

Recommendation to Shareholders concerning Barrick Gold's Pascua-Lama Project

Regroupement pour la responsabilité sociale et l'équité
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INTRODUCTION

This Recommendation to Barrick Gold's shareholders follows up on the dialogue initiated and coordinated by faith-based institutional investors from the "Regroupement pour la responsabilité sociale et l'équité" (RRSE) regarding the impacts the project Pascua-Lama could have in Chile and Argentina.

Engaged on the basis of a steady flow of communications RRSE's members were receiving from their missions in Latin America, this dialogue was further supported by experts, notably in hydrochemistry, glaciology and finance, and was joined in 2006 by Bâtirente, a pension plan manager set up by "La Confédération des syndicats nationaux".

In essence, concerned shareholders have consistently argued that, in view of Pascua-Lama scope and unique characteristics, the *Precautionary Principle* demanded that internationally recognized best practices be systematically applied in carrying out the project in order to protect local populations' **Right to Water**.

The overall position of the Company on the subject, as reflected in their 2006 report to shareholders¹, is that Pascua-Lama will not impact the quality nor the quantity of water, considering all measures and precautions provided for.

Unfortunately, after three years of research, the RRSE is yet to find examples of mining projects, comparable in scope to that of Pascua-Lama, which have not had environmental impacts.

However, the same research has led to the identification of a prudential governance practice now endorsed by the industry leaders for projects involving multidimensional concerns, and which consists in resorting to advisory panels of independent experts to countercheck the design, execution and follow-up of all strategic components of said projects.

The RRSE recommends that Barrick Gold sets up such a panel for their project Pascua-Lama.

Sections 2 and 3 of this document (*Water Issues and Responsibilities and Liabilities*) describe the main concerns that have been raised regarding Pascua-Lama by representatives of the local populations and shareholders, as well as the answers given to these issues by the Company, public authorities and experts.

The reader will find a short description of the project on the following page, and, on the last page, a project diagram created by Chilean authorities. The recommendation as such is discussed in section 5, pages 8 and 9.

¹ Barrick Pascua-Lama Shareholder Report, http://www.barrick.com/Theme/Barrick/files/docs_ehss/ERM%20Report%20on%20Barrick%20Pascua-Lama.pdf

1 – DESCRIPTION OF THE PROJECT

Pascua-Lama is located in the High Andes within Chile's Third Region (Atacama) and Argentina's San Juan Province, overlooking a semi-arid to desertic zone. At 3,800 to 5,200 meters above sea level, the project sits on 3,041 square kilometres of mining concession, where runs a system of glaciers and permafrost, and would be one of the highest altitude mines in the world.

The site is adjacent to another important Barrick Gold mine site in Argentina, the Veladero mine, and to UNESCO's Biosphere Reserve of San Guillermo, a part of which was declassified to accommodate both projects. Both mines operate in the El Indio-Pascua belt of Chile and Argentina defined by a high-sulfide system of mineral deposits occurring in fracture networks². The whole region is part of one of the world most active seismic zones.

The area of Pascua-Lama–Veladero is subject to extreme weather, ranging from zero precipitation to brutally heavy rains and snows. The glaciers and other water sources of the sector are essential to the water supply of the downstream basins where live, in a fragile ecosystem, farmers and villagers.

Barrick reports that Pascua-Lama mineable reserves contain about 17 million ounces of gold, 690 million ounces of silver (over two thirds of the Company's silver assets) and 565 million of pounds of copper. Together, Pascua-Lama and adjacent Veladero account for 23% of Barrick's gold reserves and the Company is drill-testing other gold targets in the area³. Over the Company total long-lived assets, including property, plant, equipment and other tangible non-current assets, 25 % was invested in Chile and Argentina in 2006.

Production at Pascua-Lama should last 23 years and yield approximately 35 million ounces of silver and 750,000 to 775,000 ounces of gold a year in the first 5 years, at total cash costs of about \$40-\$50 per ounce (gold and silver). Capital investment is currently estimated at \$2.3-\$2.4 billion, up from \$1.5 billion in 2005. On an aggregate basis, Barrick's average realized gold price per ounce of gold was \$541 in 2006, for a total production cost per ounce of \$359⁴.

