

ANTAMINA AND HUASCARÁN NATIONAL PARK: A CASE STUDY IN MINING, CONSERVATION AND SUSTAINABLE DEVELOPMENT

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Summary

The Antamina project is located near Huascarán National Park (HNP), in the Peruvian Andes. The Park is designated as a United Nations Education, Scientific, and Cultural Organization (UNESCO) World Biosphere Reserve and World Heritage site. A Working Group was formed by the Peruvian Park Authority (INRENA) and is composed of the World Conservation Union (IUCN), and non-government organizations (NGOs), with the goal of monitoring the Antamina project activities, to direct mitigation associated with the construction phase of the project, and support protection of the Park resources. All major mining companies in the area are participating in the working group whose goal has been expanded from simply monitoring the activities of Antamina on the parks central route, to working towards sustainable development within the area of influence of the park. This paper discusses interactions of Huascarán National Park and the Mountain Institute (TMI) with the Antamina project and the development of a formal consensus building entity, the Huascarán Working Group (HWG). This case study represents a model for win-win conflict resolution outcomes that can be applied to other natural resource projects in proximity to protected areas or communities.

1. Introduction: Issues and the Antamina – Huascarán National Park in summary

Mining operations are not only technical and economic operations. The value of a mine, or for that matter of any investment, lies less in the materials deposited underground, as the general people so often imagine, but in the productivity of human capital in the form of sophisticated machinery and business, logistical and engineering procedures needed to build large-scale mines in short periods of time. Mining is the business of mining engineers. As no surprise, a professional life that in the past has traditionally taken place in isolated places, not requiring any strong professional skills in the business of community development, nor conservation of nature preserves. The future of the mining sector is and will be increasingly affected by a very complex social and political

context. This complexity is associated with the emergence of strong, multi-type, stakeholders that react to mining developments from perspectives new to the mining sector past experience. Mining engineer Raul Benavides has expressed well this challenge:

“When we [miners] face people different than ourselves, persons with interests, beliefs, or even world views different than ours, we often feel confused (...) The problem [for us miners] is that, worried by our operations and our interests, we forget that there might be people who do not share our ideals and experiment feelings ranging from a sense of invasion to total gratitude [for our presence] and activity.”¹

One of these new stakeholder groups who may hold a worldview and interests different than those of miners is the nature conservation community. This is a stakeholder group with its own perspective(s) on how nature conservation, community development and the use of renewable or non-renewable natural resources have an effect on each other. Within this collectivity there is also a strong current that recognizes a gap in effective communication with productive sectors, like the mining, that often operate in remote places associated with biologically sensitive areas. A recent joint meeting called forth by IUCN, the world’s largest federation of nature conservation entities, and the International Council on Metals and Environment (ICME) concluded that:

- *Where there is no dialogue there is no progress;*
- *That common ground can be found where there is a willingness by the parties to seek it out;*
- *That benefits can flow to all parties from finding common ground; and*
- *That sharing information, building trust and good will, and continuing to talk are essential.²*

In Peru there are 51 sites included in the National Systems of Natural Protected Areas (SINANPE), ranging in size, from tiny 690 hectares of Lagunas de Mejía

¹ Raúl Benavides “Aprendiendo a Escuchar”. En: Informativo mensual de la Sociedad Nacional de Minería, Petróleo y Energía, Año VIII, No. 12 pp.10

² World Heritage and Mining report of the Workshop held at IUCN Headquarters, 21-23 September 2000

to the multi-million hectares Alto Purus. SINANPE is a collection of sites meant to represent, in approximately 9% of the national territory Peru's nature heritage. Minerals are also a natural heritage of Peru, mostly of its mountain regions, located in one of the most heavily mineralized areas in the world. Minerals earn close to 50% of the nation's foreign currency, followed by the tourism sector, which is dependent on Peru's nature and culture traits. Thus, the mining and conservation communities are bound to meet.

The Antamina mine site is located about 30 Km East, as the condor flies, from HNP in Ancash Department, Perú. Although its current means of transporting concentrate makes use of a mineral pipeline and its access road goes around the Park's Southern border, the initial proposal of the Antamina project³ was to truck transport mineral concentrate produced at the mine site to its port facility on the coast on an existing road ("central route") through HNP. This proposition was the subject of controversy and negotiation that involved HNP, INRENA, TMI, UNESCO and international technical conservation individuals, as well as Antamina, its shareholders and lending institutions. The result of this negotiation, associated with other factors related to changes in project design and ownership led to the decision to not use the "central route" and build a "by pass" access road around and outside of the southern border of the Park, and in addition, change the concentrate transportation method from trucking to concentrate pipeline. One outcome of this process, which is the principal focus of this presentation, was the evolution of the Huascarán Working Group (HWG), which began with the participation and support of Antamina and eventually evolved to include all major mines operating in the vicinity of the Park. HWG was set up by the initial parties to achieve short-term tasks (monitoring and communication on temporary use of Park central road). Incrementing its functionality one step at a time and using a shared-cost approach to communications, this group has now established simple but specific information functions to prevent conflict or to generate bilateral or multilateral initiatives that

