Barrick Pascua-Lama Shareholder Report

Final Report

30 November 2006

www.erm.com

Delivering sustainable solutions in a more competitive world

ERM

1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

Barrick has made a commitment to shareholders to publish a report on how its proposed Pascua-Lama Project respects (1) the right to water, as defined in the General Comment 15 by the Committee monitoring the International Covenant on Economic, Social and Cultural Rights (ICESCR) of the United Nations (UN); (2) the precautionary principle, as defined in the Río Declaration on Environment and Development; and (3) the World Bank guideline on public consultation and disclosure of information during an Environmental Impact Assessment (EIA) (OP 4.01). For this purpose, Barrick engaged Environmental Resources Management (ERM) to investigate its proposed management of water issues and the process it used in stakeholder consultation for the Pascua-Lama Project.

To prepare this report, ERM reviewed project documentation (1) and during a brief field visit to Chile and Argentina interviewed key Barrick personnel, including Community Relations staff, and the consultants who were contracted to do the Impact Assessments for the Pascua-Lama project. There was no independent verification with other stakeholders since the consultation review relates to processes used and not to the opinions of local stakeholders or the effectiveness of the consultation and disclosure effort. This report evaluates whether the proposed management of water issues and stakeholder consultation process conforms with UN standards and World Bank policies.

1.2 OVERVIEW OF PASCUA-LAMA PROJECT

Pascua-Lama is located in the Andes Mountains within Chile's Third Region - Atacama and Argentina's San Juan Province. At 4,600 meters above sea level, the project would be one of the highest altitude mines in the world. Barrick reports the mineable reserves contain about 18 million ounces of gold. Production is proposed over a 20 year mine life that would yield 700,000 - 750,000 ounces of gold/year. Conventional surface mining methods would be used including drilling, blasting and hauling by truck to an adjacent crushing facility then transportation underground by conveyor belt to the process facility. Processing would consist of on-site conventional grinding, mineral separation by flotation, leaching, and dore production (metallic gold and silver mixture) within an enclosed building. Waste rock and process tailings would be stored in separate engineered on-site facilities. (2)

(1) The EIA (Estudio de Impacto Ambiental) for Chile was submitted in 2000 and approved in 2001 (RCA 039/2001) and includes three subsequent addenda. The IIA (Informe de Impacto Ambiental) for Argentina in 2001, updated in 2004 plus one subsequent addendum.

(2) Background context: The EIA in Chile was originally approved in 2001. The EIA that was submitted in 2004 was for three modifications to the approved EIA: (1) to relocate the acid rock drainage (ARD) treatment facility to a more secure location. (2) to increase the daily mining rate, but not the configuration or size of the mine facilities, and (3) to add a camp in Chile due to the access, safety, and Protocol Area restrictions. The 2004 EIA was not intended to be a complete re-

1.3 *FINDINGS ON RIGHT TO WATER*

Based on information presented in the documents reviewed, including baseline monitoring and modelling of water quantity and quality, the Pascua-Lama mine appears unlikely that it will adversely affect downstream water users 'right to water'.

1.3.1 *Water Quality*

Because the project is designed without water discharges to the environment, and based on extensive baseline and predictive analysis, impacts to water quality are not predicted to be significant to downstream water users. Process reagents such as cyanide will be contained in lined systems, recycled within the process, and detoxified upon process completion. In addition, there will be extensive environmental monitoring and built-in leak collection and recovery systems.

The Pascua-Lama water management system is designed to divert any waters that do not come into contact with operations around the facility, and capture, treat and reuse any water that does come into contact with the operations. Therefore, the proposed monitoring and complete containment and treatment of any acid rock drainage (ARD) caused by or accelerated by the mining activities should ensure that there is little or no impact[1]. The project is designed to contain and reuse all process waters and additional ARD generated by waste rock management, if any. If ARD is generated by the project and needs to be discharged to the environment, according to project design, it would first be treated to concentrations that are not above naturally-occurring baseline levels.

Pascua-Lama is designed with lined and contained facilities to maximise reuse and recycling of water and to minimise withdrawal of additional water. Fundamentally, the project does not plan to discharge process water on a routine basis. For non-routine events contingencies are proposed to contain, treat to baseline concentrations and then release any unplanned and excess water that cannot be used in the operation to nearby streams. Such a contingency is prudent in case unusually high precipitation events exceed the conservatively high precipitation amounts used in the project design.

evaluation of the project, although this eventually happened as the regulator in Chile reviewed aspects of the project as a whole.

1 ARD results from the mixing of natural oxidation of sulphide minerals contained in rock with rain or snowmelt to produce sulfuric acid containing dissolved metals. Since Pascua-Lama occurs at high elevation (relatively dry climate) and because there are many other non-mineralised adjacent areas with surface runoff, the naturally-occurring ARD impact on regional water quality is localised near the project. Neutralising and blending of natural ARD water with other non-ARD water in tributaries results in minimal to no detectable water quality effects at the nearest water users located between 45 (Chile) and 150 (Argentina) km downstream.

1.3.2 Findings on Water Quantity

Effects on Glaciers

In the Pascua-Lama EIA (Chile), IIA (Argentina), and separate university studies, extensive baseline and impact predictions are disclosed about adjacent ice features (small patches of remnant glaciers that are steadily melting in recent climates and more active glaciers 1 to 2 km away from the proposed mine site). While Barrick originally proposed to relocate some small ice features (and was authorised to do so under the original approval of the EIA in 2001), the Chile EIA approval in February 2006 requires the company to leave them in place and protect them from project impacts. As a result, Barrick has redesigned the surface mine outline to avoid and protect these ice features; a project modification that prevents access to approximately 5 percent of the ore. In addition, Barrick has committed to extensive photographic surveying and melt water and reflectivity monitoring to ensure the Chilean requirements to protect these natural features will be achieved.

Effects on water available to downstream users

Once in full operation, it is intended that the majority of water needs at Pascua-Lama will be met by internal reuse or recycling of water in mineral processing and tailings compaction. On average, about 290 litres per second of make-up water will be required for ore processing in Argentina, and about 32 litres per second for mine operations and road dust suppression in Chile.

In Argentina, this represents 16-34% of the baseline flow of the Río Taguas at the point of withdrawal. In Chile this represents 39% of the baseline flow of the Río Estrecho at the point of withdrawal. However, the withdrawal points are high in the respective basins where stream flows are relatively small. Further downstream where the farming communities are located, the above withdrawals represent 3-6% of the flow on the Argentinean side and less than 1% in Chile.

Based on extensive baseline monitoring and predictive modelling, the Pascua-Lama mine dewatering and process water make up needs were not found to be significant and are not expected to adversely affect downstream water users' 'right to water'. In addition, Barrick has agreed to assist local water users (agriculture and potable) to improve seasonal storage, conveyance and irrigation systems such that more water will be conserved than would be diverted by the mining operation.

1.4 FINDINGS ON STAKEHOLDER CONSULTATION

Consultation of affected peoples for the Pascua-Lama Project is an ongoing process which started in 2000 (in Chile). In addition to legally required consultation in relation to the national EIA/IIA process, Barrick has undertaken voluntary consultation outside the impact assessment or permitting process.

1.4.1 Formal Consultation Mandated by Law

Chile

In Chile, the Pascua-Lama Project was subject to the public consultation and disclosure procedures mandated by Chile's System of Environmental Impact Assessment (EIA). This included:

- Publication of the EIA, Consolidated Clarification Application Reports, Addenda and responses to public consultation on the CONAMA website;
- Publication of an abstract of the EIA in the Government of Chile's official Gazette, local and national newspapers;
- Making copies available in downstream municipalities, Alto del Carmen and Vallenar, for public review;
- Sending copies of the EIA to all relevant governmental agencies.

In addition, disclosure meetings took place in six downstream communities: Alto del Carmen, San Félix, El Corral, El Tránsito, Conay, and Huasco.

After receiving formal comments from the CONAMA requesting changes to the project, and clarification, Barrick submitted three addenda including several responses to stakeholder concerns including:

- an independent evaluation by representatives of the *Junta de Vigilancia*, the formal group that has the authority to regulate water use of water users in the Huasco Valley;
- incorporation of all the significant design changes in response to regulator and public concerns about prevention, mitigation and compensation.

In February 2006, the Regional Environmental Commission (1) (*COREMA)* of Chile's Third Region approved the project with more than 400 conditions – many of which reflected concerns of affected citizens (approval upheld after appeals in May 2006). To proceed with the Pascua-Lama Project, Barrick is obligated to meet these conditions.

Argentina

For Pascua-Lama (2), Barrick initiated its own consultation in affected communities in the Departments of Jáchal and Iglesia in October 2004 prior to submission of the IIA on 12 November 2004. In January 2005, the public consultation and disclosure requirements of the San Juan Province Mining Secretariat began:

- Publication of the IIA in the *Boletín Oficial* of the Government and in the newspaper with the highest circulation;
- Advertisement on radio and television that the IIA was available for Public Consultation; and
- IIA made available to any interested persons to present observations and objections.

(1) Comisión Regional del Medio Ambiente

(2) Barrick's Veladero mine pre-dates Pascua-Lama and affects exactly the same downstream communities. Barrick's consultation in these communities for Veladero therefore also pre-dates the consultation for Pascua-Lama.

Formal consultation meetings took place in affected communities over two weeks in April 2005. At each meeting Barrick employees presented a PowerPoint presentation describing the social and environmental impacts of Pascua-Lama and the proposed measures to address these impacts. Then, in June 2005, the Independent Mining Environmental Evaluation Commission (CIEAM), convened by the Mining Secretariat to evaluate the Pascua-Lama IIA, issued a series of questions to Barrick resulting from its review as well as from the public consultations.

Based on comments gathered during the public consultation and the questions issued by CIEAM, Barrick was required to submit an IIA Addendum. The Addendum, which contains proposed environmental improvements, was filed in October 2005. This opened a new 60 day period for public comment that was completed in March 2006. The process culminated in Barrick's submission, in August 2006 of consolidated technical information and responses to the second round of consultation. (1)

As of October 2006, the IIA remains in the hands of CIEAM who will submit a consolidated technical report to the Provincial Secretariat of Mining to be used in determining whether or not to recommend approval of the Project and, if so, with what conditions/recommendations.

