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Mining conflicts around the world

Common grounds from an
Environmental Justice perspective

Begüm Özkaynak and Beatriz Rodríguez-Labajos (coord.)

with contributions by

Gloria Chicaiza, Marta Conde, Bertchen Kohrs, Dragomira Raeva,
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Abstract

This report aims at exploring contemporary mining conflicts in the context of the sustainable development and environmental justice movement. This is done based on 24 real case studies from 18 different countries which are described by local activists and scholars. While 17 of the reported cases focus on conflicts related to metal mining (e.g. gold, silver, copper, zinc, and lead), four address uranium mining and one refers to coal mining. As an example of a new frontier in the industry, a sand mining conflict from India is also reported.

All of these cases are directly chosen and reported, either in factsheet or in-depth study format, by EJOs, as part of a knowledge sharing activity well-established in EJOLT between EJOs and the academic community. Although the cases covered here are all quite unique and diverse in terms of type of conflict and geographical setting, they all share a common frame of analysis. First, the project and type of conflict are characterized in a nutshell, with some basic factual background that describe the companies involved, and the communities and locations affected. The roots of the conflicts are explored next, as well as relevant socioeconomic, cultural, health, and ecological impacts and related community claims. Where relevant, means of resistance are also specified with their influence on the project and/or the outcome of the conflict.

The report then offers a synthesis of the described mining cases, review their commonalities, link gained insights with research needs and discuss some policy recommendations that might follow from this analysis. Despite its limitations, compiling such a diverse set of mining conflicts that builds on EJO knowledge promotes mutual learning and collaboration among stakeholders, EJOs and academia, which is one of the key objectives of EJOLT.

Keywords

Activism

Case-studies

Commodity frontiers

Development

Environmental justice

Externalities

Liabilities

Mining conflicts

Participation

Recognition

Resource extraction

Sustainability



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Acronyms

AGA:	AngloGold Ashanti	FIOCRUZ:	Fundação Oswaldo Cruz
ARD:	Acid Rock Drainage	IACHR:	Inter-American Court of Human Rights
AREDS:	Association for Rural Education and Development	ICSID:	International Centre for Settlement of Investment Disputes
AVA:	Autonomous People's Assembly	ILO:	International Labor Organization
BMM:	Balkan Mineral & Mining	INB:	Indústrias Nucleares do Brasil
BRIC:	Brazil, Russia, India, China	IPS:	Indian Police Service
CAFTA:	Central American Free Trade Agreement	ISM:	Illegal Sand Mining
CANUC:	The Campaign against the Namibian Uranium Contract	LaRRI:	Labour Resource & Research Institute
CC	Cordillera del Cóndor	MAE:	Ministry of Environment
CCS:	Carbon Capture and Storage	MEP:	Member of European Parliament
CEE:	Central and Eastern European	MET:	Ministry of Environment & Tourism
CENSAT:	Centro Nacional Salud Ambiente y Trabajo	MINAET:	Ministerio del Ambiente, Energía y Telecomunicaciones
CEPAL:	The Economic Commission for Latin America and the Caribbean	MoEE:	Bulgarian Ministry of the Economy and Energy
CGE:	Contraloría General del Estado	MoEF:	Ministry of Forests and the Environment
CNEN:	Comissão Nacional de Energia Nuclear	MP:	Member of Parliament
CoM:	Council of Ministers	MRNNR:	Ministry of Non-Renewable Resources
COMINAK:	Compagnie Minière d'Akouta	NATO:	North Atlantic Treaty Organization
CONAIE:	Confederacion de Nacionalidades Indígenas del Ecuador	NGO:	Non-governmental organization
COREMA:	Comisión Regional del Medio Ambiente	OCMAL:	Observatorio de Conflictos Mineros de América Latina
CRCC:	China Railway Construction Corporation	OECD:	Organisation for Economic Co-operation and Development
CRIIRAD:	Commission for Independent Research and Information about Radiation	PARTIZANS:	People against Rio Tinto Zinc and Subsidiaries
DPM:	Dundee Precious Metals	RBPC:	Biosphere Reserve Podocarpus – El Cóndor
EBRD:	European Bank for Reconstruction and Development	RTZ:	Rio Tinto Zinc
EC:	European Commission	SEA:	Strategic Environmental Assessment
ECSA:	Ecuacorriente S.A.	SEEC:	Supreme Expert Environmental Council
EIA:	Environmental Impact Assessment	Se-F:	Slovenski E-Forum
EIB:	European Investment Bank	SOMAIR:	Société des Mines de l'Aïr
EJO:	Environmental Justice Organization	TES:	Termoelektrarna Sostanj
EP:	European Parliament	UNESCO:	United Nations Educational, Scientific and Cultural Organization
EPA:	Environmental Protection Act	US:	United States
EPL:	Exclusive Prospective Licenses	WB:	World Bank
ESIA:	Environmental & Social Impact Assessment	WHO:	World Health Organisation
EU:	European Union		