may contribute to improve the fit between mining and regional sustainable development. The scope of the HWG expanded to include, nationally, other conservation NGOs (Consortio Minería y Conservación⁴) that both provide support and expect to gain experience for their own areas of work.

2. Huascarán National Park (Created 1975)

The management objectives of objectives of HNP are to protect Cordillera Blanca, largest range of tropical glaciers in the world. Park administration preserves and restores ecosystems through constant training and promotion of stakeholder commitment to sustainable management of the area. HNP was recognized by UNESCO as a Biosphere Reserve in 1977 and World Natural Heritage Site in 1985 to protect its landscapes of exceptional natural beauty and aesthetic importance and its outstanding examples of on-going ecological and biological processes. The Park's 340,00 hectares include 27 snow capped peaks over the 6,000 masl; 663 glaciers, 296 lakes, and 41 rivers providing water to farmers, cities and the central coast. The Park protects some of the last remains and most diverse high-altitude native *Polylepis spp* trees which 5,000 years ago covered the whole Andes range. The Park contains 779 species of flora, 111 bird species (some endemic and in danger of extinction), 13 mammal species, and 2 reptile species, distributed among its 7 life zones. Approximately 123,000 tourists visit the Park each year.

The area of HNP was not a historically important mining area, although there are a few legal small (only extraction) mine operations inside its borders. The Park is however surrounded by mining claims, many of them often partly impinging upon the Park. Mining development begun in the region with all earnest in 1997 with two large-scale mining projects located near the Park (Pierina and Antamina). These two projects triggered infrastructure

³ Compañía Minera Antamina. Antamina Project. Environmental Impact Assessment Report & Appendices. Kohn Crippen – SVS S.A. Ingenieros Consultores. March 1998.

⁴ The Consortio Minería y Conservación is constituted by CARE Peru, SPDA, CI, Pro Naturaleza and coordinated by TMI. It oversees coordination of the HWG to strengthen functional independence of conservation and mining interests. HWG is chaired by the Chief of Huascarán National Park with technical support of a coordinator provided by TMI and co-financed by TMI and 3 mines.

development in the region, enhancing likelihood of previous road building pressures by small mines and other commercial interests. Pressures on the territory of the Park are exacerbated by the fact that the Ministry of Energy and Mines (MEM) and INRENA use maps that trace different boundaries for the protected area.

At the time in which the Antamina project started, there were other sources of tension on Park resources, ecosystems, and integrity. These included, agricultural use of Parklands by neighboring communities, over-grazing of pastures by approximately 43,000 head of cattle and traditional exploitation of firewood, as well as environmental impacts resulting from severe tourism use in certain areas of the Park such as the Pastoruri Glacier. Park staff at the time of Antamina development was over stretched and lacked adequate resources to attend this variety of issues over a large and very difficult terrain. From the perspective of the Park, it has a mandate to protect world-class biological values and landscapes that are critical to the sustainable economic development of endless future generations of the region and the nation.

3. International Technical Cooperation: the role of The Mountain Institute in Huascarán National Park.

The Mountain Institute (TMI) is an international private voluntary organization, based in the US with international programs in major mountain countries of the world, was invited by the Peruvian Government to cooperate with HNP since 1995. Considering that mountain ecosystems have been deeply affected and affect the human populations, TMI's way of pursuing conservation objectives is based on a people assets approach. In other words the organization develops conservation strategies based on strategies to use landscapes and natural resources that are inspired in local knowledge, wisdom and social organization. The role of TMI in support of HNP has therefore focused on the strengthening of local capacities. Its modus operandi is based on development of multiple sector partnerships (local communities, government, private sector) and promotion of

participatory approaches to conservation and natural resource management conflicts. More specifically, TMI works at the inter phase of three activity spheres: (1) **conserving** high priority mountain landscapes, (2) promoting meaningful and sustainable **livelihoods** for mountain communities, (3) mountain **advocacy** to promote mountain conservation and sustainable development policies. TMI's support to HNP has included between 1995 and the present assistance with the park management planning tools (Ecotourism Management, threat analysis, specific site development plans); community development projects in 10 sites of the park (pasture management, traditional textile recovery, community-based tourism projects, among others); publications (flower guides, landscape, management tools); and research (forest ecology; landscape change, tourism impacts, among others).

