



**IKV PAX
CHRISTI**

Report on the AGA mining project in Cajamarca

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Introduction

IKV Pax Christi is a Dutch peace movement that works for human rights, international humanitarian law and human security. In Nigeria, Sudan and Colombia, IKV Pax Christi seeks to encourage companies in the energy industry to contribute to sustainable peace and to respect human rights. **The framework for this project is the ‘Voluntary Principles’.**

A dialogue started in 2000 between the governments of the United States, the United Kingdom, the Netherlands and Norway, some companies in the mining and energy industries, Pax Christi, and other NGOs. The dialogue produced the ‘Voluntary Principles’, which is a voluntary code of conduct to help companies safeguard human rights and freedom in the regions where they work. At the International Congress on Voluntary Principles held in Oslo in March 2009, Colombia was accepted as an ‘involved government’ in the process.

For several years IKV Pax Christi has supported a project to strengthen local democracy and citizens’ monitoring [*veeduría ciudadana*] in the municipality of Cajamarca (Tolima). AngloGold Ashanti Colombia (**AGA**), a mining company, started exploration in the region in 2007. IKV Pax Christi and AngloGold Ashanti entered into dialogue about the implementation of the Voluntary Principles, which the company has signed. Among other things, IKV Pax Christi is supporting the community of Cajamarca in this process, in order to guarantee peaceful coexistence, human rights and good governance in the zone.

Two studies carried out by IKV Pax Christi in 2007 and 2008 led us to conclude that it is crucial in the pre-exploration and exploration phases for local communities to be informed by specialists in an independent and coherent way. Dr Robert Moran, a North American expert, was duly invited to Colombia to provide information to the citizens of Cajamarca about opencast mining issues, the possible impacts of the long-term project, and forms of monitoring. Dr Moran has more than thirty-seven years’ experience in the fields of applied hydrogeology and geochemistry, acquired in various public and private organizations throughout the world.

The report below briefly summarizes the basic findings and comments about the La Colosa gold project that were gathered during the visit of two staff members of IKV Pax Christi, the Colombian NGO Bioparque, and Dr Robert Moran in the period February 10 through 19, 2009.

The visit included four meetings with AGA, meetings with the Ministry of Environmental Affairs¹, the Ministry of Mining and Energy² and CORTOLIMA, and meetings with various consulting and non-governmental organizations (NGOs) in Bogota. The delegation visited the La Colosa exploration site in Cajamarca. In Cajamarca, Espinal and Ibagué, public presentations were given to local citizens, water users and politicians. Dr Moran also reviewed the technical documentation of the project. The findings of the visit were

¹ Ministerio de Ambiente, Vivienda y Desarrollo Territorial.

² Ministerio de Minas y Energía.

augmented with information from the above-mentioned investigations by IKV Pax Christi, and technical literature. During the visit, AGA Colombia was most cooperative, providing the delegation with preliminary data and information, and escorting us on a visit to the exploration site.

The findings and comments in this report are intended to provide the Colombian general public and regulators with basic information about the most important questions and possible impacts relevant to such gold operations. We hope that the content and recommendations will contribute to the dialogue with AGA, the communities, and the competent authorities, and that they allow the Colombian citizens and regulators to make more informed decisions about how to respond to the proposed mining operations.

La Colosa Project, Colombia

The mining company AngloGold Ashanti Colombia (AGA) has tendered for concession contracts on behalf of Sociedad Kedadha S.A. The related exploitation projects involve twenty-one departments and a total of 2,114 requests for the departments of Antioquia and Bolívar alone, which is an area in excess of 2,300,000 hectares. AGA has two mining concession contracts.

La Colosa is a mining reserve near the municipality of Cajamarca, in the department of Tolima, in the central mountain range of Colombia. The objective of the La Colosa project is advanced mining exploration to identify areas of potential interest in terms of auriferous components, where exploitation would be technically, economically and environmentally feasible. The local La Colosa area adds 4,000 hectares. The total regional area of the project is 515.75 hectares, located entirely within the Central Forest Reserve, which was created under Law 2 of 1959. AGA has been directing mining exploration in this zone from early 2007.

