is needed. Trained staff and a substantial time commitment will be required to manage prior consultations for mining and non-mining projects in the areas eventually stipulated.

Establishment of the SENACE: the National Environmental Licensing Commission will start work in April 2014 and will have the role of evaluating and approving Environmental Impact Assessments of productive industries, including mining. There is uncertainty in the private and public mining industry as to what types of assessments will switch from approval authority of the Directorate of Mining Environmental Affairs of the Ministry of Energy and Mines to the SENACE. Conventional wisdom is that they will start with mega projects, but what that entails has not yet been defined – potential impact, amount of investment, others.

There is a need to ensure that SENACE has the resources and skills required to prevent bottlenecks before there is any kind of role handover. Most projects in the portfolio require an EIA, and the average time for approval is 420 days: the longest duration, therefore, of all permits required for mine development. Despite

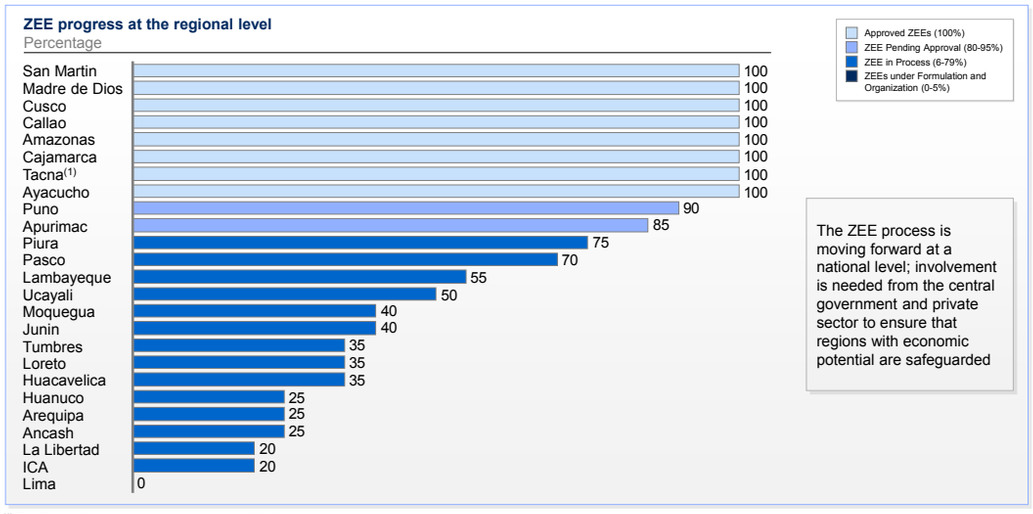
16 At the date of publication of this report, no prior consultation process has been conducted. The process started at the Pastaza, Corrientes and Tigre River Basins in Loreto on Lot 192 (1-AB) is expected to be the first prior consultation.

having already defined the time of transfer of authority as April of next year, neither resources nor staff has been allocated. Capabilities must duly be ensured before any date of transfer is set.

Progress of ZEE processes: Eight regions have completed their respective ZEE processes, and the remainder have processes well under way, despite not having an approved land use act. The Ministry of Environment and international organizations are offering support to advance these processes and are making passage of this act a priority.

An ecological economic zone/land use type venture could be an excellent opportunity for the country to develop synergies. As such, there will have to be a national vision prior to the ruling. This will have to be based on varying perspectives, mainly that of the MEF (Ministry of Economy and Finance) and MINAM (Ministry of Environment), but also that of other central government stakeholders (e.g., Ministry of Energy and Mines), regional governments, the private sector and other stakeholders, to ensure that Peru can mine its subsoil and soil effectively. Having the various stakeholders represented in the process will help prevent ecological or economic bias.