Foreword

Conflicts over resource extraction or waste disposal increase in number as the world economy uses more materials and energy. Civil society organizations (CSOs) active in Environmental Justice issues focus on the link between the need for environmental security and the defence of basic human rights.

The EJOLT project (*Environmental Justice Organizations, Liabilities and Trade*, www.ejolt.org) is an FP7 Science in Society project that runs from 2011 to 2015. EJOLT brings together a consortium of 23 academic and civil society organizations across a range of fields to promote collaboration and mutual learning among stakeholders who research or use Sustainability Sciences, particularly on aspects of Ecological Distribution. One main goal is to empower environmental justice organizations (EJOs), and the communities that receive an unfair share of environmental burdens to defend or reclaim their rights. This will be done through a process of two-way knowledge transfer, encouraging participatory action research and the transfer of methodologies enabling EJOs, communities and citizen movements to monitor and describe the state of their environment, document its degradation, learn from other experiences and from academic research how to prevent environmental liabilities or ecological debts. Thus EJOLT will increase EJOs' capacity in using scientific concepts and methods for the quantification of environmental and health impacts, increasing their knowledge of environmental risks and of legal mechanisms of redress. On the other hand, EJOLT will greatly enrich the Sustainability Sciences research by mobilising the accumulated "activist knowledge" of the EJOs and making it available to the research community. Finally, EJOLT will help transfer the findings of this mutual learning process into the policy arena, supporting the further development of evidence-based decision making and broadening its library of real cases. We focus on the use of concepts such as ecological debt, environmental liabilities and ecologically unequal exchange, in science and in environmental activism and policy-making.

The overall aim of EJOLT is to improve policy responses to and support collaborative research on environmental conflicts through capacity building of environmental justice groups in areas of their interest. A key aspect is to show the links between increased metabolism of the economy (in terms of energy and materials), and resource extraction on the one hand and waste disposal conflicts on the other to answer the driving questions:

- Which are the causes of increasing ecological distribution conflicts at different scales?, and
- How to turn such conflicts into forces of environmental sustainability?



This report is the second product of EJOLT's WP6 (Mining and Shipbreaking) that aims at providing analysis of the links between the increased metabolism of the economy (leading to environmental damage) and mining conflicts. 24 real-world cases from 18 different countries are deployed to unveil the nature of the debates and conflicts in the mining industry as well as the claims and mobilisation strategies including legal redress and public consultation. All of the mining cases are presented either in a factsheet or in an in-depth study by EJOs, as part of knowledge sharing established between the EJOLT partners. The compilation of these landmark cases underline the significance of mining conflicts in the transition to sustainability and the role that environmental justice movement might play in strengthening environmental liability in legislative and governance context. Such an analysis also contribute to elaborate online training materials based on activist knowledge about debates on health risks (e.g. due to cyanide use in gold mining) and mining conflicts.

1

Introduction – Towards a collaborative understanding of mining conflicts

Between 1970 and 2004, the global extraction of major metals grew by over 75 percent, industrial minerals by 53 percent, and construction materials by 106 percent

The mining sector enjoys a prominent role in global economy today. The growth in consumption and production has escalated the need for energy and raw materials, with resource use reaching exceptionally high levels worldwide. Between 1970 and 2004, the global extraction of major metals grew by over 75 percent, industrial minerals by 53 percent, and construction materials by 106 percent, while world population increased by about 72 percent. Total consumption and extraction increased for practically all mineral resources, driven up by the raising per capita consumption of high demand countries like China, the European Union (EU) or United States (Rogich and Matos, 2008). As such, contrary to beliefs that the economy will decouple from natural resources and environmental impacts, the mining extraction frontier continues to expand. Increasing exchange of energy and materials with the environment — the so-called increasing global social metabolism (Fischer-Kowalski, 1997; Fischer-Kowalski and Haberl, 2007) — triggers new conflicts around extractive industries throughout the world (Martinez-Alier, 2012).