1.4.2 Additional Consultation Not Mandated by Law

In addition to fulfilling its local legal requirements, Barrick has undertaken further consultation in relation to the project and Impact Assessment process, in both Chile and Argentina, as follows:

- Additional formal consultation meetings in communities not selected by regulatory agencies;
- Additional community meetings throughout project affected communities;
- Additional informational briefings in Santiago to government authorities, universities and industry associations;
- Permanent Community Relations staff in project offices in Vallenar, Alto del Carmen, and Copiapó in Chile and Iglesia, Jáchal, and San Juan in Argentina;
- In Chile, over 100 presentations to community groups and neighbourhood associations; participation in 30 public events;
- Regular (Argentina) and ad hoc (Chile) seminars on key topics (such as cyanide management, hazardous material transportation, water quality and quantity) of concern to stakeholders:
- Door-to-door information campaigns by Community Relations personnel; and
- E-mail distribution of informational bulletins and Pascua-Lama Project newsletters.

(1) Texto Ordenado y Complementario – Solicitado por CIEAM y respuestas a segunda Consulta Pública

1.4.3 Changes in Project Due to Regulatory Oversight

The ultimate measure of the effectiveness of dialogue is the way in which feedback and relationships shape the final project. Barrick has made several fundamental changes to the Pascua-Lama Project, many of which are a result of dialogue with regulators in Chile and Argentina. (1) These changes include:

- *Revised pit limits so as not to mine any ice patches or glaciers.*
- *Increased scale of water monitoring.*
- *Increased parameters for water quality monitoring.*
- *Location of crusher below ground.*
- *Covered conveyor and covered coarse ore stockpile.*
- *Switch from dry to wet grinding plant.*
- *Water management and treatment system.*
- *Closed water diversion channel (underground with pipe).*
- *Conceptual design: manages one in 20 year events during operation and one in 100 year events during closure.*
- *Chile: Increased number and capacity of ARD storage ponds.*
- *Chile: Downstream cut-off wall.*
- *Control of pH with addition of lime and limestone.*
- *Argentina: Thickened liner, underground filtration, and overdrain consolidation of tailings.*
- *Road improvements: resurfacing and bypasses.*
- *Transportation of personnel to mine site by airplane.*

1.4.4 Conformance with World Bank Policy (2)

Although Barrick went beyond the national consultation requirements for the EIA/IIA in Chile/Argentina (see above), it did not strictly meet one particular World Bank requirement for public consultation and disclosure of an EIA.

Consultation after 'Environmental Screening'

World Bank OP 4.01 stipulates consultation after 'environmental screening' and before the terms of reference for the Impact Assessment are finalised. The equivalent to 'environmental screening' for the Pascua-Lama project was the 'scoping' stage of the impact assessments when the scope of the assessments and the key environmental and social issues to be analysed are determined. In the case of Pascua-Lama, although informal consultations were conducted, formal consultation of stakeholders after scoping was not done in either Chile or Argentina.

Nonetheless, Barrick has engaged stakeholders repeatedly on key issues and presented topic-specific briefings on its proposed management of water issues

(1) Many of the concerns raised by regulators took into account comments made by affected stakeholders. Some decisions (such as the use of a covered conveyor and the switch from a dry to wet grinding plant) were made internally by Barrick to achieve certain environmental standards for the project.
(2) Note that Barrick was not obligated to meet World Bank consultation requirements for Pascua-Lama, as the project did not receive any multilateral financing. Shareholders have referenced World Bank policies as a standard for best practice and asked whether Barrick has met these standards.

and other key concerns, since disclosure. The relationship between Barrick and *Junta de Vigiliancia* (see *Section 5.3.1*) is a seminal example of how stakeholder engagement increased in intensity and quality *after disclosure* of the 2004 EIA (thus producing changes to the project as required by regulators), though consultation did not take place in a formal way *after scoping* of the impact assessment.

Accessibility of Impact Assessments

World Bank OP 4.01 requires that impact assessments are disclosed 'in a form and language that are understandable and accessible to the groups being consulted'. Barrick has distributed brochures and made presentations to the public on various topics – using straight-forward language and concepts, covering issues of public concern and key impacts covered in the impact assessments. Although the impact assessments themselves are voluminous and technical, Barrick has met the World Bank requirement for presenting impact assessments in a form that is understandable and accessible. There is no one non-technical summary of the impact assessments, but the sum total of Barrick's presentations, written materials, and availability of Community Relations staff in potentially affected communities have provided stakeholders with information about the extent and proposed management of key impacts.

Monitoring Community Support throughout Project Life

Although not part of the World Bank OP 4.01, shareholders have asked Barrick to 'describe how the company will continue to monitor community support all along the project life'. Barrick has stated plans to maintain a dedicated Community Relations presence in downstream communities in Chile and Argentina throughout the life of Pascua-Lama. In Chile, Barrick will also be required to interact with a Citizen Follow-up Committee (1) (CSC) which has been set up to monitor implementation of safeguards in the EIA. Barrick is in the process of defining specific measures or key performance indicators for monitoring community support, but its interaction with the CSC and other formal monitoring groups in Chile (there is another focused on transportation) – and others like them in Argentina – will be a fundamental vehicle for achieving this.

1.5 PRECAUTIONARY PRINCIPLE

Barrick has addressed the precautionary principle in two key ways:

1. Barrick has recognised that there may be serious or irreversible threats to the existing natural environment and water users;
2. As a result, Barrick has put into place preventive measures, including redrawing the pit limit so as not to touch glaciers; putting additional dust control and monitoring measures into place to prevent and detect effects and on glaciers etc.

(1) *Comité de Seguimiento Ciudadano (CSC)*

2 INTRODUCTION

2.1 OBJECTIVES OF REPORT

Barrick has made a commitment to shareholders to publish a report on how Pascua-Lama respects:

1. the right to water;
2. the precautionary principle; and
3. the World Bank Group guideline on public consultation and disclosure of information as defined in Operational Policy 4.01 (OP 4.01).

This constitutes that official Report to shareholders as agreed by Barrick. It was prepared independently by Environmental Resources Management (ERM) in August-November 2006.

This report represents a straightforward process review in relation to three points raised by specific Canadian shareholders: the processes which Barrick followed in relation to the EIA and public consultation for Pascua-Lama; and a process review of the EIA and project design in relation to downstream water issues and the precautionary principle.

- The information presented has been obtained from desk and field research with Barrick and verified as necessary with government sources.
- Local stakeholders were not consulted during the review, so this report does not review the opinions of local stakeholders and does not evaluate the effectiveness of the consultation and disclosure effort with those local stakeholders.
- ERM did not verify the data collected and analysed on water and other environmental issues; ERM conducted a review of the process that was used by Barrick to assess impacts, in conjunction with observation of downstream communities.

Hence, this report evaluates whether the proposed management of water issues and stakeholder consultation process conforms with UN standards and World Bank policies.

2.2 REPORT CONTENT

This Report contains the following sections:

- Section 2 – Introduction, including Definition of Key Terms
- Section 3 – Overview of Proposed Pascua-Lama Project
- Section 4 – Right to Water & Precautionary Principle
- Section 5 – Public Consultation & Disclosure
- Section 6 – Conclusion

2.3 DEFINITION OF KEY TERMS

This report addresses three primary issues:

1. How the Project respects affected citizens' 'right to water';

2. How the Project respects the precautionary principle; and
3. How the Project has undertaken public consultation and disclosure as defined by the guidelines of the International Finance Corporation (IFC) and World Bank.

2.3.1 'Right to Water'

Shareholders have asked Barrick to document how its proposed Pascua-Lama project respects the right to water. Shareholders have referenced the right to water as described in General Comment 15 by the Committee monitoring the International Covenant on Economic, Social and Cultural Rights (ICESCR) of the United Nations (UN). The ICESCR requires signatories (1) to recognise the right to an 'adequate standard of living' and to the 'enjoyment of the highest attainable standard of physical and mental health'. Water is a key component of these rights and the UN provides a definition of right to water in its authoritative interpretations of the provisions of the ICESCR – see *Box 2.1*.

Box 2.1 Defining 'Right to Water' – UN General Comment

In 2002, the United Nations issued General Comment No. 15 (2002), which constitutes the authoritative interpretation of the concept of 'right to water', an important element of Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR).

In this General Comment, the 'human right to water' is defined by the UN as:

- Entitlement to '…sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses…'
- Availability: 'The water supply for each person must be sufficient and continuous for personal and domestic uses. These uses ordinarily include drinking, personal sanitation, washing of clothes, food preparation, personal and household hygiene.'
- Quality: 'The water required for each personal or domestic use must be safe, therefore free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health.'
- Accessibility: physically ('within safe physical reach for all sections of the population'), economically ('affordable for all'), accessible to all ('…to all, including the most vulnerable or marginalised sections of the population') and information accessibility ('the right to seek, receive and impart information concerning water issues').

Source: General Comment 15, The right to water (arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights), U.N. Doc. E/C.12/2002/11 (Twenty-ninth session, 2002), accessible at http://www.unhchr.ch/tbs/doc.nsf/385c2add1632f4a8c12565a9004dc311/a5458d1d1bbd713fc1256cc400389e94?OpenDocument&Highlight=0,CESCR

This Report addresses how Barrick's proposed management of water at the Pascua-Lama project respects the 'right to water', as defined in its various dimensions by the UN.

(1) Signatories in this case are nation-states, not multinational companies such as Barrick. However, the UN covenant is used here as a international standard/definition, which serves as a respected point of reference.

2.3.2 *Precautionary Principle*

Shareholders have also asked Barrick to demonstrate that the Pascua-Lama project respects the precautionary principle, as defined in the Río Declaration on Environment and Development – see *Box 2.3*. The precautionary principle is a concept that appears in several seminal international environmental treaties and also serves as a foundation for European Union environmental policy.

Box 2.2 Precautionary Approach as defined by UN Río Declaration on Environment and Development

At the conclusion of the 1992 United Nations Conference on Environment and Development in Río de Janeiro, Brazil, the parties (i.e. nation-states) issued a proclamation outlining several principles to 'respect the interests of all and protect the integrity of the global environmental and developmental system'.

Principle 15 of the Río Declaration states:

'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'

Source: Río Declaration on Environment and Development, http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=78&ArticleID=1163

This Report addresses how Barrick's management of water issues for the Pascua-Lama Project meets the Rio-defined standard to implement 'cost-effective measures to prevent environmental degradation' in the face of 'serious or irreversible damage' even when there is 'lack of full scientific certainty' of the nature or probability of environmental degradation.

2.3.3 *The World Bank Group Policy on Public Consultation & Disclosure in Environmental Assessments*

As regards stakeholder consultation and disclosure, Barrick shareholders have referenced the policies of the International Finance Corporation (IFC) (1) and World Bank, as the policies of the World Bank Group are generally referenced as international standards. The specific policy which addresses public consultation and disclosure in environmental assessment (EA) applied was Operational Policy 4.01 (January 1999).