Figure 21: *Five regions have completed their ZEE process, and progress continues to be made in the rest of the country*



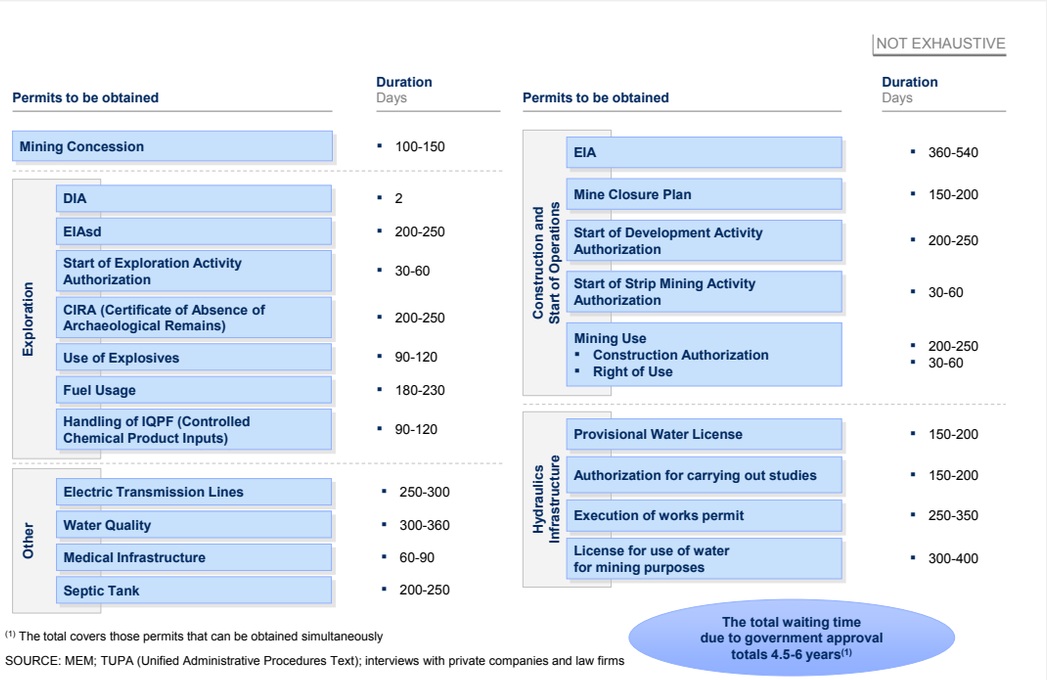
(1) The Tacna directive has been observed by MINAM

SOURCE: MINAM; National Environmental Action Agenda for 2013-2014; Press articles; interviews

Obtaining permits and authorizations required by a mining operation to get started:

A mining project requires many different permits for each of its stages of life. Approval times differ, some only requiring two days, and others up to over a year and a half. In addition, they are highly interdependent, some being prerequisites to others. In terms of the total time for approval, we estimate that a project requires 4 ½ years to 6 years for the approval of all permits.

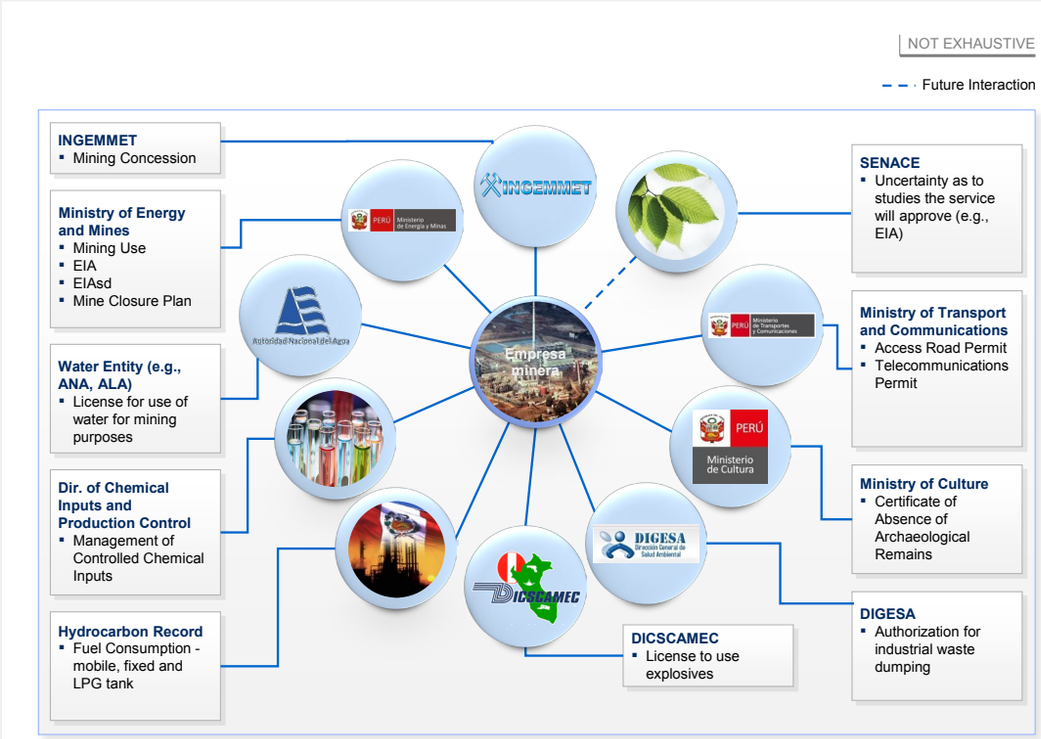
Figure 22: *Obtaining permits and authorizations required by a mining operation to get started*