In the literature, analyses of mining activities from spatial and economic distribution perspectives indicate three key trends. First, as Bridge (2004) notes, there is a universal displacement of investments from the global North towards the global South. Industries are relocating in developing parts of the world where reserves are relatively unexploited, governmental intervention minimal and environmental and labor regulations weak (Hilson, 2002; Smith et al., 2012). In this context, Bebbington et al. (2008) point to the dramatic increase in mining activities in many developing countries during and after the 1990s, following the adoption of neoliberal economic reforms in these states. The Latin American



Observatory of Mining Conflicts, for instance, reports more than 150 active mining conflicts in the region, most of which began in the 2000s (OCMAL, 2010).

Second, studies that take a closer look at the mining industry question the assumed link between development and mining expansion, and in many cases, associate mines not only with a spectacularly unequal distribution of wealth, but also with unsustainable patterns of growth (Bebbington et al., 2008). This argument is closely related to the “resource curse” argument, which suggests that economic development models that depend heavily on natural resources generate a series of economic and political distortions that ultimately undermine any positive contributions extractive activities may have on development (Pegg, 2006; Sachs and Warner, 1995).

Third, it is widely acknowledged that mining activities generate various negative environmental and social impacts for different stakeholders, including deforestation, biodiversity loss, high water consumption, groundwater contamination, population migration (Pegg, 2006; Urkidi, 2010). These all create discontent and conflict within communities as the basic rights of some groups are compromised, causing irreversible changes to ecosystems and resulting in a loss of livelihood, culture, and even lives (Martinez-Alier, 2001). When there are such complaints, depending on the context, liabilities are claimed through court cases or direct action, either in terms of monetary compensation or other valuation languages.

Given the growing appetite of the world economy and population for penetrating or incorporating new regions or commodities into the market system (Martinez-Alier et al., 2010), increasing pressure and expansion at “commodity frontiers” (Moore, 2000) may be added to the above as a potential new trend. The development of certain major mining projects in regions of the world previously avoided by the mining industry is an indication of such a future trend. Examples include: Mongolia, Kyrgyzstan, and Mauritania (*Financial Times*, 18 January 2012); the race for controlling new strategic minerals, like coltan or rare earth elements; the start of deep sea mining ventures such as the recently approved Nautilus project in Papua New Guinea (*The Post Courier*, 23 August 2012).

Given the growing appetite of the world economy and population for penetrating or incorporating new regions or commodities into the market system, there is increasing pressure and expansion at “commodity frontiers”

1.1 Purpose of the report

Against this background, this report aims at exploring contemporary mining conflicts in the context of the sustainable development and environmental justice movement. This is done based on 24 real case studies from 18 different countries (Argentina, Bolivia, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, India, Mexico, Namibia, Niger, Peru, Slovenia, and Turkey) which are described by local activists and scholars. While 17 of the reported cases focus on conflicts related to metal mining (e.g. gold, silver, copper, zinc, and lead), four address uranium mining and one refers to coal mining. As an example of a new frontier in the industry, a sand mining conflict from India is also reported. All of these cases are directly chosen and reported, either in a factsheet



24 real case studies from 18 different countries (Argentina, Bolivia, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, India, Mexico, Namibia, Niger, Peru, Slovenia, and Turkey) are described by local activists and scholars to unveil the nature of the debate in the mining industry

or in an in-depth study by EJOs as part of a knowledge sharing activity well-established in the EJOLT community.

Although the cases covered here are all unique and diverse in terms of type of conflict and geographical setting, they all share a common frame of analysis. First, the project and type of conflict are characterized in a nutshell, with some basic factual background that describe the companies involved, and the communities and locations affected. Next, the roots of the conflicts are explored, as well as relevant socioeconomic, cultural, health, and ecological impacts and related community claims. Where relevant, means of resistance are also specified, and their influence on shaping the project and/or the outcome of the conflict explained.

This selection of “case-studies-from-activists” and the report in general aim to address the following research needs:

- (i) Better understanding of the link between the metabolism of economies and mining conflicts, and the role that ecologically unequal exchanges play in this context;
- (ii) Exploring the association between increased global social metabolism and the search for new commodity frontiers;
- (iii) Investigating the potential relationship between impact intensity of mining activities and the intensity of conflicts, and
- (iv) Recognizing the significance of mining conflicts in the transition to sustainability and the role that environmental justice movements might play in strengthening environmental liabilities in legislative and governance processes.