Barrick reports that Pascua-Lama will create 5,500 jobs during the construction stage (2006-2009) and 1,660 jobs over its estimated 23 years of operations.

2- WATER ISSUES

Water quantity and water quality-related issues are the aspects which have historically caused the most serious and expensive unforeseen economic impacts and public liabilities at mining sites. According to Barrick Gold, Pascua-Lama will have no impact on water. However, Pascua-Lama's potentially affected people (PAP) have expressed several legitimate concerns regarding these issues. (PAP are split between two countries, several villages, agricultural valleys and Diaguita Nation's ancestral lands.)

² Alunite in the Pascua-Lama High-Sulfidation Deposit: Constraints on Alteration and Ore Deposition Using Stable Isotope Geochemistry, *Economic Geology*, January 2005
<http://econgeol.geoscienceworld.org/cgi/content/abstract/100/1/131>

³ See, Barrick Gold Corporation - Investor Day, Toronto, February 22, 2007, Sections II -8 and III-9
http://www.barrick.com/Theme/Barrick/files/docs_presentations/BarrickInvestorDay2007-3.8M.pdf

⁴ All above data are from Barrick Gold 2006 Annual Report

2a - PAP's Concerns About Water Quantity

Regarding water quantity, PAP are concerned that the project's withdrawal of water will combine with other mining impacts and glacial downwasting due to global warming to further deplete the scarce water resources of the area. Among these other impacts likely to affect water quantity, dust production and the deposit of waste rock over a rock glacier in Chile are frequently mentioned.

Water Withdrawal. Concerning water withdrawal, Barrick has argued that the project average consumption (42 litres per second (l/s) from river Estrecho in Chile and 290 l/s from river Taguas in Argentina) represents less than 0.5% of the global water flow to the Chilean Huasco Valley, and that in Argentina it represents 3-6% of the flow to the corresponding valley depending on the season and 5-11% in a dry year⁵.

As such, 11% of the water flow is not an insignificant amount. Moreover, a review of the updated Environmental Impact Assessment (EIA) produced in Chile in 2004 indicates that 42 l/s could represent, in a very dry year, as much as 60% of the water resource at the point of withdrawal. Consequently, Barrick has proposed a Contingency Plan consisting of limiting the mine consumption of water to a maximum of 31 l/s if the water flow drops below the ecological level, necessary to maintain the ecosystem integrity⁶. The Company estimates that this could happen only once in 20 years and last for a period of three months.

PAP worry that this prediction of one event in 20 years might be too optimistic in light of the projected ratios of withdrawal. They argue that scientists have observed, along the tropical Andes, a temperature increase of 0.11°C/decade (compared with the global average of 0.06°C/decade) between 1939 and 1998. Eight of the 12 warmest years were recorded in the last 16 years of this period.⁷ And the Intergovernmental Panel on Climate Change has warned that climatic warming tends to accelerate.

Dust production. A report by the General Water Directorate of the Chilean Ministry of Public Works⁸ indicates that between 1981 and 2000, during the prospecting and exploration phases of Pascua-Lama which included the construction of roads and an aerodrome, the size of three glaciers in the vicinity, Toro 1 & Toro 2, and Esperanza, diminished between 56% and 70%. According to the Company, this is the result of climate change. However, although global warming has been found to reduce other glaciers in the area by 11-14% during the same period, PAP believe that the discrepancy between these reduction rates is intimately tied to the mine's activities, especially to dust production. This is also the opinion of Osvaldo Ávila, director of Atacama's Regional Council for the Environment (COREMA)⁹, the public agency in charge of the project's initial approvals.