In the course of mining exploration activities in Colombia under its concession contracts, AGA identified an area with anomalous values of gold mineral in samples of sand sediments and in rock samples from small streams, which were taken in outcrops in the basins of the La Colosa and La Arenosa gorges. These gorges flow into the La Guala gorge, which is part of the Bermellón river basin, one of the main tributaries of the great basin of the Coello River. The project is located in the paths of La Luisa, La Paloma and El Diamante in the municipality of Cajamarca, department of Tolima.

In 2007, AGA approached CORTOLIMA, the regional environmental authority, to request permission to exploit forest areas. CORTOLIMA then consulted the Ministry of the Environment, Housing and Territorial Developing (MAVDT), which responded that since these areas are within the forest reserve, the company would need special permission for extraction there. CORTOLIMA consequently suspended exploration activities under Resolution 205 of February 21, 2008. AGA has now started proceedings to obtain permission for extraction from the MAVDT.

The ministry has yet to respond.

Because La Colosa is only in the exploration phase, AGA is still evaluating the economic feasibility of actually operating a mine and mineral processing facilities at this site. It is possible that AGA will not choose not to develop an actual operation at this site. Therefore, few details are publicly available concerning any proposed operations. The comments that follow are based on discussions with AGA staff, review of the additional information they have provided, and on hydrogeological and geochemical experience at many mine sites around the world.

Preliminary information suggests that the following details are relevant to the La Colosa Project, if constructed:

- AGA has publicly announced reserves of about 13.0 million ounces of gold,³ with higher quantities reported by various Colombian government officials;
- an estimated active mine life of between 15 and 25 years;
- an estimated *ore* production rate of 20 to 35 million tons per year;⁴
- the project will probably be developed using open pit methods;
- the present (February 2009) gold price: \$970--\$995 per ounce;
- various AGA staff have made public pronouncements concerning the scale of the proposed AGA investments in this project. Former Country Manager for AGA Colombia, Chris Lodder, stated that construction costs for the La Colosa project were expected to be between US \$1.2 and US \$2 billion;
- based on AGA information shown to me in Bogota, the gold ore contains only minor amounts of silver. Similar gold ores often contain other commercially valuable products such as platinum and palladium, but such details were not mentioned.

³ AGA Quarterly Report, March 2008.

⁴ Mr. C. Brechtel, Project Manager of AGA Colombia.

Possible environmental impacts

Water

Given that the main water-related impacts at most gold mines involve increased competition for water, and contamination of water by mine-related activities, it is crucial that data be collected on the quantity and quality of site waters prior to beginning any exploration activities. These data are referred to as **baseline data**, and are used as a pre-activity standard against which to measure any future changes in the quantity or quality of the site and regional waters. Such baseline data also need to be collected for stream sediment quality and biology, air quality, human health, socioeconomics, etc.

My preliminary review of the La Colosa data indicates that AGA has done a reasonable job collecting surface water quality data for baseline purposes during 2007, given the existing requirements from the regulators. Luis Mario Acosta, National Environmental Coordinator for AGA Colombia stated that, water quality samples were collected and analyzed during five periods: February, May, July-August and October 2007, and February 2008. However, AGA should have combined the water quality data from all of these sampling periods and should have compared it statistically [showing number of samples or measurements, ranges, means for each constituent.]

AGA prepared a monitoring report for the regulators dated December 2007. This report contained only the October 2007 data and it is unclear why all data from the first four (earlier) sampling episodes were not compiled into one table in this December report. Comparison of all the data, including the data from 2008, in one table is the most meaningful way to define baseline and observe possible changes in the water quality.

Ideally, the AGA water quality monitoring would be expanded to include additional constituents such as ammonia, sulfate, and additional metals commonly found at such sites. The present AGA field work also made measurements of stream flow, but these were made on different dates than those on which water quality samples were collected. Ideally both flow measurements and water quality samples would be obtained from the same site on the same date.

This water baseline monitoring should also sample and make field measurements from site ground waters: springs and constructed monitoring wells. No baseline ground water data (either quantity or quality) were collected during the exploration phase. Also, no detailed data evaluating the *quantity / volumes* of site surface (stream flows) or ground waters (well yields, aquifer tests) was found in the La Colosa information.