In addition to the number of permits and approval time, the large number of government agencies with which a company must interact to obtain them must be taken into consideration. The granting of permits for mining projects involves everyone from the Ministry of Energy and Mines to the Ministry of Culture. Peru does not necessarily require interaction with more entities than do other countries, and this in effect creates a greater opportunity for the establishment of a "single window," at least for those projects most critical to the country's economic development.

Specific opportunities for improvement have been identified that should be explored in detail, in order to be implemented so that they promote development and ensure proper control and compliance with the law. For example, it is evident that both Chile and Brazil achieve lower approval times during the exploration

Figure 23: *The process requires the interaction with a large number of government agencies*



SOURCE: MEM; TUPA; Mining Legislation; Interviews

phase by not requiring Environmental Impact Assessments at that stage, given certain conditions. One of Peru's challenges is to identify what the conditions to be met by different assets are, in order to accelerate projects and make them more attractive than others in other parts of the world (e.g., certain specific geographic locations). This opportunity is especially important in facilitating exploration activities. This is shown in Figure 24.

To close out the subject of obtaining permits, we evaluated the size of the current permit queue at the Ministry of Energy and Mines. "Queue size" is understood to mean all the company Environmental Impact Assessments awaiting a reply from MEM.[17] As can be seen in Figure 25, queue size has increased dramatically in recent years, and in early 2013, it included over 130 assessments.

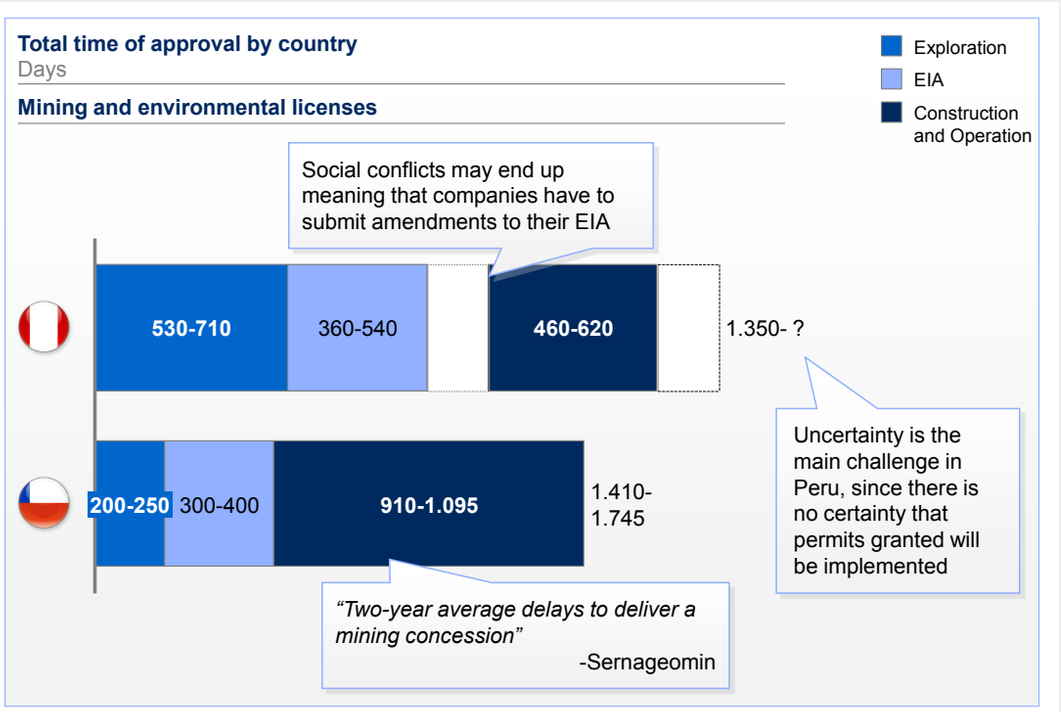
17 As part of the reported queue size, permits still being processed by companies following comments by the MEM were included