The Company maintains that there will be no (further) impact on the glaciers. In an interview given to the Ottawa Citizen in 2006, Barrick's representative indicated that "construction could

⁵ See Barrick Pascua-Lama Shareholder Report., November 2006, section, 4.6, p. 23, http://www.barrick.com/Theme/Barrick/files/docs_ehss/ERM%20Report%20on%20Barrick%20Pascua-Lama.pdf

⁶ Resumen Ejecutivo del Estudio de Impacto Ambiental (EIA), 6-12-2004, p. 19, http://www.e-seia.cl/seia-web/ficha/fichaProceso.php?id_expediente=1048260&idExpediente=1048260.

⁷ Threats to Water Supplies in the Tropical Andes, *Science* 23 June 2006, pp. 1755 - 1756

⁸ Informe de Comisión de Servicio a la III Región, Visita a Pascua Lama 12 de enero de 2005

⁹ See, DEPUTIES CALL FOR INQUIRY INTO CHILE'S PASCUA LAMA PROJECT, Valparaiso Times, June 2007, <http://www.valparaisotimes.cl/content/view/113/1/>

put as much as six tonnes of dust a day into the air, but prevailing winds and dust-control measures mean less than 0.25 mm would actually settle on the glaciers”¹⁰.

Besides the three glaciers mentioned above, there are also in the area other glaciers (Estrecho and Guanaco in particular) still more important in terms of water supply. PAP point to the fact that 1200 million of tons of waste rock will be piled right beside the Estrecho glacier. They argue that dust-laying will not be feasible along accesses and worry that the residual dust might affect the most important glaciers. In Resolution no 24, the COREMA indicated that, according to Mattson et al, 1993, a millimetre of dust on the surface of a glacier can accelerate its melting by about 15%¹¹. Other scientific studies maintain that a glacier rate of ablation can increase to a maximum of about 4 to 5 folds when the initial dust concentration increases from 0 to 0.112 kg/m⁻²¹².

Deposit of waste rock over a rock glacier. Another issue between the Company and PAP around mining impacts on water quantity concerns the site chosen for the above waste rock pile in Chile, over the rock glacier Estrecho-B, adjacent to glacier Estrecho. A rock glacier is a slowly moving mass of boulders and finer material cemented by ice and/or containing a buried ice core. According to PAP, the rock deposit could affect the melting of that ice.

In its Addendum no 2 of November 2005¹³, the Company indicated that, according to scientific literature, the quantity of ice contained in a rock glacier such as Estrecho-B could vary from 50% to 90% of its volume. Two months later, in January 2006, Barrick stated in its Addendum no 3 that there was now evidence that Estrecho-B contained only 2 % to 5 % ice and that it could no longer be considered to be a truly rock glacier although it is slowly moving¹⁴. However, in Resolution no 24 of February 2006, the COREMA stated that it is likely that Estrecho-B also contains an ice core¹⁵. In other words, as the glaciologist Cedomir Marangunic analyzes in the documentary *Piel del Jaguar*, such evolving diagnosis point out to the limited knowledge there is now about rock glaciers.

2b - PAP's Concerns About Water Quality

Acid rock drainage and dam leaks or ruptures are the most common and expensive environmental impacts encountered at mine sites.

Acid rock drainage (ARD). Acid generation happens when sulphide minerals are exposed to the weathering effects of oxygen and water, which oxidize sulfur. ARD occurs when the resulting acidity is entrained by water. Once initiated, ARD may persist for hundreds of years and has the potential to kill many forms of organisms and render the water unfit for human consumption and agriculture.

Pascua-Lama project area has naturally-occurring ARD as it is defined by a high-sulfide system of mineral deposits. Because mining greatly increases the amount of fresh rock surfaces

¹⁰ Struggle at the top of the Andes, <http://www.canada.com/ottawacitizen/news/story.html?id=9ed53eb0-b0bf-4f9a-ac4b-5b1bf24c3684>

¹¹ Resolución Exenta N° 024, 15/02/2006, Comisión Regional del Medio Ambiente, Región de Atacama, p. 125, http://www.e-seia.cl/externos/admin_seia_web/archivos/6316_2006_2_15_RE.pdf