(1) The IFC is the private sector lending arm of the World Bank Group.

Box 2.3 Salient Points on Public Consultation of World Bank Group Operational Policy/Bank Procedure 4.01 (January 1999)

The World Bank Operational Policy (OP) and Bank Procedure (BP) 4.01 (Environmental Assessment) calls for, among other details, the following with regard to **consultation and disclosure**:

Paragraph 14…The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults [project-affected groups and local NGOs] at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalised; and (b) once a draft EA report is prepared…

Paragraph 15. For meaningful consultations between the borrower and project-affected groups and local NGOs on all Category A and B projects……, the borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

Paragraph 16. For a Category A project, the borrower provides for the initial consultation a summary of the proposed project's objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA's conclusions. In addition, for a Category A project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs…

Source: The World Bank Operational Manual, Bank Procedures, BP 4.01 Environmental Assessment, http://wbln0018.worldbank.org/Institutional/Manuals/OpManual.nsf/toc2/C4241D657823FD818525672C007D096E?OpenDocument

This Report assesses how Barrick has conducted stakeholder consultation and disclosure in line with World Bank 4.01 policies (1) , specifically:

- At least twice in the impact assessment process, after scoping (the equivalent for Pascua-Lama to the World Bank's environmental screening stage) and once a report is prepared;
- Providing relevant material in a timely manner in a form and language that are understandable and accessible to affected peoples; and
- Providing summary of impact assessment findings, again accessible to affected peoples.

2.4 ENVIRONMENTAL RESOURCES MANAGEMENT (ERM) & REPORT METHODOLOGY

Environmental Resources Management (ERM) is one of the world's leading providers of environmental consulting services. ERM was engaged by Barrick to investigate its proposed management of water issues and the process it used in stakeholder consultation for the Pascua-Lama Project, in response to the Canadian stakeholder concerns. ERM's work for this Report included interviews with key Barrick personnel (over 20 persons, including Barrick

(1) The IFC has since developed its new Policy and Performance Standards, which update its requirements for stakeholder consultation. This Report focuses on World Bank OP 4.01 given that Barrick's submission of the Pascua-Lama impact assessments -- and the stakeholder consultation process around these – took place before the implementation of the new IFC standards.

Corporate Managers in Toronto, Barrick Management for the South American Region; members of Barrick's Pascua-Lama Project Team in Chile and Argentina) and the consultants who were contracted to assess the impacts of the Pascua-Lama project. ERM's US/Canada based team consulted Pascua-Lama project documentation including the Impact Assessments for the project in Chile and Argentina. Interviews and document consultation took place remotely and in Barrick offices in Toronto, Chile and Argentina, including with Barrick Community Relations personnel during brief field visits to some affected communities in Chile and Argentina.

3 OVERVIEW OF PROPOSED PASCUA-LAMA PROJECT

3.1 KEY CHARACTERISTICS

3.1.1 Location, size/reserves, mining & milling process

Pascua-Lama is located in the Andes Mountains within parts of Chile's Third Region - Atacama and Argentina's San Juan Province. At 4,600 meters above sea level, the project would be one of the highest altitude mines in the world. Barrick reports the mineable reserves contain about 18 million ounces of gold. Production is proposed over a 20 year mine life that would yield approximately 700,000 to 750,000 ounces of gold each year. Conventional surface mining methods would be used consisting of drilling, blasting, and hauling by truck to an adjacent crushing facility then transported underground by a conveyor belt to the process facility. Processing would consist of on-site conventional grinding, mineral separation by flotation, leaching, and dore production (metallic gold and silver mixture) within an enclosed building. Waste rock and process tailings (sandy residual material from which the recovered minerals and metals were produced) would be stored in separate engineered on-site facilities.

(The site locations to relation to the nearest population centres and water users can be found in *Section 5.1.2* below.)

Figure 3.1 Overview Map of Pascua-Lama

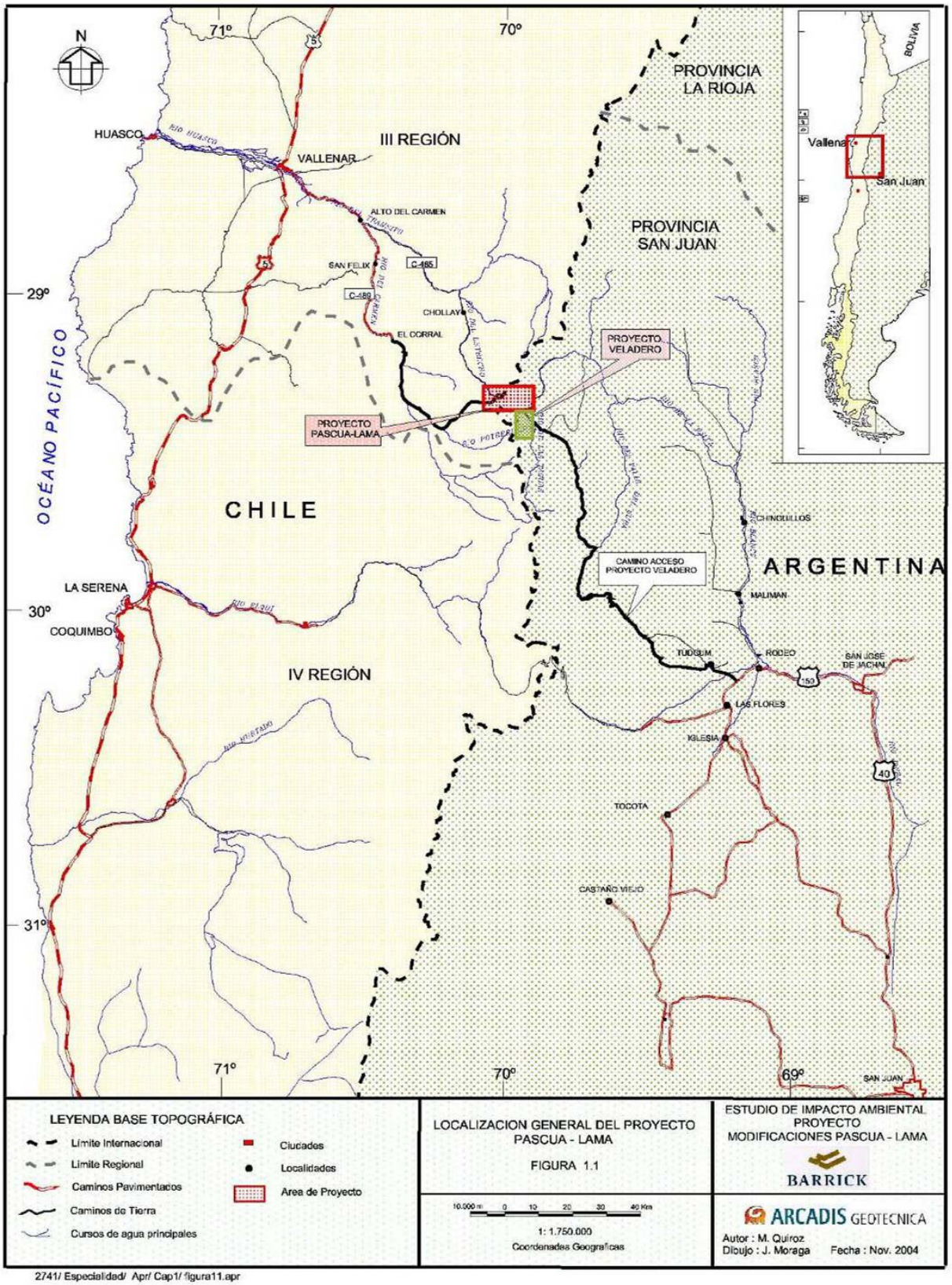
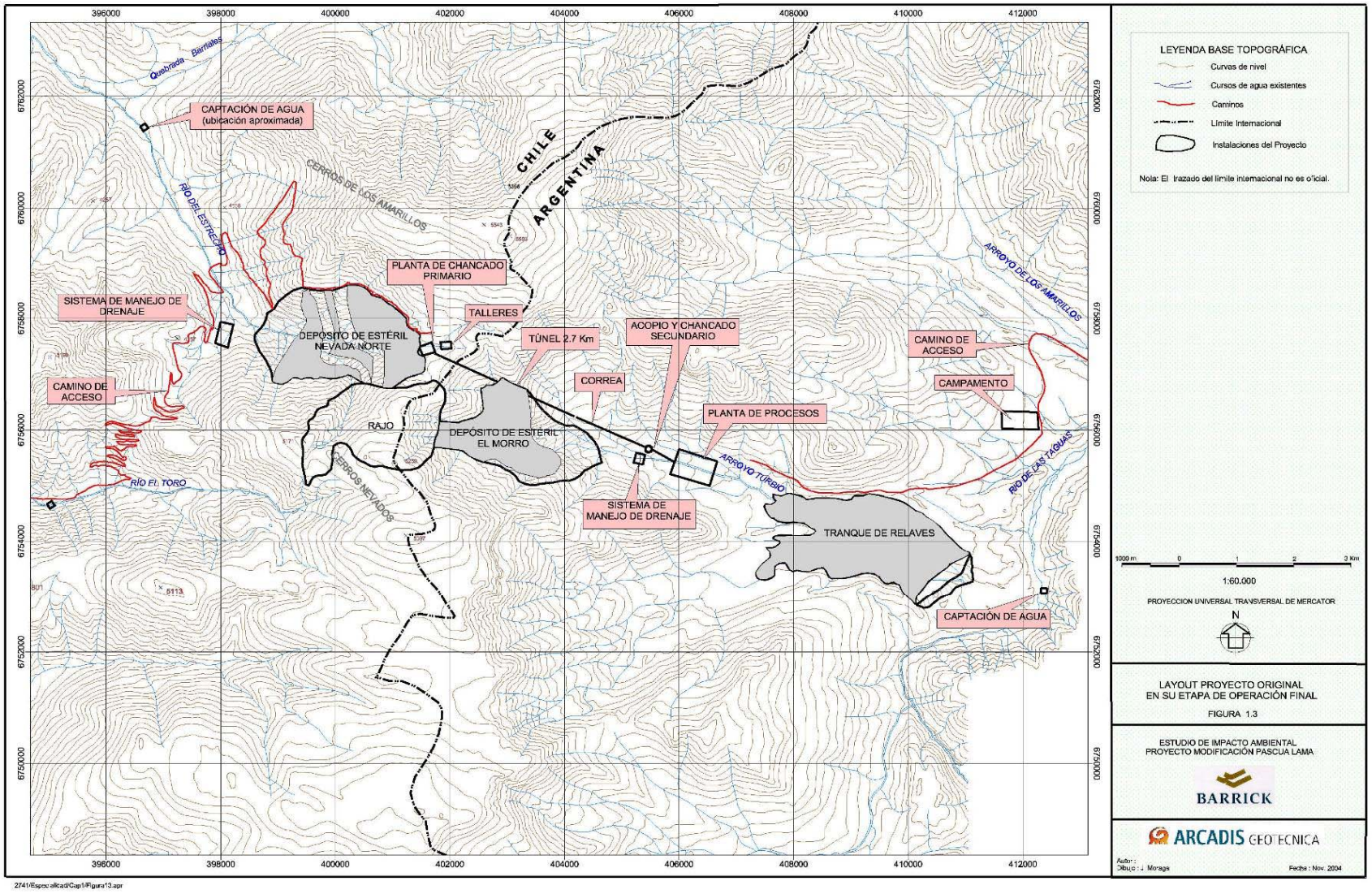