Water Use

Mr. Carl Brechtel, Manager of the La Colosa Project Study stated that AGA anticipates that approximately 1.0 cubic meter of water per second will be required to process each ton of ore. Thus, processing one ton of ore would require 31.5 million cubic meters of process water per year. Given the assumed processing of between 20 to 35 million tons of ore per year, this would require about 631 million to 946 million cubic meters of process water per year. If the operational mine life is assumed to be between 15 to 25 years, total water use during the life-of-mine would equal about 9.5 billion to 23.6 billion cubic meters.

AGA would attempt to recycle and reuse as much water as possible, but they estimate that about 0.4 cubic meters per second will be lost via evaporation, leakages, etc. **Nevertheless, the quantities of water needed would be tremendous, and could easily generate increased competition and disputes** with other downstream water users, such as the rice growers.

Geochemistry

AGA has collected core (rock) samples from the exploration boreholes and had them tested for chemical content of the rock---gold, silver, and other trace metals. In addition, AGA has sent some borehole samples to a metallurgical lab for preliminary testing to evaluate the sulfide content (such as iron sulfide, which is pyrite) and determine the tendency to develop acid rock drainage from the exposed rock and wastes. Based on data from SGS Lakefield Research Labs in South Africa, these four La Colosa rocks had sulfide concentrations between 2 and 3 percent and Net NP (neutralizing potential) which were all negative (ranging from -42 to -48). These are preliminary data and it is unclear whether these samples were actually representative of ore or waste rock.

Nevertheless, such sulfide and NP data indicate that **a potential problem with acid rock drainage and release of elevated concentrations of metals** and other chemical constituents must be anticipated.

Wastes

The La Colosa processing details are unknown at this time. However, based on discussions with AGA staff and experience from other similar gold sites, one can expect that the La Colosa ores will generate 1 to 2 grams of gold per ton of ore processed. Also, it can be expected that all other rock removed from the pit will be waste, either waste rock or tailings. Despite the relatively short mine life, these wastes will remain on the site forever.

Waste rock is rock containing low concentrations of metals; too low to be economically mined at present prices. They must be removed from the pit using explosives to expose the ore. Waste rock is removed from the pit and stacked huge, piles (no liners below), sometimes several hundred meters high. Rain falls on the piles causing chemical reactions that create acid waters which dissolve metals in the waste rock and release them into the surrounding environment.

Spent Heap Leach Wastes: The *ore* (the economically-valuable rock) may be stacked in piles on top of a synthetic liner and fluid collection system. The ore is sprayed with a dilute solution of sodium cyanide, water and lime. Other types of gold ores are processed in mills. The gold is extracted from the solutions and a solid / liquid waste, called tailings, is generated, which is sent to a storage area called a tailings impoundment. Freshly released tailings are usually extremely toxic. With the passage of time and exposure to sunlight and air, the toxicity of the tailings generally lessens, but long-term these wastes remain toxic to most aquatic organisms.

The portions of the La Colosa site we visited have very steep cliffs containing a narrow valley. Such terrain means that AGA will have difficult decisions to make regarding the selection of stable locations for the various facilities: waste rock piles, any processing facilities, possible tailings. The site topography and relatively recent volcanic activity nearby all indicate that the area has some degree of seismic risk. No specific seismic data were seen, but obviously the any operational facilities would need to be designed to withstand the appropriate seismic activity.

Environmental oversight

Several national and regional government agencies (Ministry of Environment, Housing & Territorial Development, Ministry of Mines, the Ministry of Mining and Energy, and the regional Cortolima) have designated oversight roles regarding La Colosa which are technically complementary. But practical environmental oversight appears confused and largely neglected. Mr. Moran considered the baseline study of water resources conducted by Cortolima (in conjunction with, for example, staff from the University of Tolima) as inadequate. Data for these activities were collected during 2003 and before. The water quality data are totally inadequate to define baseline conditions for the La Colosa project. The Ministry of Environment did not seem to be aware of this situation, and did not insist on the conduction of good baseline water quality and quantity studies when the exploration begun.

Like most mining companies, AGA will probably set up individual corporations for each operating site, in addition to their other national and international corporations. These corporate structures limit the financial responsibility of these various entities. As such, Colombian regulators must have viable financial assurance policies in place that ensure the mining companies will be responsible for unforeseen impacts and costs. Otherwise, individual corporations can go bankrupt leaving the liability (impacts and or costs) with the public. According to the Ministry of Mining, at present Colombia does not require financial assurance (bonds, insurance) that will pay liabilities which become evident following mine closure.