TMI national and international staffs were directly engaged in discussions about the Antamina proposal on issues that affected Park integrity in close coordination with Park and INRENA staff. TMI was a founder with INRENA, Antamina and UNESCO of the HWG on Mining and Conservation that is the core of this case study. Following its partnership and participatory approach, TMI encouraged with other funding members of HWG a diverse multiple sector groups.

4. Antamina Project Overview

Project Description

During its 20-year life, the Antamina Project will produce about 1900 million tonnes of ore and waste in five phases with a strip ratio of about 2.36:1. During operations approximately 70,000 tonnes of ore and 200,000 tonnes of waste will be moved daily. The final pit will be two km wide and 750 m deep.

The milling rate is planned for 70,000 tonnes per day, producing on average 600 million pounds of copper in concentrate, and 360 million pounds of zinc in concentrate annually.

Since concentrate will be transported as slurry, the de-watering and load-out facilities will be located at the port site. The port is located in a desert climate, and treated water filtrate will be used in an irrigation project.

The port is located near the existing port of Huarmey, which in turn is located about 300 kilometres north of Lima. The Pan-American Highway runs north and south and to the east of Huarmey. The marine terminal is designed to have a ship loading capacity of 1.8 million tonnes per year.

The feasibility study completed in March 1998 confirmed Antamina's enormous potential. By 2002, at full production, Antamina will be the third largest zinc and seventh largest copper producer in the world, and the third largest producer of copper zinc concentrates.

Environmental Impact Studies and Project Permitting

Early in the feasibility study, project design guidelines were developed using Peruvian, World Bank and Canadian environmental, health and safety standards and guidelines. In March 1998, following a period of public presentations and discussions, which included nearby communities, an environmental impact assessment (EIA) was submitted to the government of Perú. The EIA included socio-economic and archaeological issues as well as the environmental and safety aspects.

As the project design progressed two addenda were submitted to address changes including the use of a pipeline for concentrate conveyance and the southern by-pass around the Huascarán National Park providing the main route to the mine. MEM approved the EIA and the subsequent addenda.

A disciplined permitting programme is in place that has resulted in over 250 permits for construction and operation. This has been a significant effort in legal, engineering and construction areas.

Decision to use Southern Route

The original project description failed to incorporate views of all stakeholders (Park, NGO's) even with the high degree of public consultation that occurred in conjunction with the EIA. This was complicated by the approval of the transportation concept by a majority of local and national stakeholders. Subsequent consultation with NGO's & UNESCO lead to detailed evaluation of viability of Southern Route beginning in May 1998. The study indicated that the southern route could be constructed with no major environmental impacts. UNESCO, HNP, INRENA, and NGOs concurred with the decision to construct the southern route, thus avoiding the trucking of concentrates through the park.

NGO's, UNESCO & Lenders were consulted on temporary use of Central Route during construction of Southern Route, and subsequently approved this temporary use. Approval for use of Central Route received from MEM & INRENA in Aug/Oct 1998. The use of Central Route involved upgrading, maintenance & monitoring. Once this use was terminated, CMA undertook the repair of quarry sites along central route used in road upgrading, along with repair of culverts at park entrance. In addition, CMA complied with its commitment to the restoration of petroglyphs along the central route (damaged by Graffiti, prior to the beginning of the Antamina project). Finally, CMA restored a construction road that accidentally entered park along south route.

Use of Pipeline Vs. Trucking of Concentrates

As previously stated, the original project description involved trucking of 1.5 MT of concentrate per year to the port site. Over 100 trucks per day would have been required to haul this quantity of concentrate. After a change of ownership

in the project in mid 1998, the feasibility of using a mineral concentrate pipeline was evaluated. The key factors evaluated included:

- Environmental impacts
- Rate of return, trucking vs. pipeline
- Technical considerations
- Safety concerns related to increased traffic of concentrate trucks through communities
- Short & long term economic benefits

A decision to proceed with the pipeline was made in fall of 1998. The pipeline was designed to follow the alignment of the southern route from the mine to Laguna Conococha, and follow the existing state highway system from there to the port. An EIA addendum detailing the concentrate pipeline and a number of other project changes was prepared and submitted to MEM in January 1999, and was subsequently approved, after considerable public consultation.