Figure 3.2 Map of Mine & Mill Facilities at Pascua-Lama



3.2 TIMING & KEY MILESTONES

Barrick acquired the Pascua-Lama property in 1994 with the acquisition of Lac Minerals, a year after environmental baseline studies (1) had began in 1993. Studies included documenting baseline (before the mine) environmental conditions and predicting potential project impacts on water quantity, water quality, air quality, climate, flora and fauna, and more. Current conditions were determined by measuring and monitoring the site and area using a variety of modern scientific means and the observations of experts. Predicted impacts were determined using computer modeling or simulation, along with the professional judgement of Chilean, Argentine and international experts. Special studies conducted at Pascua-Lama included extensive documentation and analysis of glaciers and other ice features near the project.

Separate environmental impact assessments were prepared for each country. The EIA (Estudio de Impacto Ambiental) for Chile was submitted in 2000 and approved in 2001 (RCA 039/2001). Over the subsequent years Barrick optimised the project and submitted three modifications to the EIA to reflect this in 2004. Barrick submitted an IIA (Informe de Impacto Ambiental) for Argentina in 2001, updated in 2004. As a result of agency and public comments, the project was subsequently modified. These modifications are reflected in three addenda to the EIA in Chile leading to approval of the project in February 2006 with conditions (RCA 024/2006) and one addendum to the IIA in Argentina. As of August 2006, Argentina is reviewing the consolidated IIA information and is expected to issue its permitting decision prior to the year end. Each addendum in both Argentina and Chile was subjected to a public consultation process.

Having finalised the permitting process in Chile and upon approval of the project in Argentina, Barrick plans to begin a 3-year construction phase. Production at both mine and process facilities will begin on completion of necessary roads, buildings, utilities, and environmental controls.

(1) All Impact Assessments contain 'baseline' studies. . These attempt to capture a complete and accurate picture of the current state of the environment including: air quality, water quality, quantity and flows, noise levels, flora and fauna etc so that (a) the project has a clear understanding of the local environment and can design accordingly to minimise effects; and (b) there is a baseline against which to monitor for potential effects in the future.

4 RIGHT TO WATER & PRECAUTIONARY PRINCIPLE

4.1 INTRODUCTION

4.1.1 Right to Water

Application of the UN definition of right to water to a large mining operation means designing and managing the project to ensure that downstream users would not be adversely affected by the project. To make such an evaluation, extensive hydrological information is required including: a thorough understanding of baseline water availability, quality and usage patterns; predicted changes during project construction and operation including the effects of recycling or reusing process water; dewatering; protection of water quality that bypasses the operation; and treatment of water that discharges from the operation. In designing and managing the mining operation, no individual should be denied their right to water.

4.1.2 Precautionary Principle

Application of the Precautionary Principle to the environmental management of a large mining operation would suggest that additional safeguard measures or contingency plans are put into place, over and above those required by government agency approvals and what the latest science says should be adequate.

Barrick plans to provide this via a site-specific environmental management system and risk management system that will ensure that the project would prevent, minimize, and mitigate both planned and unanticipated effects on the environment. Safeguards include mine design to prevent environmental damage and additional monitoring, containment, collection, and treatment once in operation (e.g. see *Section 5.4*).

4.2 OVERVIEW OF WATER ISSUES OF PASCUA-LAMA

The Río Huasco Valley in Chile (1)

The Río Huasco Valley is located in Chile's Third Region – Atacama. It crosses the Atacama Desert, one of the world's most arid regions, from east to west. The Río Huasco drainage basin includes the interior mountain valleys of the El Tránsito and Del Carmen Rivers, which merge 90km from the Pacific Ocean, forming the Río Huasco. The dominant hydrology is summer snow melt runoff in the high Andes, but during the austral winter there is also a contribution from rain in the mid level elevations below the snow line.

(1)Section 7. Human Environment. 1 DESCRIPCIÓN GENERAL DE LA CUENCA DEL RÍO HUASCO. *EIA Modificaciones Proyecto Pascua-Lama*, pp. 7-4 & 7-5.
Adenda Nº 2. November 2005, pp. 7-5 & 7-6

The downstream communities which could potentially be affected by the project include the settlements in the *Comuna* (a sub-district of the Region) of Alto del Carmen (4,840 people all in rural settings between 45 and 120 kilometers from the mine site) and the three additional but slightly more distant *Comunas* of Vallenar (170 km), Freirina (206 km) and Huasco (220 km).

Rio Blanco Valley in Argentina

Argentina's San Juan Province is also an arid region located in the rain shadow east of the Andes. Like the Río Huasco basin in Chile, the Río Blanco is formed by several tributaries originating in the high Andes, and the hydrology is summer snow melt runoff from snow accumulated during winter at high elevations. The Río Blanco flows into the Cuesta del Viento reservoir near the community of Rodeo, and downstream the river is known as the Río Jáchal.

Downstream agricultural communities in San Juan Province (nearly 28,000 people) depend on irrigation from the Río Jáchal system, though the population in general is less dependent on agriculture than on the Chilean side. The main downstream Argentine communities are in Iglesia and Jáchal departments between 150 and 200km from the mine site.

Water Issues in the Impact Assessments

Water issues identified in the Chile EIA and Argentina IIA centre on water quality and quantity. The EIA and IIA baseline studies show that the Pascua-Lama project area has naturally-occurring acid rock drainage (ARD) formed by weathering of sulphide minerals, such as pyrite, in the volcanic rocks. Although ARD does occur naturally in the project area, the project is designed to not significantly increase ARD through the collection, storage, treatment, and reuse of process waters as well as any natural waters that have come in contact with project facilities. In the unplanned event that natural waters that have contacted the project facilities cannot be reused in the water balance of the operation, it is intended that such water would be discharged to the environment only after it has been treated to meet allowable discharge standards.

For those readers not familiar with ARD, it is formed when weathered (oxidized) sulphide minerals, naturally occurring in the rock, mix with rain or snowmelt to produce sulphuric acid containing dissolved metals. Since Pascua-Lama occurs at high elevation (relatively dry climate) and because there are many non-mineralised adjacent areas with surface runoff, the naturally-occurring ARD impact on regional water quality is small in the project area. Neutralising and blending of natural ARD water with other non-ARD water in tributaries results currently in minimal to no detectable water quality effects on the nearest water users located approximately 45 km downstream in Chile and 150 km downstream in Argentina.

Water quantity baseline and project impacts are explored and described in detail in the EIA and IIA. While the project will require surface water for activities such as ore processing, road dust suppression, and potable drinking water, the amount of water needed is small compared to baseline (i.e. pre-mine) flows at the downstream points where water is withdrawn for community and agricultural purposes. Again, because the project is located high in a small portion of two, large regional basins, the withdrawal of water is anticipated to have insignificant impact on the quantity of water available for downstream users. (See *Section 4.6* below for specific data on water flows and project water needs.)

4.3 SUMMARY OF BASELINE RESEARCH & IMPACT ASSESSMENT

The environmental impact assessments contain data from several years of extensive baseline research and detailed impact assessments for both the proposed project and reasonable alternatives. Baseline research consisted of observing and measuring pre-project environmental conditions for aspects such as local climate, geology, water quantity and quality, air quality, flora and fauna. As is typical for impact assessments of large-scale mining projects, Barrick has commissioned and undertaken a number of studies including original research to understand environmental baseline conditions and the predicted effects of the new mine using qualified specialists.

At Pascua-Lama, baseline conditions include natural conditions *and* the local effects of previous exploration activity at Pascua-Lama and exploration at the nearby Veladero site. The 2004 Pascua-Lama IIA analyzed Pascua-Lama impacts cumulatively (1) with Veladero impacts that were declared in the Veladero IIA of November 2002. Veladero operational water monitoring data has confirmed that Veladero's water use is well below the maximum usage rates. (2) Therefore, the Pascua-Lama IIA currently under review by authorities in Argentina includes cumulative impacts considering both projects.

Potential project impacts were calculated and computer models simulated potential effects (positive, negative, or none) that the proposed project could have on the baseline conditions. With correct environmental containment and controls built into the project, the impact assessment predicts only limited and localised effects, described in *Section 4.6* below.

Alternatives to the proposed project were also considered. These alternatives helped planners, agencies, and the public understand the potential environmental effects of significant changes to the proposed project (3) .

(1) Cumulative Impacts refer to the impacts of all related projects on a given receptor. For example, if several projects emit a particular air pollutant, individually they may not have a significant effect on air quality. However, cumulatively, or together, they may create a noxious cloud which endangers human health.
(2) October 2006 water monitoring data shows that Veladero's consumption of water for industrial use was 102.096 m^3 (39% of the authorised 259.200 m^3 (100 L/s) per month) and for potable use 9.650 m^3 (37% of the authorised 25.920 m^3 (10 L/s) per month).
(3) Often in an environmental impact assessment process, an alternative becomes the preferred option if it is predicted to result in fewer environmental impacts in either the short, medium or longer term.