The primary reason is the increased number of assessments submitted to MEM, which went from 45 in 2000, to 100 in 2012. Although at first glance this increase seems to be due to the mining boom the country has undergone in recent years, it is based on the fact that a large number of mining projects are required to submit Environmental Impact Assessments more than once in order to move projects forward.

As shown in the above graph, the number of EIAs submitted by a given mining project is increasing dramatically. This increase is due to:

- A tactic employed by private companies to move forward with other project permits or specific areas, while leaving others to be included later

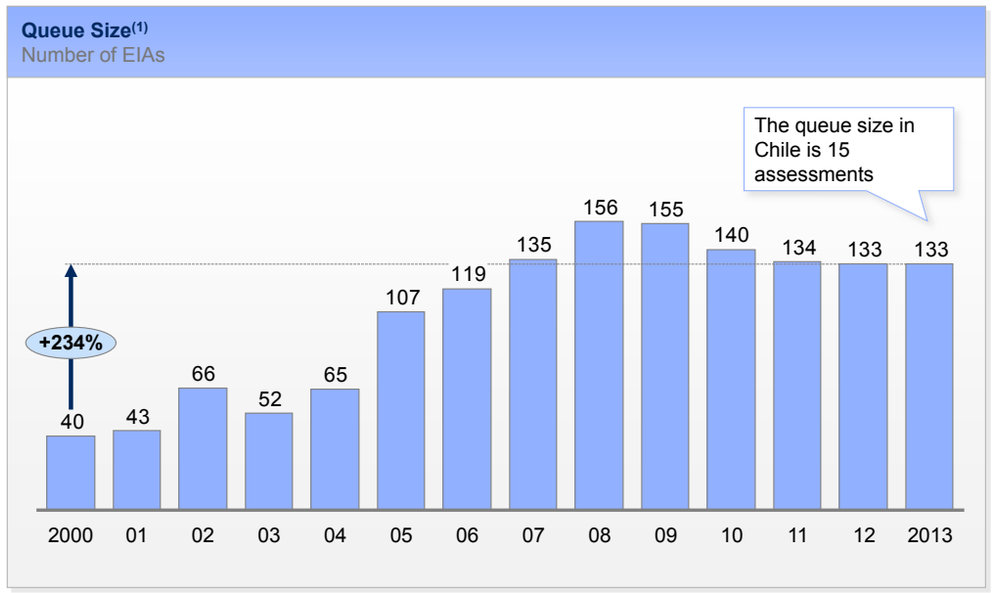
Figure 24: *Exploration approval time provides an opportunity for improvement, as does the "purpose" of the EIA approval process*



NOTE: These are the current times, not including potential delays due to new legislation

SOURCE: Law Firm; Mining Companies; MEM; Water Authority (DGA); Ministry of Agriculture (SEA); National Geological and Mining Agency (SERNAGEOMIN) Project Department and Mining Property Department; National Monument Council