The report is structured as follows: the preliminary remarks are followed by an explanation of the methodological framing and clarifications concerning the selection of case studies. Four in-depth cases are presented in the following chapters, each representing one specific, highlighted aspect of mining conflicts. Chapter six synthesizes the report, by reviewing commonalities among the mining cases reported. The final section concludes the report by outlining some policy recommendations and summarises the insights gained from the activist-based case reporting.

1.2 Methodological framing

In order to explore the heterogeneity of mining conflicts in a comprehensive yet flexible way, this report is based on case-study analysis; 24 cases particularly selected by the contributing EJOs are deployed to unveil the nature of the debate and conflict in the mining industry (**Table 1**). While various countries and types of commodities are covered, the selection was made without an aim for statistical representation but to illustrate critical issues in mining conflicts. All of the described conflicts occur in rural settings at the frontiers of extraction, many in areas that are ecologically quite sensitive and/or have high conservation value.



#	Name	Country	Mined Material	Project Status	Level of Conflict**
1	San Xavier	Mexico	Gold	Under operation	High
2	Marlin	Guatemala	Gold	Under operation	High
3	Cerro Blanco	Transborder (Guatemala, El Salvador, Honduras)	Gold, silver	Under construction	Medium
4	El Dorado	El Salvador	Gold, silver	Suspended	High
5	Crucitas	Costa Rica	Gold	Paralyzed	Currently: Low, In the past: Medium
6	Intag	Ecuador	Copper	Paralyzed	Medium
7	La Angostura	Colombia	Gold	Planned	Medium
8	La Colosa	Colombia	Gold	Exploration stage	Medium
9	El Mirador	Transborder (Ecuador, Peru)	Copper, gold, silver	Exploration stage	Medium
10	Conga	Peru	Gold, copper	Suspended	High
11	Tía María	Peru	Copper	Stopped	Medium
12	San Cristóbal	Bolivia	Zinc, lead, silver	Under operation	Medium
13	Los Pelambres	Chile	Copper, molybdenum	Under operation	Medium
14	Esquel*	Argentina	Gold, silver	Stopped	Medium
15	Pascua Lama	Transborder (Chile, Argentina)	Gold, silver, copper	Under operation	Medium
16	Caetité	Brazil	Uranium	Under operation	Medium
17	TES6	Slovenia	Coal	Under construction	Medium
18	Kremikovci	Bulgaria	Uranium	Closed	Low
19	Adatepe*	Bulgaria	Gold, silver	Planned	Medium
20	Niger Uranium	Niger	Uranium	Under operation	Low
21	Namibia Uranium*	Namibia	Uranium	Under operation	Low
22	Mount Ida	Turkey	Gold, silver	Exploration stage	Currently: Low In the past: Medium
23	Bergama	Turkey	Gold	Under operation	Currently: Low In the past: High
24	India Sand Mining	India	Sand, building materials, minerals (gold, silver, silicates)	Under operation	High

Table 1 List of mining conflicts reported

Note: * Reported in an in-depth format;

** **Low** (some local organizing); **Medium** (street protests, visible mobilization); **High** (deaths, violence, arrests)

Source: Own elaboration



Map 1 Mining conflicts reported

Note: The locations on the map are approximate

Source: Own elaboration

In general, conflicts are named by their geographic location or referred to by the name they are known to the international public. As listed in **Table 1**, 17 of the reported cases focus on conflicts related to metal mining, four address uranium mining, one refers to coal mining, and another to sand mining. In addition to the geographical spread and variety in commodities involved, cases covered are also diverse in terms of project impact (e.g. environmental, socioeconomic and health impacts), project status (e.g. operational vs. not), conflict intensity (e.g. low, medium, high), and conflict outcome (e.g. stopped, delayed or ongoing).

17 of the reported cases focus on conflicts related to metal mining, four address uranium mining, one refers to coal mining and another to sand mining

In order to gain a structured understanding of the issues faced by the actors involved in the conflict, the report used a modular approach to the topics of interest. Each case includes information on relevant historical and geographical aspects; a chronology of important events; a description of the project and its impacts; a characterisation of the conflict, its actors, and transformations fostered; mobilisation strategies and claims; the valuation languages employed and finally, the outcome of the conflict. Each one of these modules has been broken down into guiding questions that have been suggested to the authors of the case-study reports, who have then use them according to the pertinence for each case (**Table 2**).