4.4 GLACIERS & WATER EFFECTS

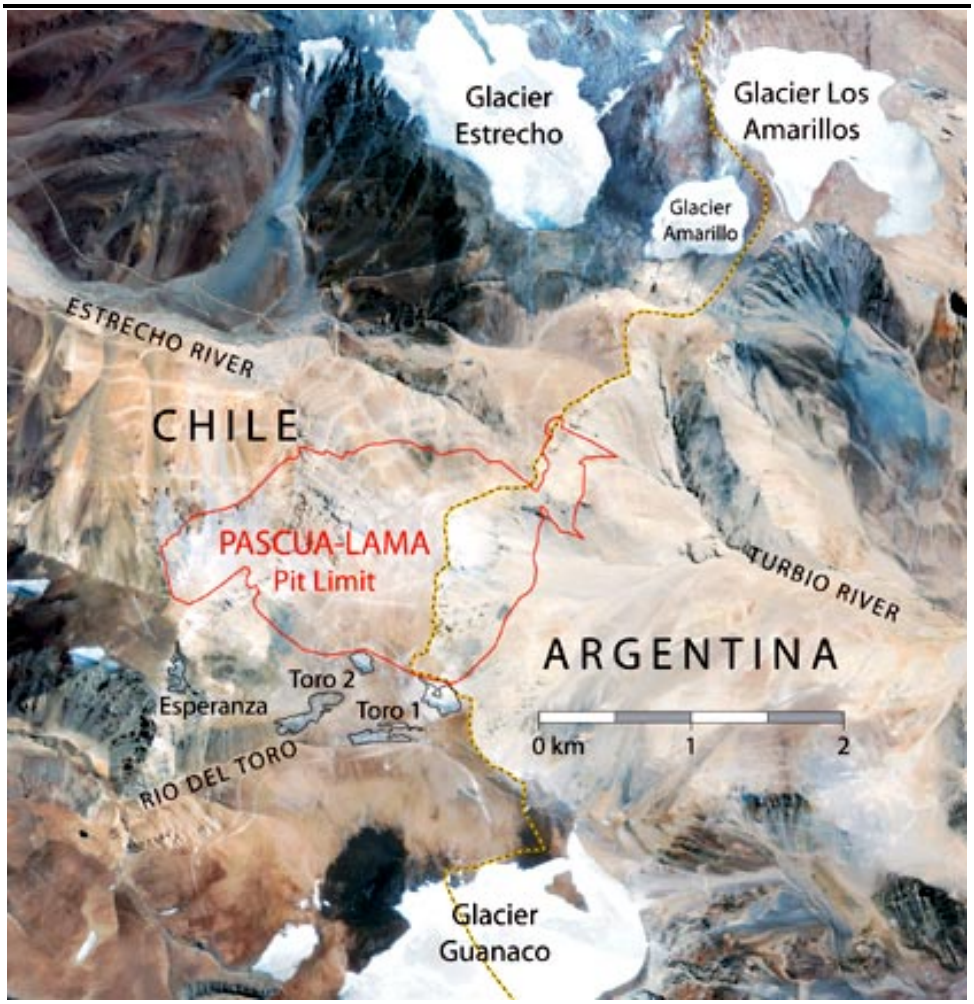
In recent years, considerable attention has been devoted to understanding and protecting glaciers in Chile, in some river systems, because they are important components of the natural hydrological system on which local communities depend.

In the Pascua-Lama EIA, IIA, and separate university studies, extensive baseline and impact predictions are disclosed about adjacent ice features (small patches of remnant glaciers that are steadily melting in recent climates) and more active glaciers 1 to 2 km away from the proposed surface mine. While Barrick originally proposed to relocate (move to an adjacent tributary of the same watershed) some portions of the small ice features, the Chile approval requires the company to leave them in place and protect them from project impacts. Barrick has redesigned the surface mine outline to avoid and protect these ice features; a project modification that prevents access to approximately 5 percent of the currently identified ore and any possible future expansion to the south of the pit.

While the small ice features at Pascua-Lama do contribute some water to downstream users, the amount is not significant (less than 2 litres per second during maximum seasonal melting; (1) compared to all other sources of surface water. Barrick is obligated to ensure that mining activities do not directly (e.g., physical removal) or indirectly (e.g., increased melting rates due to dust accumulation on ice surfaces) impact the ice features. Extensive photographic, surveying, melt water, and reflectivity monitoring is being conducted to ensure that the Chilean requirement in RCA 024/2006, that the mining avoids and protects these natural features, will be achieved.

(1) See EIA Modifications Addendum II, Section 3, November 2005

Figure 4.1 Map of Pascua-Lama and Proximate Glaciers



4.5 PROPOSED WATER MANAGEMENT

The Pascua-Lama water management system is designed to divert any waters that do not come in contact with operations around the facility and capture, treat and reuse any water that does come in contact with the operations. Pascua-Lama is designed with lined and contained facilities to maximise reuse and recycling of water and minimise withdrawal of additional water. Proposed water management is described in the EIA and IIA. Fundamentally, the project is designed to not discharge process water to the environment. For unexpected events, contingencies are designed to be put in place to contain, treat to baseline concentrations and then release any unplanned and excess water that cannot be used in the operation, to nearby streams. Such a contingency is precautionary in case unusually high precipitation events exceed the conservatively high precipitation amounts used in the project design.

Once in full operation, water needs are designed to be met by internal reuse or recycling of water in mineral processing and tailings compaction. On average, about 290 litres per second of additional water will be required for ore

processing in Argentina, and about 42 litres per second for mine operations and road dust suppression in Chile. Barrick proposes to obtain this water from nearby rivers.

While no significant ARD is predicted to arise from the waste rock facilities, additional and redundant ARD and groundwater capture, containment, and water treatment measures have been added to the project design using best available technology. This should further ensure that any unplanned ARD is managed so as to not adversely impact existing baseline conditions. In addition, the rain and snowmelt in the area will be diverted around the project facilities to help ensure that baseline conditions are preserved and that there is no impact to downstream users.

4.6 PREDICTED IMPACTS TO DOWNSTREAM WATER USERS

The two referenced impact assessments predict no significant water quality impacts to downstream users. As stated above, the project is designed to not discharge process or ARD waters and would only discharge treated water as a result of an unforeseen extreme event. Further to the project design and safeguard systems, the neutralising and blending capacity of other natural streams in the many tributaries to the major rivers in the watersheds would further protect downstream agricultural and potable drinking water supplies from any unplanned project impacts.

In terms of water quantity, the impact assessments predict no significant impacts to downstream users. In Argentina, the project intends to withdraw an average of 290 litres pre second (l/s) of water up to instantaneous maximums of 350 l/s from the Río Taguas. While this represents about 16 – 34% of the average Río Taguas base flow at the location of withdrawal in a normal year, it represents only 3% to 6% (depending on seasonal baseline flow rates) of the downstream baseline flow immediately above the Cuesta del Viento agricultural water storage reservoir on the Río Jáchal (see IIA TO section 4.3, July 2006) which serves the most significant community in the immediate area of influence of the project in Argentina. In a dry year, this represents about 5 – 11% of the flow at Cuesta del Viento.

In Chile, the project would withdraw up to 42 l/s from the Estrecho basin. This represents about 39% of the Río Estrecho baseline flow at the location of withdrawal (see EIA Modification Chapter 6, December 2004), but represents less than 1% of the baseline flow in the Río El Tránsito at the nearest community 45 km downstream from the mine site. The project may also draw up to 10 l/s from the Río Del Carmen, which represents less than 0.5 % of the average baseline flow at the nearest community 58 km downstream from the mine site. The total of 42 l/s represents less than 0.5% of the combined flows in the Río Huasco at Algodón, and the entry to the Santa Juana reservoir. (1)

(1) Annual precipitation decreases from higher to lower elevations: on the Chilean side of Pascua-Lama, average annual precipitation at the mine site is 220mm per year; at the village of Conay in the Tránsito Valley it is 72mm; and at Vallenar near the bottom of the basin is 28mm. Further there are alternating cycles of dry and wet years, attributed to the El Niño

Barrick owns legal water rights in Chile in the Río Huasco basin significantly in excess of the water that it plans to withdraw. In Argentina, Barrick is in the process of finalising its agreement for water rights with the appropriate authorities and irrigator water users. In addition, the company is providing technical specialists and financial resources to the downstream water users to support and encourage improved practices for water storage, conveyance, system maintenance, and use for agricultural purposes. These improved practices will be designed to improve water use efficiencies based on current withdrawal rates. As a result, no significant adverse effects to downstream users are predicted from the Pascua-Lama project's withdrawal of water.

4.7 MONITORING & OTHER SAFEGUARD COMMITMENTS

Extensive environmental monitoring is proposed and required of Pascua-Lama to ensure the project does not cause significant adverse environmental impacts. The monitoring serves two purposes, first it establishes the points of compliance at which the company must demonstrate environmental protection, and second to enable early identification of facility conditions that could result in a significant adverse environmental impact (if not addressed). The EIA and RCA (Resolution of Environmental Clarification) approval conditions, and the IIA describe the network of on- and off-site monitoring locations and methods for monitoring water quantity, water quality, air quality, climate, ice fields / glaciers protection, flora and fauna, and more.

For example, ice fields / glaciers will be photographed, mapped, and measured for solar reflectivity, quantity and quality of melt runoff, and microclimate and energy and mass balances will be monitored. Water quality and quantity will be continuously measured from a number of downstream automated sampling devices. Results will be statistically compared to baseline conditions and a pre-established action plan would be activated if there are measured impacts. Actions generally consist of verifying the measured results, notifying agencies and downstream users (as appropriate), identifying the source and cause of the impact, and eliminating that cause.

Barrick has further agreed to install additional water monitoring, collection, and treatment facilities on-site to manage any unplanned ARD. Such additional safeguards may not be necessary but provide downstream users with added assurance that their water supply will not be impacted by the project.

Barrick's proposed safeguards for water quantity and quality should be effective if implemented as proposed.

Current. The average annual surface flow of the Río Huasco near the middle of the basin is 5.6 m3 per second, according to the Chilean Water Authority.

5.1 PASCUA-LAMA'S AFFECTED PEOPLES

5.1.1 Definition of Project Affected Peoples

Stakeholders can be defined as those who have an interest in or will be affected by the Pascua-Lama Project. This Report's consideration of public consultation and disclosure focuses specifically on a subset of stakeholders: local citizens who will be affected by the Project. Because of the physical location of the proposed Project at the top of the Andes, Pascua-Lama's local affected citizens are literally those who live downstream of Pascua-Lama.

The public consultation and disclosure activities assessed here consist of the process used by Barrick to conduct a dialogue with citizens who live downstream from Pascua-Lama. No independent verification was undertaken with the stakeholders themselves.

5.1.2 Summary Characterisation of Pascua-Lama's Affected Peoples

In Chile, these 'affected' citizens live in the valleys – which converge in the Huasco Valley – between the Project and the Pacific Ocean in the country's Third Region, Atacama. In Argentina, these affected citizens live in the lower valleys on the eastern flank of the Andes in the districts of Iglesia and Jáchal in the country's San Juan Province.