Figure 25: *Recently, the queue size for permits pending approval has increased*



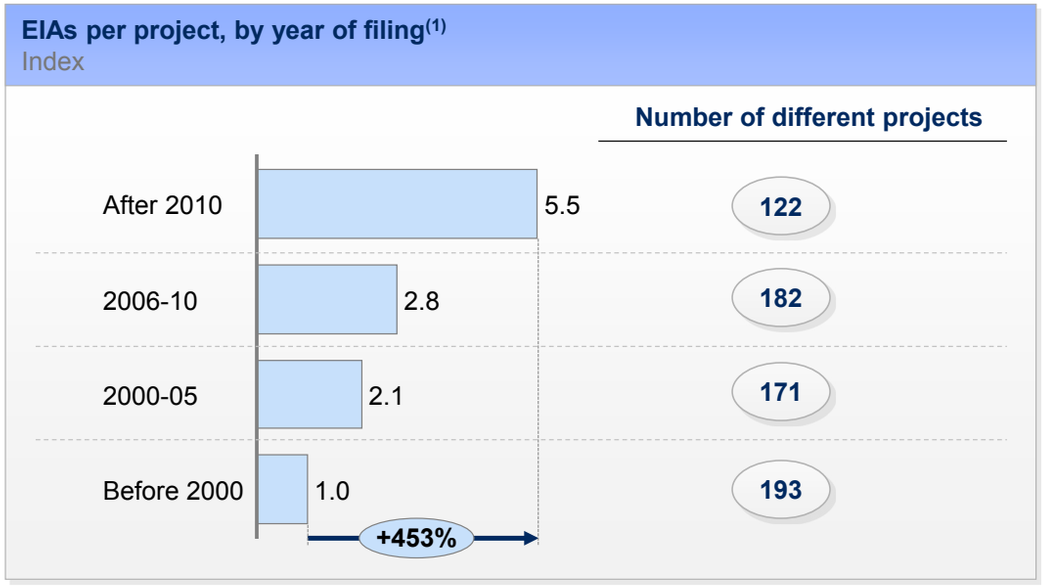
(1) This only include studies submitted after 2000

SOURCE: MEM; Environmental Evaluation System

- Omissions or errors in the company's project design, a fact that is also evident in the large number of comments made on assessments submitted
- Little flexibility in approved EIAs requiring amendments even for small changes
- Greater strictness by environmental authorities in the last decade
- Fear by some reviewers of potential blowback from approving certain projects

In conclusion, the institutional framework offers opportunities for improvement in three areas: 1) Defining the operational framework of the law, 2) Reducing the complexity of the process for obtaining permit approvals and improved accuracy as to which cases require modifications to approved EIAs, and 3) Enforcement of the law so as to obtain effective implementation of projects in compliance with the law's own stipulations.

Figure 26: *Increasing queue size is due to companies submitting multiple EIAs per project*



(1) Includes modifications and extensions
(2) Regulation is lacking as to when EIA modifications are required

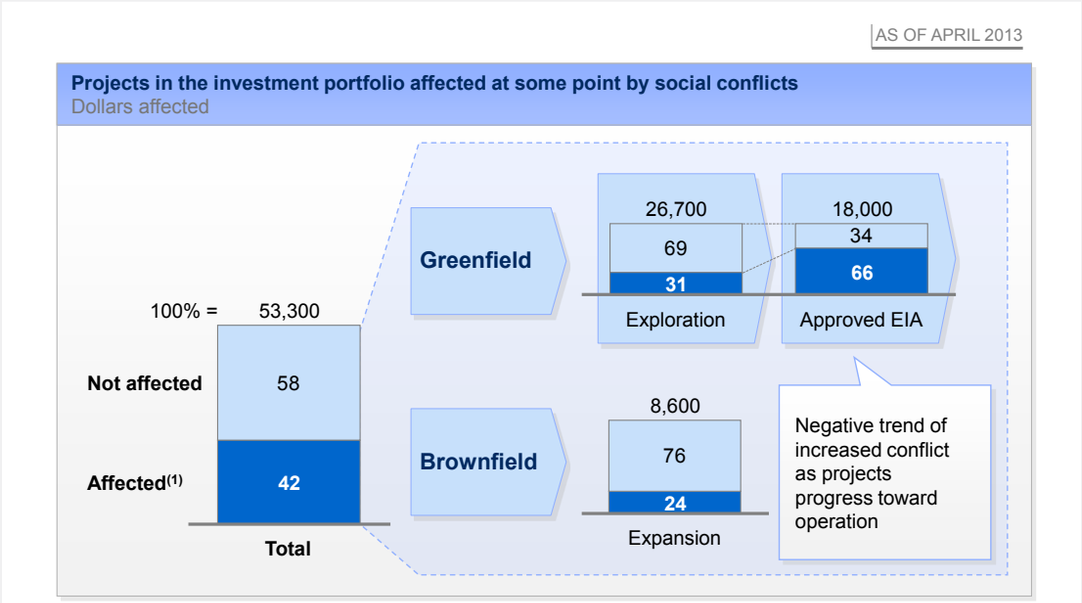
SOURCE: MEM; Environmental Evaluation Service