Basic information regarding the environment

It is of great importance that the public in Cajamarca and the surrounding municipalities, are adequately informed in an early stage (pre-construction phase) about the possible environmental impact of the La Colosa project. The following are some of the basic technical questions that could be useful to the public in this process.

- Where are the Baseline Data for water quantity and quality, soils, air quality, stream flows, sediment chemistry, aquatic biology, human health, etc.?
- Who has conducted the studies? Are the investigators financially independent?
- Have independent studies been carried out as to verify and compare the base line studies of the company?
- Were data collected prior to construction?
- Are the data statistically meaningful and valid?
- Does the base line study include toxicity testing on water organisms (invertebrates, fish) to demonstrate that little or no toxicity exists in these environments?

- How much water is available?
 - Do adequate groundwater wells exist?
 - Have detailed water quality samples been collected?
 - Have *local* rainfall data been collected at the site?
 - What methods were used to collect the samples?
 - Who collected the samples?
 - What is the detailed chemical composition of the various effluents?
 - What are the detailed chemical contents of: the ores, waste rock, and tailings?
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- Have the company's documents been made public?
 - Have the possible impacts been explained reasonably?
 - Are the documents and data summarized using maps, graphs and table---instead of hundreds of pages of words?
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- Has a feasibility study been conducted?
Has it been published?
 - Are the comments based on real data or computer simulations and predictions?
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- How much does the company pay for the water, as compared to other industrial users, ranchers and farmers?
 - Are the costs for the water used included in the economic forecasts of the company and of any authorities involved?
 - Will there be long-term impacts, possibly visible only after mine closure?
 - What will be the cumulative impacts of constructing several mines?
 - Do viable forms of financial assurance exist?

Possible social and governmental impacts

Natural resource development has a relatively poor track record for initiating sustainable development. Renowned economists Sachs and Warner, as well as the World Bank's International Finance Corporation, have shown that natural resource development has, at best, as much chance to deliver measurable economic development as it has to fail.

Thomas Powers stated in his report on Mining in Central America that: "...Many national-level arguments for mining, such as the opportunity to monetize natural resources, ignore costs that are borne almost exclusively on the local level, such as environmental degradation and the physical and economic displacement of neighboring communities..."⁵ Nations and local communities must therefore analyze benefits and costs on both the

⁵ Powers, Thomas, 2009, Metals mining and sustainable development in Central America: An assessment of benefits and costs: Prepared for Oxfam America, pg. 33.
<http://admin.oxfamamerica.org/workspaces/spanish/noticias/publicaciones/OXFAM%20INFORME%20COSTO%20BENEFICIO.pdf>

national and local levels, and from a short-term and long-term perspective. The following summarizes some of the possible costs and benefits at a local level.

Employment is often mentioned as a possible positive social impact of the mining activities in La Colosa. Unemployment in Cajamarca, with a population of 19,000, is running at 20%. Most income is from agriculture, and this industry has been in difficulties for some years. The mining activities, however, will provide jobs for a selected group of members of the local communities. Most local citizens who are likely to obtain a job, are basic laborers who are employed only during the construction phases. Most of the more technical positions (engineering, skilled, scientific positions) will be given to workers from other locations, often other departments or countries. Much smaller numbers of workers in all categories will be employed during most of the operational phases.

In 2008, the then Executive Board of AGA stated that between two-thousand and three-thousand employees would be needed for constructing the mine, which would probably take two years. In order to avoid housing problems in Cajamarca, these employees are to be stationed in Ibagué and transported from there to La Colosa. It has been estimated that approximately one-thousand people will be employed in the mine's operational phase, with 80% of them locally contracted. This would be a conspicuously high proportion compared with normal mining industry practice, particularly since only specialist workers will be needed in the operational phase. Depending on the mine's lifespan, the approximately 800 local employees concerned will have to find new work nearby within a few years. The local authorities fear that farmers who once worked for AGA would be unable, and possibly unwilling, to resume their previous occupation later.

Another possible positive impact that the presence of AGA in Cajamarca could bring about, concerns the social investments that the company is likely to realize in the future. Local communities often benefit from the social investments such as local infrastructure, medical services, education and electricity. In the long run, however, these investments very often turn out to be unsustainable, since the funds necessary to maintain the investments, run dry as soon as the mine is closed.