Chile

Huasco Province comprises the four *Comunas* of Vallenar, Freirina, Huasco and Alto del Carmen. Communities that are immediately downstream of the proposed Pascua-Lama mine are located in the *Comuna* of Alto del Carmen. As of the 2002 Census in Chile, 4,840 people lived across Alto del Carmen, all in rural settings. Chollay is the community closest to the proposed Pascua-Lama mine, approximately 45km downstream in the El Tránsito Valley. El Corral is the closest community in the Del Carmen Valley, approximately 58 km from the mine. The principal communities and their populations from the 2002 Census, immediately below Pascua-Lama are presented in *Table 5.1*.

Table 5.1 Communities Downstream of Pascua-Lama in Chile

Community	Population	Distance from proposed Pascua-Lama mine (km)
Alto del Carmen Valley		
El Corral	121	58
El Verraco	29	59
Las Breas	87	69
San Felix	308	87
La Majada	561	92
Alto del Carmen	381	113

Community	Population	Distance from proposed Pascua-Lama mine (km)
El Tránsito Valley		
Chollay	162	45
Conay	159	65
El Tránsito	461	87

Source: Chapter 5 Baseline. EIA Modificaciones Proyectdo Pascua-Lama, pp. 5-99 - 5-110.

The principle economic activities in Alto del Carmen *Comuna* are small-scale agriculture and goat-rearing. (1) Agricultural activities include the cultivation of table grapes for export. Additional downstream communities in Huasco Province, further from the mine than those of Alto del Carmen, include the cities of Vallenar, Freirina and Huasco and rural residents in between in the Huasco Valley. In addition to agriculture, other economic activities in the region include mining (principally iron and copper) and generation and distribution of electricity. (2)

Argentina (3)

Communities affected by Pascua-Lama in Argentina are located in San Juan Province and the Departments of Capital, Iglesia and Jáchal.

Table 5.2 Communities Downstream of Pascua-Lama in Chile

Community	Population	Distance from proposed Pascua-Lama mine (distance in km is calculated by road in Argentina)
Tudcum	725	146
Pismanta	158	150
Rodeo - Colola	2,393	159 - 166
Las Flores	822	178
Villa Iglesia	483	190
Bella Vista	365	193
Angualasto	303	178
Malimán	100	190
San José de Jáchal	10,933	200

Source: Section 2.12 Socio-economic and Cultural Aspects. Proyecto Pascua-Lama, Informe de Impact Ambiental - Texto Ordenado 2006, Sección 2.0 -- Descripción del Ambiente.

According to the IIA, with the exception of Angualasto, Maliman, and Bella Vista, the communities listed are directly affected by *transit* between the project site and .San Juan city, 320 km south-east. Jáchal would be affected predominantly by traffic to and from that city.

(1) Chapter 5 Baseline. *EIA Modificaciones Proyectdo Pascua-Lama*, pp. 5-99 & 5-100.

(2) Chapter 5 Baseline. EIA Modificaciones Proyectdo Pascua-Lama, p. 5-94.

(3) Section 2.12 Socio-economic and Cultural Aspects. *Proyecto Pascua-Lama, Informe de Impact Ambiental - Texto Ordenado 2006, Sección 2.0 -- Descripción del Ambiente*, p. 2-188 to 2-202.

Communities in Argentina that would be affected by downstream water from Pascua-Lama include:

- Malimán, 168 km south-east along the Río Blanco;
- Angualasto, 180 km south-east along the Río Blanco; and
- San José de Jáchal, 236 km south-east along the Río Jáchal in the Department of Jáchal.

The total population of Iglesia Department is 6,714 persons of which approximately 80% is located in the 8 villages identified in the table above. The total population of Jáchal Department is 20,898 persons of which approximately 50% is located in the city of Jáchal. San Juan Province generally is an agricultural – primarily grape-producing – region. Approximately 2.6% of the area of the Province of San Juan is cultivated and 80% is rugged mountainous terrain and arid desert. However, in the communities in closest proximity downstream to the project along the Río Blanco and Río Jáchal, agriculture is smaller-scale and less-oriented to grape production and export than the major grape and wine-producing parts of San Juan Province. In the Department of Iglesia, seed production for lettuce and beans is the primary agricultural activity. This production depends on surface water and groundwater, but only 44.6% of cultivated land is effectively irrigated. In the Department of Jáchal, agricultural activity centers on onion production, which is exported to Brazil at a minimum margin because of intermediaries who offer low prices. Small-scale cattle production also occurs, primarily for family-use and not commercialisation.

5.2 *OVERVIEW OF MILESTONES OF PASCUA-LAMA PUBLIC CONSULTATION*

Consultation of affected peoples for the Pascua-Lama Project is an ongoing process that started in 1999. It is useful to distinguish the legally required consultation (that conducted according to the legal process for submission of an impact assessment to governmental regulators) from the voluntary consultation (that undertaken above and beyond the legal requirements, outside the impact assessment or permitting process). Barrick has undertaken both kinds of public consultation and disclosure in Chile and Argentina.

5.2.1 *Formal Consultation Mandated by Law*

Chile

In Chile, legally mandated public consultation and disclosure is overseen by the National Environmental Commission (1) – *CONAMA*. The Pascua-Lama Project was subject to the public consultation and disclosure procedures mandated by Chile's System of Environmental Impact Assessment (EIA). Pascua-Lama passed through the EIA process in Chile twice – once in 2000 and starting again in 2004 when Barrick re-initiated the project and submitted a modification of the EIA approved in 2001 by CONAMA.

(1) Comisión Nacional del Medio Ambiente

The milestones of the 2004-2006 EIA process of public consultation and disclosure – given that it was more recent and forms the basis for Pascua-Lama in its current proposed design – are summarised below.

Step 1: Consultation & Disclosure of EIA

Disclosure

- The Pascua-Lama EIA was published on the CONAMA website.
- An abstract of the EIA (agreed with CONAMA) was published in the Government of Chile's official Gazette and in local and national newspapers.
- Copies of the EIA were left in affected municipalities, Alto del Carmen and Vallenar, for public review.
- Copies of the EIA were sent to all relevant governmental agencies.

The general public had 30 days to submit comments to the CONAMA. Other relevant governmental agencies had 60 days.

Consultation

Upon disclosure of the EIA, formal consultation meetings took place in affected communities in January 2005. CONAMA, as the EIA regulator, convened the meetings and kept records of the proceedings. Barrick was required to organise the logistics of the meetings and attend to explain the findings of the EIA.

Formal EIA consultation meetings took place in six project-affected communities:

1. Alto del Carmen;
2. San Félix in the Río del Carmen Valley above Alto del Carmen;
3. El Corral in the Río del Carmen Valley above Alto del Carmen;
4. El Tránsito in the El Tránsito Valley above Alto del Carmen;
5. Conay in the El Tránsito Valley above Alto del Carmen; and
6. Huasco.

Comments received in these meetings were entered into the formal record and noted by CONAMA in its formal review of the Pascua-Lama EIA.

Step 2: Review by Regulators, Response by Barrick

CONAMA issued three separate successive Consolidated Clarification Application Reports (1) *(ICSARA)* to Barrick, seeking clarification, additional information or analysis of some provisions of the EIA.

- Barrick had five days to respond by issuing EIA Addenda, providing responses to CONAMA's questions contained in the respective ICSARAs (each of which was also published and submitted for public comment).

(1) Informe Consolidado de Solicitud de Aclaraciones

Barrick's addenda in response to CONAMA's three ICSARA included several adjustments in response to stakeholder concerns:

- Addendum #2 incorporated all the significant design changes to the project in response to regulator and public concerns raised in the 2004 submittal plus Addendum 1, including an independent evaluation conducted by technical experts of the *Junta de Vigilancia*, the formal group that has the authority to regulate water use of water users in the Huasco Valley. As part of an agreement with the *Junta de Vigilancia* (see below for more on the *Junta*), Barrick agreed to jointly submit Addendum #2 with the *Junta* so that Chilean regulators could see responses that emanated not only from the company but from affected citizens. (1)
- Addendum #3 incorporated additional changes resulting from regulator and public concerns about the prevention, mitigation and compensation presented by the authorities and communities in Addendum 2.
- Addendum #3 was also supported by the *Junta de Vigilancia*.

Step 3. Pascua-Lama approval by the COREMA. (February 2006)
After receiving the final addenda, the CONAMA formally passed the final decision-making authority to the Regional Environmental Commission (2) (*COREMA)* of Chile's Third Region for approval or rejection. In February 2006, the COREMA approved the project and established more than 400 conditions – many of which reflected concerns of affected citizens. Subsequent to the approval, there were 50 appeals filed, of which CONAMA considered 42. In May 2006, CONAMA upheld its earlier approval. To proceed with the Pascua-Lama Project, Barrick is obligated to meet these conditions.

Argentina

In Argentina, the impact assessment, public consultation, and regulatory approval process is coordinated by the following institutions:

- San Juan Province Mining Secretariat (*Secretario de Minería de la Provincia*): the highest mining and mining environmental authority in the Province, with regulatory authority to approve the project.
- Subsecretariat of Environmental Management & Mining Policy (*Subsecretario de Gestión Ambiental y Policía Minera*): regulatory body under the authority of the Mining Secretariat, which coordinates the CIEAM (below).
- Independent Mining Environmental Evaluation Commission (3) (*Comisión Interdisciplinaria de Evaluación Ambiental Minera* – CIEAM): a body set up specifically to evaluation the Pascua-Lama Project. It is comprised of representatives from diverse national and provincial governmental institutions/agencies as well as representatives from leading universities. The CIEAM is a technical body set up to evaluate

(1) Prior to submittingAddendum #2, all of the changes were presented at a public meeting of all members of the *Junta de Vigilancia*, who voted in support of the changes and the project.
(2) Comisión Regional del Medio Ambiente
(3) Comisión Interdisciplinaria Evaluadora Ambiental Minera

the technical merits of the project and recommends to the Mining Secretariat if the project should be approved, approved with conditions or rejected.

Step 1: Consultation & Disclosure of IIA (January – June 2005)
Barrick submitted the IIA (New Text – an update from the originally submitted IIA and Addenda of 2000 and 2001) for Pascua-Lama to the CIEAM in November 2004.

Advance Consultation

For Pascua-Lama (1) , Barrick undertook consultation in affected communities in the Departments of Jáchal and Iglesia in October 2004 prior to its 12 November 2004 submission of the IIA. According to the legally mandated process, notification of the IIA was posted between January 25 and February 9, 2005.

Disclosure
In Argentina, the Project IIA was subject to the public consultation and disclosure requirements of the San Juan Province Mining Secretariat. It was:

- Published in the *Boletín Oficial* of the Government and in the newspaper with the highest circulation;
- Advertised on radio and television that the IIA was available for Public Consultation; and
- Made available to any interested persons to present observations and objections.
- Copies of the IIA were sent to all agencies / institutions represented on the Evaluation Commission (CIEAM), the Mining Advisory Council (Consejo Consultivo), and the Provincial Mining Secretariat.