5. Key concerns from Huascarán National Park perspective (see Table 1 SWOT Analysis)

In retrospect, there were, from a Park perspective, two types of concerns associated with the Antamina project. One was related to “identity-based” conflicts. The second one relates to very specific “technical” or “rational” issues in which there was discrepancy of opinions concerning impacts. The identity dimension is the most difficult to grasp, as it has to do with a historical background of Park experiences with development pressures that had been dealt with in the past in isolation and with no central government resources, thus creating a sense of “community” and identity among people and institutions who had invested a great stake in sustaining Park integrity. Historical pressures, dating back to the 1980s, included “battles” to stop a road project to traverse a pristine area of the Park; freezing several lake dam proposals prepared by hydroelectric utilities; and in more recent years, regular requirements from the

MEM to approve mining *petitorios* on contested Park boundaries and frequent requests from approximately 13 small legal mines that are currently operate inside the Park to expand or develop infrastructure. “Identity” dimensions issues were unconscious background to the technical discussions that engaged Park/TMI staff with Antamina EIA propositions concerning the central route. From a Park/TMI perspective Antamina’s approach to impacts on the Park was too narrowly focused on technical issues concerning the physical nature of road impacts, while the main issue was really protecting the “integrity” of Park landscapes and their potential to be the permanent foundation of a conservation-based regional approach. Amidst these two sources of conflict there were a clear and strong perception by Park/TMI staff that Antamina offered a unique level of openness to involve stakeholders perspectives and transparency, thus becoming a unique opportunity to reduce other previous mining or development threats to the Park. Reiterating the point, from a Park perspective, there was a strong concern about landscapes and Park “integrity”, which by definition were strongly connected to “identity” (i.e., beliefs and worldviews) among Park/TMI stakeholders. The “integrity” problem refers to the fact that *use of the central road as permanent industrial trucking route would have jeopardized future existence of the Park as such or at least its World Heritage Site status.*

6. Key Issues concerning vicinity with a National Park from Antamina perspective (see Table 1 Annexed)

From the perspective of the Antamina Project, the key issues were as follows:

- How to integrate Park & Project needs
- Development of Project in accordance with schedule and budget
- Acquisition of funding for project
- Use of central route on a temporary basis
- Use of central route for emergency access
- Reputation of project & shareholders

- Stakeholders' support of project

7. Conclusions on conservation, sustainable development and large scale mining interactions (see Table 2 Lessons learned)

- (1) In areas that are subject to the investments associated with large scale mining and fast track socio-economic change, it is critical to develop, in a participatory way, sustainable development conceptual frameworks that provide (a) hypothesis to promote basic regional planning strategies, multiple sector partnerships (government, private sector, NGO) in support of local communities; (b) use of protected area conservation objectives for development; and (c) monitoring of results and lesson learned.
- (2) Use an "incrementalist" approach to develop cooperative arrangements by mining and conservation interests. Take one step, measure results, draw lessons, and develop cooperation further as needed on the foundation of trust and formalized, voluntary, cooperative mechanisms (HWG is following this model).
- (3) Develop a sense of equal ownership of consultation mechanisms such as the HWG, understanding that not all stakeholders involved may have the same capacity to invest in this common good objective. Share costs, duties and rights as much as possible and promote engagement by all parties.
- (4) Incrementally develop consultation protocols for the communication framework (e.g. HWG) to develop a communication culture (bulletins, joint project proposals, rotating coordination, written suggested steps that promote early identification of new conflicting issues, etc.) rather than mandatory bureaucratic regulations.
- (5) Support, when possible, development of government management skills that will in the long run reallocate priorities to deal with strategic problems and their causes.
- (6) Keep clarity of roles as consultation framework (HWG) develops. Miners are specialists in mining minerals, conservationist in protection of natural heritage. Protect independence of technical criteria both formally and

substantially through mechanisms even if experimental (independence of financial, scientific, and other key functions needed in the common ground should not be jeopardized)

- (7) Reducing information asymmetries, usually in favor of mining concerns, is necessary to have win-win solutions.
- (8) Mining companies need more training and should invest additional resources in consultation. Consultation should be a critical aspect of all projects, especially those involving World Heritage Sites
- (9) Mining associations should promote consultation and if possible help in pre identification of stakeholders to expedite consultation process. Mining associations should communicate more effectively with NGO's to transfer information about mining industry with respect to environmental and social programs and to understand and appreciate NGO's point of view.