Location	Project	Impacts	Conflict	Outcome	Insights
Country	Extracted material	Main claim	Conflict in a nutshell	Pressures against activists	Policy recommendations
Community/Region	Project status	Ecological impacts	Level of conflict	Effects in local cohesion	Concepts discovered/introduced by EJOs
Geography/Ecosystem	Reserves	Socioeconomic impacts	EJOs involved	Governmental/Parliamentary action	Local initiatives
Protected areas	Production	Health impacts	Labour claims	Legal procedures	Lessons learned from cooperation between science and activism
	Useful life (years)	Cultural impacts	Economic claims	Liabilities	Controversies on the EIA
	Companies involved	The water issue	Social claims	Concrete outcome/latest development	Collaboration with academia
	Investment (USD M)	Waste materials	Environmental claims	Emergence of alternatives	Detected training needs
	Strategic interest		Means of protest		

Table 2 Main descriptors used for the analysis of the cases

Source: Own elaboration

The report fully embraces the benefits and potential for biases of activist research (Hale, 2001). While there is not a specific search for a scholarly distance with the analysed processes, reliability was underpinned by the multiple kind of data sources and analytical frameworks employed. In organising the input for the case-study reports, EJOs primarily built on their own activist knowledge, but the materials provided are all supported by external sources of information, such as interviews, media reports, technical reports, journal articles, documentaries and films. Methodological tools and theoretical frameworks from the cross-disciplinary fields of ecological economics, industrial ecology, environmental sociology, social ecology, economic geography and political ecology were also mobilised to help explain the socio-ecological dynamics and environmental conflicts linked to these cases. A series of qualitative and quantitative social research techniques were also utilised in some cases to analyse the direct beneficiaries, and identify the groups of people who suffer most from the presence of mining activities and examine their preferences, priorities and values.

After the data collection and organisation, the key research issues were refined through interpretation, as it will be presented in the final chapter of this report. In order to systematically review the information, the procedure was looking across the reports using the common modules and guiding questions as a heuristic tool that allowed identifying similarities and patterns between the cases.

1.3 Two reporting formats

While all cases provide relevant insights on the purpose of this report, four have been selected to offer an in-depth view of the kind of *problematiques* and processes where EJOs are involved. They have been chosen by the participant

In organising the input for the case study reports, EJOs primarily built on their own activist knowledge, but the materials provided are all supported by external sources of information, such as interviews, media reports, technical reports, journal articles, documentaries and films



Four cases offer a detailed narrative description of the case that allows a better understanding of the relations between structural change, dynamics, processes and social conflicts

EJOs themselves to illustrate paradigmatic aspects of their day-to-day challenges. These four cases, namely Adatepe (Bulgaria), Esquel (Argentina), el Mirador (Ecuador-Peru) and Namibia Uranium (Namibia), offer a detailed narrative description of the case that allows a better understanding of the relations between structural change, dynamics, processes and social conflicts. As we shall see, the thread common to all in-depth cases is the deep involvement of respective EJOs and/or scholars in the national conflict. EJOLT partners in Bulgaria (ZaZemiata) and Latin America (Acción Ecológica-OCMAL), for instance, have been involved in big mobilisation actions and legal resistance at both the national and international levels to establish a legal liability regime. In fact, all four conflicts may be seen as emblematic environmental conflicts in their countries within the context of the environmental justice movement, and in some instances, of the global anti-mining movement that surpasses geographical boundaries. They are also successful in highlighting one specific aspect of environmental conflicts and justice movements. El Mirador, for instance, demonstrates the problem with clashing development models well; Adatepe is particularly important from a legal procedural point of view; Esquel represents a success case given the result and effects of the local plebiscite; and Namibia Uranium is a good example of collaboration between activists and experts.

The remaining 20 cases conflicts are reported as factsheets (listed in **Table 3**) in short documents of 2 to 4 pages that present briefly key case studies, and aim to be stand-alone files that can be cited as reference documents. In order to facilitate the reading of the report, these factsheets are provided in the appendix in an alphabetic order.