¹² See Dust influence on the melting process of glacier ice, *IAHS Publ.* no. 264, septembre 2000, <http://www.cig.ensmp.fr/~iahs/redbooks/a264/26405.htm> and, for an illustration of the phenomenon, http://www.glaciers.pdx.edu/CryoconiteHoles/Cryo_main.html

¹³ Adenda N°2 - Estudio de Impacto Ambiental "Modificaciones Proyecto Pascua Lama", p. 16-3, http://www.e-seia.cl/externos/admin_seia_web/archivos/6316_2005_11_10_RP.zip

¹⁴ EIA Modificaciones Proyecto Pascua-Lama, Adenda N° 3, Glaciares y Permafrost, section 2, p. 38, http://www.e-seia.cl/externos/admin_seia_web/archivos/6316_2006_1_13_RP.zip

¹⁵ Resolución Exenta N° 024, 15/02/2006, p. 25

exposed to oxygen and water, ARD is bound to increase in the area. On average, gold-bearing deposits contain a few grams of gold per ton of rock. The waste rock for a production of 750,000 to 775,000 oz of gold per year will result in the accumulation of two huge piles of ARD generating rock, one in each country.

The pile planned in Chile over the Estrecho-B rock glacier (see above) will be located at the head of the Estrecho River (see illustration appended), and will cover 327 hectares and rise to 700 meters¹⁶. By contrast, the pyramid of Kheops is 137 meters high. In Resolution no 24, the COREMA recognized that it is not possible to ensure the full impermeability of the waste rock facilities since the mere weight of the rock will puncture over time the impermeable membranes planned underneath the repository¹⁷. According to some experts, this accumulation of debris could also promote the rock glacier movement. PAP worry that this increase in weight and movement might not only damage the membranes, but incite creep and deformation and result in the fall of acid generating material beyond the collecting system¹⁸.

Dikes and seismic activity. But, regarding water quality, ARD is not the only concern to PAP. The extraction technology adopted for Pascua-Lama, cyanide leaching, uses each year hundreds of tons of corrosive chemicals such as cyanide¹⁹. The toxic tailings left from this process will be stored for the most part in Argentina, beyond dikes, in containment ponds and facilities. How these retention dikes will withstand in the long term the area seismic activity is causing much anxiety in Argentina.

Earthquakes in the High Andes are a regular phenomenon²⁰. According to experts, all dikes and dams leak to a certain extent over time, even those not located in seismic zones. Since rock in a seismic zone is naturally fractured, infiltrations into the water table are easier.

3 - RESPONSIBILITIES AND LIABILITIES

ERM, the consultancy engaged by Barrick to draft the report shareholders had asked for, has concluded, without independent verification of the relevant data, that all possible precautions have been taken in the case of Pascua- Lama and that “proposed safeguards for water quantity and quality should be effective if implemented as proposed”²¹.

However, shareholders have learned the hard way how plans and predictions do not always come to pass. This is why responsible investors in the mining sector value prudence and conservatism in planning the various instruments that could help identify responsibilities and meet any rehabilitation liabilities of a project. Among these instruments are summaries of baseline data and effective financial arrangements.

Baseline data. Developing a quantitatively-defensible baseline data base, and issuing summaries thereof to interested parties, is the only way to reliably define in all due transparency future liabilities that might result from a proposed project. Baseline data consist of statistical

¹⁶ Resolución Exenta N° 024, 15/02/2006, pp. 8 and 104

¹⁷ Resolución Exenta N° 024, 15/02/2006, p. 15

¹⁸ See Instalación de Botadero Nevada Norte sobre un Glaciar de Roca, <http://www.iepe.org/documentos/botaderoenpascualama.doc> and the Chilean documentary *Piel del Jaguar*

¹⁹ *The Price of Gold in Chile*, Environmental Health Perspectives, Volume 114, No 9, September 2006

²⁰ For an overview of Atacama Region seismic activities, see the site of Servicio sismológico Universidad de Chile, <http://www.sismologia.cl/cgi-bin/sisnac.pl?Z=03&T=1&P=200609&R=>

²¹ See Barrick Pascua-Lama Shareholder Report., November 2006, pp. 24 and 9, http://www.barrick.com/Theme/Barrick/files/docs_ehss/ERM%20Report%20on%20Barrick%20Pascua-Lama.pdf

measures and description of conditions existing before development and against which subsequent changes can be detected through monitoring.