2.4 The social arena is the most difficult and crucial area, given the complexity of Peru's situation

Social conflicts are a reality and are already affecting project implementation. Peru is currently the Latin American country with the highest number of mining conflicts. In addition, approximately 40% of the current investment portfolio is experiencing delays. This delay is even more significant in the portfolio with approved EIAs, reaching ~65%, which indicates that, as projects progress at varying stages of implementation, there is a greater probability of being affected by delays at some point.

The social problem is extremely complex, because it involves many stakeholders with highly varying views and interests. There are conflicts based on perfectly justified grounds (e.g., breach of agreements, accidents with environmental impacts), on perceived grounds (e.g., worsening of water quality in watersheds contaminated due to reasons unrelated to mining), and due to the manipulation of public opinion by certain political interests. Without wanting to over-simplify a very complex social problem, but in order to explain the root causes of conflicts in order to try to prevent them, we have synthesized those causes into three:

Figure 27: *Two thirds of the projects with approved EIAs and ~40% of all projects have been affected by social problems*



(1) Affected means subject to delays exceeding a year due to social conflicts. This includes: Marcona Expansion, Toquepala Expansion, Cuajone Expansion, Conga, Quellaveco, Toromocho, Antapaccay, La Arena, Pucamarca, Galeno, Cañariaco, Rio Blanco, La Granja, Tía María, Michiquillay Mines

SOURCE: MEM; newspapers; interviews

1. Absence of a relationship of trust between two parties who must necessarily cooperate

First, there are limits to a fluid communication. This is due to:

— A perceived lack of transparency concerning activities and plans, which creates mistrust

— The relationship between significantly different parties (in terms of culture, language and education), which hinders communication

— Varying styles of community outreach by private companies and regional governments

— The difficulty of understanding the distinction between subsoil or surface rights, which leads to high expectations

Second, behavior on the part of both parties may produce discomfort, such as breach of agreements or improper actions and operational routines, especially during the exploration phase.

Third, the negative image of mining is due to the lack of knowledge of this activity's economic importance and benefits, and its limited reputation, which generates much uncertainty from the outset.

Finally, "the mining issue" is used for political ends. Discomfort and anxiety are exploited in the pursuit of one's own interests. There is an ideological struggle that exacerbates conflicts with the mining industry, using it as a symbol of capitalism. There are many participants involved, with varying agendas, which broadens mining's field of impact.

2. Low levels of human development in the broadest sense in the affected communities, which manifests itself in three main areas:

First, the unequal nature of economic development: there is little direct employment generated, and local communities are not prepared for the work required. Supply from qualified local providers is limited, hindering the potential for impact. There is little coordination of economic development plans with public authorities; and there are no success stories.

Second, the lack of basic services: widespread poverty is found in some mining development areas and the government appears absent from providing basic services (water, electricity, sewage, transportation infrastructure, education and health) to rural communities. These communities then turn to the private mining companies to provide them. Moreover, the effect of mining royalties on community living standards is low, due to their poor management and use, and there is a limited perception of community participation in such management.

Finally, there are substantial social (isolation, immigration, lack of integration) and economic (inflation, socioeconomic differentials) effects, as a result of implementing large projects in small communities. Although companies are beginning to take these effects into account and establish policies to address them, they are difficult to manage and, so far, such planning has been limited.

3. Fear of the impact of mining activity on the environment and water.

On one hand, there are fears of environmental impacts, mainly due to dependence on agricultural activity, whereas mining could instead be seen as an opportunity for collaboration and the creation of synergies (especially concerning water). Historical baggage with environmental damage, some of which remains in effect today, as well as the lack of transparency and communication as to potential risks and accident management, complicate the situation. In addition, there is the negative influence of illegal mining that darkens the image of the industry.