Obviously, other important mining conflicts exist, and this report is far from providing a conclusive mapping—just from a geographical point of view, for instance, more conflicts from Africa, China and/or India could have been included. In this context, future efforts will strive to bring in new networks and include other mining cases to paint a more complete picture. Despite its limitations, compiling such a diverse set of mining conflicts in a case-study approach that builds on EJOs' knowledge generates many insights and policy recommendations to face future challenges. It also promotes mutual learning and collaboration among stakeholders, EJOs and academia, which is one of the key objectives of EJOLT.

Case	Title	Author	EJOLT Partner
Bergama	Opposition to gold mining at Bergama, Turkey	Murat Arsel	BU
Caetité	Uranium mining in Brazil: The conflict in Caetité, Bahia	Renan Finamore	FIOCRUZ
Cerro Blanco	Gold and silver mining in Cerro Blanco (Guatemala, El Salvador, and Honduras).	María Helena Carbonell	OCMAL
Conga	Yanacocha mining company in Conga – Cajamarca (Peru)	María Helena Carbonell	OCMAL
Crucitas	Gold mining suspended in Crucitas (Costa Rica)	María Helena Carbonell	OCMAL
El Dorado	Pacific Rim: El Dorado mine in El Salvador	María Helena Carbonell	OCMAL
India Sand Mining	Illegal sand mining conflicts in India	Venni V. Krishna; Mirinchonme Mahongnao; Akoijam Amitkumar Singh; Federico Demaria	JNU
Intag	Mining exploitation attempts in Intag (Ecuador)	María Helena Carbonell	OCMAL
Kremikovci	Uranium Fairytales from Kremikovci, Bulgaria	Todor Slavov	ZA ZEMIATA
La Angostura	Angostura mining project in the Paramo of Santurban (Colombia)	María Helena Carbonell	OCMAL
La Colosa	La Colosa mining project in Cajamarca (Colombia)	María Helena Carbonell	OCMAL
Los Pelambres	Copper mining in Los Pelambres, Los Caimanes (Chile)	María Helena Carbonell	OCMAL
Marlin	Popular resistance to the Marlin Mine (Guatemala)	María Helena Carbonell	OCMAL
Mount Ida	Opposition to gold mining at Mount Ida, Turkey	Duygu Avcı	BU
Niger Uranium	The radiological impact of uranium extraction by AREVA in Northern Niger	Bruno Chareyron	CRIIRAD
Pascua Lama	Pascua-Lama, mining and glaciers at the Argentina-Chile	María Helena Carbonell	OCMAL
San Cristóbal	Zinc, lead and silver mega-deposits in San Cristobal (Bolivia)	María Helena Carbonell	OCMAL
San Xavier	San Xavier mine in Cerro de San Pedro (Mexico)	María Helena Carbonell	OCMAL
TES6	TES6—New coal power plant Unit in Sostanj	Tomislav Tkalec; Lidija Živčič	FOCUS
Tia María	Tia Maria in Islay, Arequipa (Peru)	María Helena Carbonell	OCMAL

Table 3 List of factsheets reported by EJOs and experts

Source: Own elaboration

2

Adatepe gold mine, Krumovgrad (Bulgaria) – Are legal procedures effective?

by **Dragomira Raeva**

2.1 Background

Krumovgrad is a small provincial town with a population of about 6,000 located in south-eastern Bulgaria, among the low-lying hills of the eastern Rhodope Mountains. Ethnic Turks and Pomaks (Bulgarian Muslims) form a majority in the community. Small-scale tobacco farming has been a traditional occupation, with a high-end variety used in many of the major cigarette brands. Livestock grazing is also popular, as well as vegetable production, the cultivation of medicinal herbs and beekeeping. There is also a small shoe factory.

Still, the region is far from thriving. The unemployment rate is officially around 13 percent, and tobacco production has sharply declined with the loss of government subsidies. Many families here live very modestly, barely managing to meet their basic needs.