Table No. 1. Miners and Conservationists: Comparative Strengths, Weaknesses. Opportunities and Threats (SWOT)

	Huascarán National Park	Antamina Project
Strengths	3 tiered – highest legal protection status. UNESCO WHS status	High Profile Project-Desire to do things right
	25 years site experience in the area.	Strong Shareholders-International Mining Companies with strong environmental records and environmental policies
	Access to international technical NGO support and advocacy	Financing requirements-Compliance with Peruvian & International Standards
	Training on EIA prior to Antamina EIA – Emphasis on consensus building	Some flexibility in project design (Road/Pipeline)
Weak-nesses	Unclear government policies on mining in protected areas	Project Schedule-Fast track; Lack of time to dedicate to issues; Lack of ability to plan with precision on timing of road construction
	Coordination among relevant government sectors weak (MEM – MA)	Lack of experience in dealing with complex issues involving outside stakeholders; under estimation of effort required to fully address park issues
	Steep learning curve to climb (lack of previous experience in EIA process and formal tools of conflict resolution)	Complex ownership and ownership change prevented company from evaluating all options early in the process
	Lack of resources (time & money)	Lack of resources (time & money)
	No stakeholder participation in Park management affairs through formal board of advisors or equivalent required by law	Failure to fully engage all interested stakeholders in decision making process from the beginning
	Decision making capacity of Park staff historically limited	Lack of formal communication mechanism for stakeholder engagement
Opportunities	CMA commitment to public participation stronger than expectation: constructive environ	Build relationships with Park, NGO's, UNESCO, IUCN and other stakeholders
	Develop new best practice for mining operations in vicinity of protected area	Strengthens confidence in project from stakeholders & lending institutions
	Use EIA to promote Park strategic approach to managing development pressures	Park issues act as catalyst for subsequent communications on long term issues involving project & stakeholders
	Gain experience to develop formal civil society advisory board as mandated by law.	Good News Story
Threats	Massive truck flow affecting integrity of Park as WHS	Negative impression of Project due to controversy
	Danger of Park included in UNESCO Endangered Parks List, affecting support flowing to the Park	Potential involvement of anti mining NGO's in consultation process
	Antamina road construction could trigger other previous local road projects	Delay in project schedule
	Road through Park and higher level of animal and human accidents or illegal hunting events	Concern from shareholders & lending institutions on project viability
		Additional costs associated with consultation process

Table No. 2 Lessons learned in mining, conservation and sustainable development in protected area regions

In common	Huascarán National Park	Antamina Project
Scope definition phase of the consultation process is critical. Investment of time at this stage is critical.	Produce policies and capture the lessons concerning development – protected area and conservation concerns	Better understand, as part of project due diligence, ecosystem, socio-political environment, regulatory framework of protected areas.
Active, horizontal participation in the consultation process is necessary. Consultation should yield independently verifiable results.	Investing time and resources in information, communication, and technical training on related skills is a critical part of achieving Park conservation objectives. Allocate resources	On critical issues dealing with protected areas, begin consultation process before description of final project is finalized
Adequate time and resources should be allocated to communication.	Better understand the specific processes associated with mining investments, including cost saving needs of even large projects.	Ensure that some of flexibility exists in project design.
Communication processes are complex. Use an “incrementalist” step-by-step, results based approach to institutional development of consultation framework.	There is potential to create synergy between conservation and mining development and contribute to tip the development curve towards sustainability parameters	Identify all local, regional, national and international stakeholders
Clear institutional policies should be in place to mutually guide mining and conservation negotiations.	Strengthen and make more use of membership in international UNSECO WH Convention and similar networks.	Consider international aspects of project and lending institution concerns
This is an investment in potential development of organizational frameworks for long-term relationships and consultations.		Educate company and stakeholders on issues and importance of consultation process
		Work to build capacity of local governmental stakeholders
		Work cooperatively to establish project description that is acceptable to company stakeholders

Summary and Conclusions

The development of the HWG has been a process that grew out of conflict, but has lead to improved working relationships between the mining interests around HNP and stakeholders. The design of the original Antamina Project description was changed to reflect the views of the stakeholders, but the project was developed within the original project schedule, with the support of all stakeholders. The real value of this experience has been the creation of these relationships, between conservation based interests and the major mining

companies in the area that not only promotes conservation and sustainable development around the area of the park, but also assists in responsible development of mineral resources in the area.

Antamina's policies and its particular setting have required the project to actively engage the people and communities most affected by the mine development, its operation, and closure. This has been a learning process, and developed over time. Operating within this social context has required Antamina to first be effective in understanding who the affected people are – at the local, regional, national and international levels. This understanding is also a process that requires time. Through the HWG the company has achieved engagement as well as an understanding and appreciation of viewpoints and perspective that has resulted in the protection of HNP as well as the timely development of the project, with support of stakeholders.

The experience of the HWG should be used as a model for other natural resource projects in complex settings involving national and international stakeholders and protected or sensitive areas.