On the other hand, there is a lack of quantitative data which is replaced by qualitative arguments (knowledge of watersheds is poor) leaving room for manipulation. Although in theory an enforcement entity exists, in practice, no one has the authority and credibility to resolve conflicts generated by discussions over water. Finally, claims are politicized, sometimes involving preconceived ideas and few objective arguments.

To conclude, it is important to emphasize that the social context is difficult to deal with and will require time and flexibility from all parties involved. Achieving the long-term goal of a modern mining sector will not be achievable without a convergence of objectives and efforts.

3 Success depends on shared objectives and joint efforts nationwide

Peru was, is and always will be a mining country. It was so, starting in pre-Inca times, during the Inca Empire, the colonial period and finally, the republican era; and it will be so increasingly as a result of structural changes the world is experiencing.

Over the past decade years, there has been a boom in prices that has transformed the global mining industry. This "new pricing paradigm" in the sector is largely supported by: i) **The "awakening" of emerging markets** (it is expected in the next decade that more than one billion people will migrate to the middle class in China and India, increasing consumption, and therefore, the demand for some basic materials), ii) a **scarcity of resources**, since grades are decreasing and deposits are in locations that are increasingly difficult to reach and extract from, creating a systematic increase in costs, iii) a clear trend **on the part of nearly all governments to want to protect their country's resources**, and iv) **the emergence of an increasingly active variety of parties** (e.g., unions, environmentalists, communities, etc.) that have different objectives.

Profitable growth is an imperative for mining companies in this new global situation, but in order to achieve this, the criteria must be properly defined. Mining companies face risky investment decisions, so where, how and when to grow must be clear, and one must be sure that internal resources are allocated in the best way possible.

Within this context, Peru is positioned favorably due to its great mining potential and greater political stability, as compared to other high-potential regions, such as Africa. Peru's geological wealth includes minerals that are, and will remain, very attractive to international markets (e.g., copper and gold).

The country clearly needs mining, and it is undoubtedly Peru's engine of growth.

However, in order to realize this potential and do so responsibly, it is essential that the various stakeholders (companies, governments, unions, environmentalists, nearby communities, etc.) define and enforce rules so that everyone can benefit.

If the industry's aspiration is the practice modern mining in order to make Peruvian mining and all its assets into a global reference, four objectives must be set and met:

- Contribute to Peru's sustainable development, establishing a relationship of mutual trust with communities and with the country at large
- Encourage the development of a clear, stable and attractive institutional framework for investment
- Transform the standing of the mining industry from a source of conflict into a source of pride
- Ensure there is a total cost structure that is attractive relative to comparable countries and that provides sure foundations for future development (e.g., energy and labor).

In order to achieve these proposed objectives and adequately deal with circumstances, the country needs to work together and with a single agenda among all industry stakeholders.

This agenda should address the following areas, with the following subjects at the forefront:

1. **Social**

   — Promote economic and human development (e.g., review royalty management, prioritize royalty use in solving unmet basic needs, build mechanisms that are properly administered, such as the MEM development roundtables, and promote best practices)

   — Associate mining with excellence in water management

2. **Institutional:**

   — Ensure prudent implementation of the operational framework of legislation and government entities so as to not hinder continued development (e.g., prior consultation, SENACE, ZEE/OT- Land Use Planning)

   — Review processes in order to reduce approval times and simplify permit approvals

3. **Positioning/Communication:** Create a communication strategy in the short, medium and long term to address the improvement of the image of the mining sector, as well as conflict prevention and resolution

4. **Sustainability of Peru's competitive advantage:** Establish a committee to manage country-level cost structure indicators, anticipating bottlenecks and promoting continuous improvements.

Compliance with this strategic agenda requires a change of mindset in each of us, from the highest levels of government, to private enterprises and the individual residents of even the smallest communities. We must seek a new model of cooperation that breaks the traditional compartmentalization of government, private sector, and civil society, replacing that with collaborative networks to build a new and more prosperous society. We would like to conclude this report with a quote from Henry Ford that we believe captures the sentiment necessary for achieving human and economic development in Peru: *"Coming together is a beginning; keeping together is progress; working together is success."*

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