Consultation – First Round
Following the legally mandated notification process, there was a 60 day public consultation period plus 15 days to file comments, questions or oppositions – February to April 2005. During this time consultation meetings took place in project-affected communities in the districts of Iglesia and Jáchal. The public were invited to meetings through invitations targeted at key members of the communities and through radio and television advertisements.

At each meeting Barrick employees made a PowerPoint presentation describing the social and environmental impacts of Pascua-Lama and the proposed measures to address these impacts. At these meetings, Barrick was represented by the head of its Community Relations team, a project Environmental manager, a team of project engineers, members of its contracted impact assessment consultant team and project lawyers.

(1) Barrick's Veladero mine pre-dates Pascua-Lama and affects exactly the same downstream communities. Barrick's consultation in these communities for Veladero therefore also pre-dates the consultation for Pascua-Lama.

As a consequence of the first round of public consultation, in June 2005, the CIEAM issued a series of questions to Barrick, including questions both from the commission and the public.

Step 2: Review by Regulators, Response by Barrick (June-October 2005)
Based on the questions and comments gathered during the public consultation meetings and the questions issued by CIEAM, Barrick was required to submit a IIA Addendum Nº 1 'Project Execution (Modifications) – Response to Consultation' (1) . This IIA Addendum Nº 1 contains Barrick's proposed environmental improvements to Pascua-Lama based on regulator and citizen concerns. The Addendum was submitted on October 28, 2005.

Step 3: Consultation & Disclosure of IIA Addendum 1
The Addendum was also subject to the legally mandated notification, public consultation, and opposition process, beginning in November 2005 and ending in March 2006. The process culminated in Barrick's submission, in August 2006, of the 'Summary and Complementary Text – Requested by CIEAM and responses to the Second Round of Public Consultation'. (2)This document, requested by CIEAM, consolidated all technical information from previous submittals, presentations, and responses to questions of the CIEAM, and contained responses to the Second Round of Public Consultation.

As of October 2006, the IIA remains in the hands of Independent Mining Environmental Evaluation Commission (CIEAM) who will issue a Final Report, outlining the opinions of each of its members and the conclusions of the public consultation. This Final Report will be issued to the San Juan Province Mining Secretariat, who will evaluate it and the IIA to take a decision on whether or not to approve the Project and, if so, under what conditions/recommendations.

Note: if approved, Argentine law stipulates that the IIA for Pascua-Lama be updated every two years.

5.2.2 Additional Consultation Conducted by Barrick

In addition to the consultation required by law in Chile and Argentina, Barrick has engaged stakeholders using a variety of means.

Chile

In Chile, Barrick has undertaken outreach in affected communities beyond the regulatory requirements of the EIA process in several ways:

- During the formal EIA public consultation process (Step #1 of Chile above), Barrick conducted additional meetings in Huasco and with the people of Diaguita indigenous descent in the El Tránsito Valley.

(1) Actualización de Proyecto (Modificaciones) – Respuesta a Consultas CIEAM y Consulta Pública
(2) Texto Ordenado y Complementario – Solicitado por CIEAM y respuestas a segunda Consulta Pública

- Barrick employees have participated in over 1000 community meetings throughout the Huasco Valley 2005.
- Barrick has made over 100 presentations to community groups and neighbourhood associations and participated in 30 public events to present the Pascua-Lama project.
- Barrick conducts ad hoc seminars on key topics (such as cyanide management, hazardous material transportation, water quality and quantity) of concern to stakeholders.
- Barrick maintains offices in Vallenar, Alto del Carmen, and Copiapó, which are permanently staffed by Community Relations personnel.
- Barrick Community Relations personnel have gone door-to-door in the Huasco Valley and visited 40% of homes.
- Barrick maintains a database of community groups and each month locally distributes 15,000 informational bulletins about the project and its community activities.
- Barrick maintains an e-mail database of over 1500 e-mail addresses in Chile and regularly sends out Pascua-Lama Project newsletters.

Argentina

In Argentina, consultation in project-affected communities in Iglesia and Jáchal extends beyond the formal IIA public consultation and disclosure process described above. Barrick's Veladero mine pre-dates Pascua-Lama and affects exactly the same downstream communities.

In addition, since Veladero has been in operation, Barrick has maintained a permanent presence in project-affected communities. A full-time Community Relations staff of five (plus other consultants and technical experts) maintain relationships between Barrick and communities and also execute the company's Sustainable Development community investment program.

As in Chile, Barrick has undertaken outreach in affected communities beyond the regulatory requirements of the EIA process in several ways:

- Barrick represents itself in project-affected communities as Barrick Argentina, as no distinction is made between Veladero and Pascua-Lama. This has allowed communities on the Argentina side of Pascua-Lama to learn first-hand how Barrick operates once a mine is approved and operational.
- Barrick maintains offices in Iglesia, Jáchal, and San Juan, which are permanently staffed by Community Relations personnel.
- Barrick Community Relations personnel have gone door-to-door in the Iglesia and Jáchal and visited 40% of homes.
- In 2005, Barrick initiated a series of regular meetings in communities to discuss key concerns and how Barrick manages these issues. The first of these meetings in Argentina focused on the use, management and transportation of cyanide. The plan is continue this series each year, focusing on different issues.
- Barrick has undertaken a series of topical presentations for the CIEAM to address concerns on specific IIA issues for the oversight body.

- Barrick maintains an e-mail database of over 2000 e-mail addresses in Argentina and regularly sends out Pascua-Lama Project newsletters.

5.2.3 Conformance with World Bank OP 4.01 Policy

Despite Barrick's consultation in relation to the Pascua-Lama project, the formal EIA process of the Government of Chile (CONAMA and COREMA) and IIA process of the Government of Argentina (San Juan Mining Secretariat and its affiliated oversight bodies) the project was not fully consistent with World Bank requirement for citizen participation and disclosure in relation to formal consultation after the scoping stage of the impact assessment.

Consultation after 'Environmental Screening'

World Bank OP 4.01 stipulates consultation after 'environmental screening' (or after the scoping stage of the impact assessment) and before the terms of reference for the Impact Assessment are finalised. In the case of Pascua-Lama, this was not done by either the authorities or by Barrick, in Chile or Argentina. The rationale for early consultation, as specified in OP 4.01, is to provide local stakeholders with a stronger sense of potential control over the project much earlier on in the process and increased a sense of ownership of the EIA results.

5.3 AGREEMENTS WITH REGULATORS & STAKEHOLDERS

Public consultation and disclosure cannot be measured by the mechanisms alone: e.g. by the number of meetings, Barrick's compliance with the procedures of permitting laws, nor the fact that encounters took place between the company and affected peoples. The objective of public consultation and disclosure is to enable two-way dialogue with the government and communities so that the project can be improved through stakeholder feedback. The ultimate measure of dialogue is the way in which this feedback and these relationships shape the final project.

Has consultation and disclosure for Pascua-Lama achieved these objectives? In the case of Pascua-Lama, consultation of affected peoples has produced two fundamental developments. First, Barrick has developed a close relationship in Chile with the *Junta de Vigilancia* in the Huasco Valley (see below), the formal representative body of all water rights holders downstream of the proposed project. Second, Barrick has made several significant changes to the Pascua-Lama project design as a result of feedback from stakeholders and regulators.

Throughout the permitting process, stakeholder engagement has been sought by governmental regulators in Chile and Argentina and Barrick alike. Barrick continues to accept stakeholder input and seek mitigation measures that would further ensure minimal adverse impacts to the environmental and socio-economic baseline conditions.

5.3.1 Barrick Agreements with the Huasco Valley Junta de Vigilancia

During the EIA process in Chile, a key stakeholder group emerged to express concerns about Pascua-Lama and its potential impacts on water in the Huasco Valley. This stakeholder group is the *Junta de Vigilancia*, the formal association of water rights holders in the Huasco Valley. The *Junta* has over 2500 members, of which around 700 are agricultural users. (Note: As a water rights holder in the Huasco Valley, Barrick is also a member of the *Junta*.)

Initially, the *Junta* participated in the EIA process as can any group of concerned citizens. However, when it became apparent that it formally represented the interests of project-affected water users, Barrick approached the *Junta* to develop a more formal relationship. This culminated in the development of a signed Protocol between Barrick and the *Junta de Vigilancia* containing three main provisions:

1. That Barrick would share all available information it had gathered to assess the impacts of the Pascua-Lama Project, including all baseline and technical studies for the EIA.
2. That Barrick and the *Junta de Vigilancia* would work together to develop answers to CONAMA as part of the EIA process. This includes a provision that Barrick include all the recommendations of the *Junta de Vigilancia* in its submissions to CONAMA. As such, the *Junta de Vigilancia* participated in the 2nd Addendum of the EIA and ratified the 3rd Addendum.
3. That Barrick commit to an investment to improve water use for agricultural purposes in the Huasco Valley.
    - This investment totals US$60 million over 20 years.
    - Projects are to be defined over the course of the investment. *Junta* members will propose projects, which will be considered and approved by the Board of the *Junta*.
    - These projects are intended to improve the existing irrigation system in the Huasco Valley, which is estimated to lose 30% of water due to inefficiencies.

The Barrick-*Junta de Vigilancia* Protocol was approved by 94% of *Junta* members in 2005. This is a significant development in the way that public consultation has shaped the Pascua-Lama project:

- It has formally involved a key stakeholder group in the EIA process and in Barrick's submission of addenda and responses to CONAMA.
- As a result, the mitigation and monitoring measures approved by CONAMA and COREMA are ones that Barrick and the *Junta de Vigilancia* have discussed and agreed on.
- It has formally committed Barrick to invest in improving water use in the Huasco Valley above and beyond any effects on water quantity that Pascua-Lama will produce.

5.4 PASCUA-LAMA MODIFICATIONS DUE TO REGULATORY OVERSIGHT

The relationship between Barrick and the *Junta de Vigilancia* in Chile is one significant illustration of how Barrick has responded to citizen concerns in its design of the Pascua-Lama Project. (1)

Barrick has, in fact, made several fundamental changes to the Pascua-Lama Project, many of which resulted from dialogue with regulators in Chile and Argentina (who have responded to the concerns of stakeholders). (2) These changes include:

- ***Revised pit limits so as not to mine any ice patches or glaciers.*** Barrick has changed the pit limits of the Pascua-Lama mine to avoid touching or moving any permanent ice features. This is in effect a permanent decision: once Barrick begins mining according to these limits, the steep incline of the descending pit will prevent any future mining beyond the pit limit. This effectively 'sterilises' approximately one million ounces in gold and potential Barrick revenue from exploiting these reserves.