In sensitive and large scale projects, best practices require that fundamental data such as baseline data on water quantity and quality be verified by recognized independent experts, then summarized and disclosed in a synthetic format before mining begins. Failing that, stakeholders are without a reliable yardstick when claims arise regarding toxic discharges to the environment.

When asked by the RRSE if such audited summaries were ever disclosed to stakeholders, Barrick has answered that “ *The RRSE fails to appreciate that due to the complexity and variability of the natural quality of the water occurring in the vicinity of the project and downstream of the project and the extensive baseline monitoring over a 5 year period, evaluation must consider the entire volume of information, analysis, and assessment by professionals, the conclusions of which are properly reflected in the approval by the competent authorities.*”

Variability and complexity are not unique to Pascua-Lama but rather the rule with megaprojects in the mining sector (or else). Also, the approval by the authorities of the Company's conclusions is not a substitute for the disclosing of baseline data summaries. It would be impossible for a shareholder or any other stakeholder to consider, in order to form an opinion after an accident, the entire volume of information, analysis, and assessment produced by the Company's appointed professionals during the EIA process (over 5000 pages in Chile only). It is to resolve that difficulty that summaries were meant to be.

UN General Comment No. 15 states that the conditions necessary for the realization of the **Right to Water** include *information accessibility* in favour of stakeholders, which is the right to seek, receive and impart information concerning water issues in order to participate in decision-making processes that may affect the exercise of the right to water²². Thousands of pages of impact studies divided over two countries and constantly amended through addition of addenda are not “accessible” in that sense.

Financial instruments. As with many other mines producing and storing a great amount of toxic tailings and wastes, some of Pascua-Lama impacts might become obvious only many years following mine closure and be chronic, i.e last indefinitely as observed in Canada.

Considering the project is hosted by an inhabited, fragile and threatened ecosystem, only the most prudent measures of environmental stewardship should be implemented and those measures should include a provision for the operation and maintenance of perpetual, active water treatment facilities. Without perpetual active treatment of all mining effluents/ discharges, streams and ground waters will likely deviate with time from internationally-recognized water quality criteria and be toxic to the environment, and future generations.

The overly optimistic prediction of the Company that the project will not impact the quality or quantity of water is disturbing. Such an optimistic stand may lead to underestimate closure and reclamation costs and prevent the Company from underwriting **conservative** insurance or bonding instruments to face its legacy obligations.

Several jurisdictions in Canada have defined detailed provisions describing all aspects of the calculation, collection, holding and release of such financial assurance bonds. As with all other

²² See General Comment No. 15 (2002) The right to water (arts.12 and 48) [http://www.unhcr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94/\\$FILE/G0340229.doc](http://www.unhcr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94/$FILE/G0340229.doc)

aspects of EIAs, the most crucial requirement is that truly, financially-independent experts be employed to calculate the financial amounts of the reclamation bonds.

Discussions regarding financial assurance should also be made publicly available. PAP would have increased confidence in the project, if they knew the details of the financial instruments underwritten to cover long term impact and legacy costs.

When asked about this aspect of their obligations, the Company has answered that “*Barrick accounts for environmental liabilities are in accordance with Financial Accounting Standards Board Standard 143 - Accounting for Asset Retirement Obligations. This standard requires Barrick to estimate the future reclamation and closure costs associated with current disturbances to the environment (...)*With respect to the Pascua-Lama project, as construction has not started and the environment has not yet been disturbed we have not recognized on our balance sheet any FAS 143 liability.”

First of all, while construction has not started at Pascua-Lama, the exploration phase has already disturbed the environment, as demonstrated by the General Water Directorate of the Chilean Ministry of Public Works (see *Dust Production*, p. 4).