The taxes and royalties of mining activities could potentially generate high revenues for the local, regional and national governments. The Ministry of Mining provided the following information. The royalties for this operation will be 4% of mine production plus 6% of alluvial gold production, in accordance with the concession contracts.⁶ For the purpose of calculating royalties for mining production, the value of gold will be taken to be 80% of the international average price in the month before production, as quoted on the London Metal Exchange.⁷ AGA must declare the approximate quantity of extracted minerals. 10% of the royalties will go to the department of Tolima, 3% to the National Royalties Fund [*Fondo Nacional de Regalías*] and **87% to the municipality**.⁸ AGA conservatively estimates the total gold reserves in La Colosa at about 13 million ounces.⁹ The current gold price of

⁶ Ley 756 de 2002, artículo 16.

⁷ Ley 756 de 2002, artículo 16, párrafo 9.

⁸ Ley 756 de 2002, artículo 28.

⁹ AGA Quarterly Report, March 2008.

approximately \$970 - \$995 per ounce would suggest that AGA will pay very substantial royalties in the course of the mine's active life. The inflow of royalties will represent a tremendous increase of income for the municipality of Cajamarca, which is now barely able to manage on its current annual budget of approximately two million euros.

The prospect for the municipality of massive income creates both many opportunities and lofty expectations. Nevertheless, there are still many doubts about the capability of municipalities like Cajamarca, with little experience in channeling considerable funds, and a relatively weak democratic tradition, to handle such a huge amount of money. Unfortunately, experience in other Colombian regions with existing mining projects give little ground for optimism.

NGO Bioparque gives two examples of royalty mismanagement. The municipality of Barrancas, Guajira, has been receiving royalties since the late 1980s from the Cerrejón coal mine. Nonetheless, the mayor of Barrancas requested financial support from the central government in 2003 because the municipality still lacked an adequate drinking water supply. Paradoxically, the request came at a time when the huge royalties gave Barrancas one of the highest per capita incomes in the country. Somehow no trace of this windfall was evident in an improvement of the population's quality of life. At the time, the Colombian press condemned the widespread corruption throughout the municipality. Another example of mismanagement is provided by the department of Casanare and its municipalities. At one of the community meetings [*consejos comunitarios*] held early in the Uribe administration in 2003, citizens asked for improvements in education, health, and drinking water. Astonishingly, this region, which has a much lower population density than other departments, had been receiving royalties from BP for more than 20 years, and is considered to be one of the most important oil-producing regions, with one of the highest per capita incomes, in the country.

The big question is how future corruption and misgovernment can be avoided in Cajamarca. Transparent and legitimate citizens' monitoring would obviously have to play an important role in this process. Careful financial planning is also called for in order to deal with the predictable fall in the municipality's income when the mine finally closes.

The local population and the authorities often mention the exacerbation of already existing problems among the social costs of the mining project. The problems include child and regular prostitution, the drugs trade, robberies and the proliferation of small weapons, and AIDS. Cajamarca is now the municipality with the second highest proportion of HIV-positive people in the country.

Possible impacts on security and human rights

Cajamarca currently has no acute security problems. For the past few years, under President Uribe's Democratic Security policy, the Colombian army has regained control of many areas of Cajamarca from the guerrillas. The most conspicuous aspect is the army and police presence along the Pan-American Highway and near the tunnel. With AGA's arrival, troop numbers, including the High Mountain Battalion [*Batallón de Alta Montaña*] and police squads, have been increased in and around Cajamarca.

However, the FARC are still present in Cajamarca. Emergent bands comprising current and former paramilitaries are still active in the neighboring municipalities. The powerful economic interests associated with La Colosa make an increase in criminal activities of various illegal groups likely in the near future. The security situation can deteriorate drastically, especially during election periods. Three mayors were assassinated in the south of Tolima during the last elections.

The security risks are concerned mainly with AGA company security. The kinds of risks involved are violent attacks, kidnappings of employees, blackmail, robberies and shootings, as well as the drugs trade and other criminal activities. The security of the civilian community tends to be viewed only in terms of the influence it might have on employee security. Nevertheless, the origin of security risks may lie in a lack of interaction between people in the region and AGA's operations. A crucial condition for building reciprocal confidence between the community and the mining company is a recognition of the legitimacy of the social processes that matter in the region. This implies respect for the autonomy of the communities and their own processes. Furthermore, the present climate of polarization in the municipality, and the tradition of intolerance to conflicting opinions, could be a source of security risks in the future.