- ***Increased scale of water monitoring***. Barrick has stated that it will track water quantity and quality through 30 automated monitoring stations in both valleys on the Chilean side of Pascua-Lama.

- ***Increased parameters for water quality monitoring.*** In Addendum 2, Barrick agreed to requests from CONAMA to modify the focus of its monitoring and water quality program from operating within the 'maximum legally permitted limits' to operating within the actual expected performance of the plant operating capabilities and the predicted impacts, not to exceed the baseline quality, including monitoring several additional parameters not included in the current governing primary regulations for domestic and irrigation water (NCh 409, NCh 1333, DS90/2000), thereby effectively implementing a secondary water standard which is not required by current legislation.

- ***Location of crusher below ground***. Barrick will place the Pascua-Lama primary ore crusher below ground. This should minimise dust generation on the surface from the crushing of ore before it is sent to be processed.

- ***Covered conveyor and covered coarse ore stockpile***. Ore will be transported from the underground crusher on a conveyor through an underground tunnel. The conveyor will then emerge on the surface to travel the rest of the distance to the processing plant. The length of the

(1) On the Argentina side, there is no equivalent formal group of downstream water users; therefore Barrick did not developed a comparable relationship in Argentina.
(2) Many of the concerns raised by regulators took into account comments made by affected stakeholders. Some decisions (such as the use of a covered conveyor and the switch from a dry to wet grinding plant) were made internally by Barrick to achieve certain environmental standards for the project.

conveyor along the surface – and the stockpile of this crushed coarse ore is intended to be covered, which should also minimise surface dust.

- ***Change from dry to wet processing plant.*** Barrick will process the ore using a wet processing plant, one that further reduces the particle size by grinding the ore in water-filled mills. (A dry mill would do this without adding water.) Wet grinding essentially eliminates air emissions to the environment, contributing to an overall 15% reduction in particulate emissions and a reduction in diesel fuel consumption by more than 90%. [Note: there is essentially no additional water and energy use necessary for wet processing, which has been integrated into the impact assessments referenced above and does not change the above observations about water made in this Report.]

- ***Water management and treatment system.*** Contact water (any water from precipitation or snow / ice melt that comes into contact with mine operations) is designed to be treated and re-used (in the mine in Chile and in the process plant in Argentina). The design of the system is such then in addition to the contact water, any naturally occurring ARD waters that are in the capture area should also be captured, treated, and re-used.

- ***Closed water diversion channel (underground with pipe).*** Non-contact water (any water from rainfall or snow / ice melt that does not come in contact with operations) is designed to be diverted around the waste operation facilities, particularly the waste rock facilities. Where the diversion is subject to any form of surface geohazard, the diversion will be via buried pipelines.

- ***Conceptual design: manages one in 20 year events during operation and one in 100 year events during closure.*** 'Events' are calculated storm events like rainfall or snowmelt that would equate to certain amounts of contained moisture. These events are calculated based on a predictive weather model, on a site-specific basis. By designing Pascua-Lama to manage one in 20 year events during operation and one in 100 year events during closure, the project is designed to manage larger storm events that could produce downstream water impacts.

- ***Chile: Increased number and capacity of ponds.*** Pascua-Lama has a system of containment ponds that can capture both surface and groundwater that comes into contact with sulphide bearing waste rock. The capacity of these ponds ensures that, according to predictive models, Barrick will be able to effectively capture all surface or groundwater that comes into contact with waste rock and prevent it from flowing downstream. The water from these ponds is designed to be treated and re-used.

- ***Chile: Downstream cut-off wall.*** In addition to other levels of protection, Pascua-Lama will include a downstream cut-off wall, so that in any unforeseen circumstance of the release of any water that comes into contact with waste rock it can be stopped and contained for treatment and re-use. This measure is designed in addition to Barrick's previous plan to monitor and have capture wells to meet this contingency.

- ***Argentina: Thickened liner, underground filtration, and overdrain consolidation of tailings.*** Tailings – the residual sandy material from the mill – will be delivered in a thickened state to a membrane lined tailings impoundment pond where it will settle and be dewatered by a drainage system above the membrane, compacting particles closer and closer together to eventually become another form of a liner – naturally sealing itself off through compression and dewatering. There is a drainage system below the membrane to capture any seepage that may occur and return the liquid to the tailings pond. The tailings system is therefore effectively designed as a closed circuit with no planned discharge to the environment, and should prevent discharge as designed.

- ***Road improvements: resurfacing and bypasses.*** To prevent increased traffic and transportation of materials directly through communities, Barrick has made, or has stated that it is intending to make, several key road improvements. The road between Alto del Carmen in Chile and the Pascua-Lama site has been paved where it passes through communities, reducing potential dust generation. A bypass has been constructed around Vallenar, above San Félix and another is planned for Alto del Carmen.

- ***Transportation of personnel to mine site by airplane.*** To further reduce vehicle traffic through downstream communities during construction and operation Barrick has disclosed plans to maximise use of aircraft to fly personnel up to the Pascua-Lama site.

6 CONCLUSIONS

6.1 SUMMARY OF MAIN POINTS

6.1.1 Impact Assessment Process

Based on this review, Barrick appears to have adequately studied the necessary technical aspects of water issues to standards of international good practice and has the data to assess its use of water (quantity), its affect on water (quality) and how this will affect people downstream in both Chile and Argentina.

6.1.2 Water Issues

Quantity

Based on extensive baseline monitoring and predictive modelling, the Pascua-Lama mine dewatering and process water make up needs do not appear significant or likely to adversely affect downstream water users right to water. Barrick also proposes to assist local water users (agriculture and potable) in improving seasonal storage, conveyance and irrigation systems such that more water will be conserved than would be diverted by the mining operation, through significant financial investment (1) .

Further, the Chilean government has required that Barrick avoid impacting the ice fields and glaciers in the project area and to conduct a comprehensive monitoring program to ensure their protection. Barrick has agreed to these conditions and has modified the mine plan accordingly.

Quality

Because the project is designed without water discharges to the environment, and based on extensive baseline and predictive analysis, impacts to water quality appear insignificant to the downstream water users.

Process reagents such as cyanide are designed to be contained in lined systems, recycled within the process, and detoxified upon process completion. In addition, there will be extensive environmental monitoring and built-in leak collection and recovery systems. This should lead to no impact.

The project proposed monitoring and complete containment and treatment of any acid rock drainage (ARD) caused by or accelerated by the mining activities. Hence, there is no anticipated impact.

In addition to its mitigation measures, Barrick has also adopted, as part of its sustainable development efforts, a focus on water for social/community

(1) $60M over 20 years.

investment in Iglesia and Jáchal in Argentina and the Huasco Valley in Chile. This, in technical terms, would be described as a positive project impact for the downstream communities.

6.1.3 Precautionary Principle

The precautionary principle states that 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'. Barrick has addressed this principle in two key ways:

1. ***Barrick has recognised that there may be serious or irreversible threats***. Even though existing scientific knowledge and impact assessments of key environmental issues such as glaciers and water quality (affected especially by Acid Rock Drainage and use of cyanide) may suggest that it is unlikely that the proposed mine would have negative effects, Barrick has addressed stakeholder and regulator concerns by enhancing or reinforcing preventive measures incorporated in its original design.
2. ***Barrick has put into place preventive measures.*** In the case of the glaciers, the pit limit was re-drawn so that no ice features would be disturbed by mining. Additional dust control and monitoring measures would be put into place to prevent and detect effects and glaciers from other mining and milling activities. In the case of water quality, this includes: (1) diversion of non contact water, (2) capture, containment and treatment of contact water, (3) impervious lined tailings pond with multiple barriers, (4) secondary containment of all closed circuit systems which handle hazardous materials, and (5) contingency measures designed to achieve the objective of not affecting water quality downstream beyond baseline conditions.

6.1.4 Public Consultation & Disclosure

Despite the lack of consultation with stakeholders after scoping or 'environmental screening,', which is not in compliance with World Bank requirements, Barrick has engaged stakeholders repeatedly on key issues and presented topic-specific briefings on its proposed management of water issues and other key concerns. The relationship between Barrick and the *Junta de Vigiliancia* is an example of how stakeholder engagement increased in intensity and quality after the disclosure of the 2004 EIA.

Accessibility of Impact Assessments

In Chile and Argentina, Barrick has distributed brochures and made presentations to the public on various topics – using straight-forward language and concepts, covering issues of public concern and key impacts covered in the impact assessments. Although the impact assessments themselves are voluminous and technical, Barrick has met the World Bank requirement for presenting impact assessments in a form that is understandable and accessible. There is no one non-technical summary of the

impact assessments, but the sum total of Barrick's presentations, written materials, and availability of Community Relations staff in potentially affected communities have provided stakeholders with information about the extent and proposed management of key impacts. While not strictly in conformance with World Bank requirements, Barrick considers their approach to disclosure and post-disclosure consultation as stronger given its greater focus on formal community meetings, workshops and briefings rather than written materials.

6.1.5 Monitoring Community Support throughout Project Life

Shareholders have also asked Barrick to 'describe how the company will continue to monitor community support all along the project life'. Barrick has plans to maintain a dedicated Community Relations presence in affected communities in Chile and Argentina throughout the life of Pascua-Lama. Also, according to final government approval of the project in Chile, a Citizen Follow-up Committee [(1)] (CSC) will be set up, comprising representatives from local governments, citizen groups and Barrick to monitor implementation of safeguards in the EIA, as specified in the Resolution of Environmental Clarification (RCA). The primary objectives of the CSC will be (1) to facilitate the exchange of information regarding compliance with the RCA and environmental and social performance at Pascua-Lama, and (2) to identify potential impacts that might not have been considered during the EIA process and to define pertinent measures to address them. This is the first time a CSC like this will be implemented outside Santiago and in a rural area like the Huasco valley. There will also be a Transportation Committee to monitor road and traffic impacts and mitigation measures of the project. Barrick's interaction with these groups in Chile should turn out to be a fundamental vehicle through which to continuously assess community sentiment.

However, Barrick has not defined yet specific measures or key performance indicators by which it will track community support for the project. Whether the formation of such groups will be stipulated by authorities in Argentina is still to be determined. Nevertheless, Barrick states that it continues to accept stakeholder input and seek mitigation measures that would further ensure minimal adverse impacts to the environmental and socio-economic baseline conditions. Barrick has also indicated that it intends to develop a participatory model for implementing its Social Monitoring Plan so that monitoring of social impacts can identify any emerging issues to be addressed early on.

(1) *Comité de Seguimiento Ciudadano (CSC)*