Moreover, the Company argument that the law limits their disclosure to current disturbances (or that they cannot evaluate a scenario that does not actually exist), is not convincing. Assessing future impact and liabilities is precisely what EIAs were originally intended to do and financial instruments underwritten to cover those liabilities could be disclosed in the Management Discussion & Analysis section of the annual reports, or in a Sustainability report, if it can't be done in the balance sheet.

4- CONCLUSIONS

Despite thorough research and consultations, RRSE's members are still to find an example of an innocuous mining project. Current limits of knowledge in glaciology and the uncertainty as to the combined effects of global warming and mining impacts on ice are disconcerting. Even regarding ARD, technical uncertainty is sufficient that Canadian authorities consider it to be one of the most challenging issues currently facing the mining industry and regulators²³.

In its recent study, *Attitudes to Risk in the Global Mining Sector*, Ernst & Young warns investors that mining companies are not yet responding adequately to environmental risks and rising community pressure regarding environment, but tend, as with Barrick, to focus on present risk in the current regulatory environment rather than the future.

5- RECOMMENDATION

In light of the diverging opinions and perspectives described above, conflicts around the possible impacts of Pascua-Lama over water are likely to continue and will certainly amplify if the actual impacts exceed the Company's optimistic provisions and financial security. Already, Diaguitas have formalized local concerns and filed a complaint to the Inter-American Commission for Human Rights claiming that Pascua-Lama jeopardize their right of property and their **right to water**, depriving them ipso facto of the necessary resources to exercise their other Economic, Social and Cultural Rights.²⁴

²³ Policy for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia, http://www.em.gov.bc.ca/Subwebs/mining/Project_Approvals/policy.htm

²⁴ See Otro caso en la CIDH: Proyecto minero Pascua Lama, Business & Human Rights Resource Centre, <http://www.business-humanrights.org/Links/Repository/698071>

Consequently, RRSE's members are of the opinion that Barrick (and shareholders) would benefit from adopting innovative and transparent governance measures, considering the risks associated with Pascua-Lama and the materiality of the required investment compared to the overall Company's portfolio.

In the last years, resorting to advisory panels of internationally recognized, independent experts has developed as best practice among enterprises of the resources sector, for instance Xstrata, BP and Hydro-Québec, in the case of sensitive projects from an environmental or social perspective. In essence, those panels are engaged by senior management to monitor the projects, with the objective of confirming from an independent point of view the quality of the work done and make recommendations, if need be, in view of the most recent development in the relevant domains of expertise. Those panels usually meet at least once a year throughout the project life, which includes the cycle of post-operation safety monitoring, crucial at mine sites.

This type of measure stems from World Bank's policies which has been requesting, for almost 20 years now, that sponsors of projects that are risky or contentious or that involve multidimensional environmental concerns engage independent experts to advise on all aspects of the project relevant to the impact studies.²⁵ Therefore, the RRSE recommends that investors file and/or support the following proposition:

Whereas :

- water is essential to life and to the exercise of all human rights;
- Pascua-Lama mine will be located in a seismic zone, in high altitude, upstream of the rare water sources of two inhabited valleys in Chile and Argentina; that mining will resort to cyanide leaching; and that great quantities of dust and acid drainage will result from the project;
- an accident, natural or industrial, could have major and irreversible consequences on both the quantity and quality of water, as well as on Barrick's reputation and profitability;

Resolved :

- senior management hires a consultative panel of internationally recognized experts, independent in fact and appearance, and familiar with the relevant disciplines' best practices, to confirm the quality of all aspects of the project, including post-operation safety monitoring;
- this panel publishes, annually, an independent summary of its members' recommendations;
- senior management shall not be bound by the panel's recommendations, but shall explain the reasons why it decides not to follow the recommendations, if such is the case.

²⁵ See <http://go.worldbank.org/3LBMXIFF20>

Illustration used by the COREMA (esteril = rock wastes).