AngloGold Ashanti joined the group of supporters of the Voluntary Principles on Security and Human Rights in 2007. However, the policy would appear to have permeated the company's activities in Colombia little, if at all. The Voluntary Principles are certainly familiar, albeit somewhat vaguely at times, to some of the company's managers, but AGA has yet to integrate them fully into its operations. Frequent changes of personnel, rotation of personnel from other countries, and the engagement of external advisors, do little to promote this process. There is no strategy in place about how, when and where to apply the Voluntary Principles. Moreover there is no coordinator within the company who is able to regulate the implementation of these principles. AGA has yet to join the International Mining Committee, within which implementation of the Voluntary Principles is discussed regularly by many companies, diplomats and representatives of several governments.

Recommendations

The necessity of independent baseline studies and monitoring:

- It is crucial that the public become informed about the potential costs and benefits so that they can be constructively involved in the dialogue and political process. Only then can they determine what level of impacts is acceptable to them.
- The baseline study carried out by AGA is limited to (some) flow measurements and water quality samples. Furthermore, the study lacks confidence by the local and regional citizens in the ability of AGA to provide “disinterested” data and opinions, and the practical environmental oversight by the environmental authorities seems to be confusing and inadequate.

To regain confidence in the public review process, it is advisable **to carry out independent baseline studies on all environmental aspects (water, air, rock), human rights and security, and the governmental situation.** This should be based on scientifically established parameters and independently collected information and data, all of which must be statistically reliable. Studies of this kind need to be updated regularly, in order to monitor the impacts.

The baseline studies could be carried out by a team of financially and technically-independent scientists and engineers, or by the competent Colombian authorities with international technical and financial backing and support.

- The information should be made available to the public in a clear and comprehensible way.
- A team of financially and technically-independent scientists and engineers should be selected to advise the public and regulators on issues relating to the La Colosa project such the training of the independent sampling teams, and impact assessments.

To AngloGold Ashanti:

- Local communities as a whole must play a pivotal role in the decision-making of the mining project. This should start with the right to free, prior, and informed consent of the local population, based on independent information from a diversity of sources. Meetings organized by the company, during which only employees of the company or local organizations initiated by the company facilitate information, do not meet with the abovementioned definition of independent information.
- To support the consent process within the local communities, the Colombian government and AGA should create space in the public discourse where stakeholders’ interests can be respected and reconciled. This should be done with respect for the autonomy of the local communities. Any organizations that are set up and financed by the company to discuss mining-related and social issues, cannot be considered independent.

- AGA should start to participate actively in the International Mining Committee, within which implementation of the Voluntary Principles is discussed regularly by representatives of many companies, diplomats, and representatives of several governments.

To the Colombian authorities:

- The short-term, catastrophic events often pose less risk to the surrounding communities than do gradual, long-term events such as the release of contaminated liquids from tailings impoundments and waste rock piles into ground and surface waters. The public and regulators should be considering a time frame that includes the life of the mine and many years after closure.
- Colombian regulators must have viable financial assurance policies in place that ensure the mining companies will be responsible for unforeseen impacts and costs. The insurance should also cover the environmental impacts during the period after the closing of the mine.
- The details concerning financial assurance measures for the La Colosa project should be made available to the public prior to approval of any exploitation licenses. Similarly, details regarding the amounts and recipients of all taxes and royalties for this project should be made public prior to approval of any exploitation licenses.

To the community:

- The civil society of Cajamarca and other municipalities would have to organize the population so that they can become involved in an active and constructive way in the process of dialogue and political decisions. International support could be requested (such as technical assistance, consultancy and funding) to strengthen this process and guarantee the objectivity of the information that feeds the debate.
- It is recommended that a group of interested citizens from the Cajamarca and other municipalities in the region conduct a visit to the Yanacocha Gold Mine, Cajamarca, Peru where they would observe the facilities and discuss past practices together with existing and future impacts with both the operating company, Newmont, and various local citizen's organizations.