In 2005, Canadian mining company Dundee Precious Metals (DPM), and its Bulgarian subsidiary Balkan Mineral & Mining (BMM) announced the discovery of a large gold deposit near Krumovgrad. The “discovery” surprised no-one, since Thracian tribes had extracted the precious metal in closed mines for centuries here. DPM, however, had more elaborate plans: to construct an open pit gold mine on a prominent hill called Adatepe, just three kilometres from the town and close to more than a dozen other settlements with adjoining agricultural fields and pastures, some no more than a stone’s throw from the area planned for the mine. According to the project plan, the open pit mining operation will comprise a



processing plant, which will employ conventional crushing, grinding and flotation processing for gold extraction, and the disposal of thickened tailings, together with mine rock waste, in an integrated mine waste facility. The expected operation parameters of the facility are as follows (**Table 4**):

Table 4
Operation parameters of the
Adatepe mine
 Source: Dundee Precious Metals

Indicator	Value
Annual ore production (tons)	850,000
Annual gold production (oz)	74,000
Annual silver production (oz)	35,000
Gold recovery (%)	85
Mine life (yr)	9
Capital cost (USD M)	127

The project has been mired in social and environmental controversy from the start, but in 2011 the Bulgarian government provisionally granted the company the go-ahead. Most of the Krumovgrad community came out strongly against the project. Though the region is economically depressed, it relies on traditional industries like agriculture and animal husbandry that provide hope for sustainable development. Residents understand that while the gold mine may offer some temporary employment, it threatens to destroy their most precious resources: water and soil. In the words of one of the locals, “*Our real treasure is not gold, but water*”.

Mrs. Mehmed, who just won her third term as mayor in a landslide, has made detailed plans to create an alternative economy for her town, based on eco-tourism, organic farming and meat processing, all of which she says would generate jobs. The municipality is also counting on structural funds from the European Union (EU) that can support the mayor’s vision for local development. If the mining project is realised, all the effort to build the foundations of a sustainable local economy would be wasted.

The supporters of the mining development claim that the company would help the region’s depressed economy by providing much needed employment; while opponents fear that the limited water resources will be contaminated, affecting agricultural production in the whole region and people’s health. Instead of adding jobs to the local economy, they claim, the company might end up destroying the few that already exist.

The locals are reserved for more than sentimental reasons, however. Residents are concerned about the potential pollution of the limited water resources in the area. According to interviews with several farmers, extensive drilling during the exploration phase has already dried up local wells or muddied the water. The climate, with hot Mediterranean summers and mild winters, is indeed at the root of the quandary facing the region. The Krumovitsa River, which supplies a large portion of the drinking and irrigation water in Krumovgrad, runs dry in the summer months. The mining project, which would produce gold concentrate through crushing, grinding and flotation, calls for the use of large quantities of water that could further strain resources. Moreover, the Krumovitsa River is part of the Maritza River Basin, which flows through Turkey and Greece and empties into the



Aegean Sea, creating potential pollution in other countries.

Another reason for concerns is that the planned waste facility—where as much as 14.6 million tons of waste rock and 7.2 million tons of tailings would be deposited over the expected nine-year life of the mine—would be about 150 steps from the river. Company and government experts at the Ministry of Environment and Water say no heavy metals would be released into the water system. Up to 98 percent of the water from the industrial process would be recycled, though some of the seepage would be discharged directly into the river, after solid particles are clarified.

BMM has repeatedly assured local residents that there would be no serious adverse effects to their health and the regional environment. The central government is also convinced that the mine would bring much-needed wealth to the area and the country as a whole. Yet, most of the people here remain unconvinced and openly hostile toward any large-scale mining. Unlike other areas in the Rhodope Mountains, which were heavily mined and industrialised under communism and today bear the scars of environmental destruction, the landscape here remains pristine. Much of the Krumovgrad region is in Natura 2000, the network of environmentally sensitive areas protected by the EU. Of the 191 bird species in Bulgaria, 46 percent are found here, as well as half of the country's reptile, amphibian and mammal species.



Photo 1
Adatepe in the distance and tobacco fields in the foreground; people from the village of Skalakov at the foot of Adatepe will be displaced

Photo credit:
 Za Zemiata

Currently BMM is proceeding with signing a concession contract with the state, and initiating procedures to obtain an Integrated Pollution Prevention and Control (IPPC) permit, aiming to start work on the ground in 2014. The local population and Zhivot za Krumovgrad leaders are considering resorting to civil disobedience by road blockades and demonstrations if their opinions against the mine remain unheard by the state. EJOs in support of the local community are continuing a legal battle in the Bulgarian Administrative Court over the positive decision on the EIA. Further action on EU level is planned by highlighting the case to the attention of Bulgarian and Greek MEPs in. Bulgarian state institutions (CoM and MoEE) firmly support the gold mine, and consider this the only feasible and prosperous development alternative for the region.



Year	Event
1990s	Explorations start in the area covered by the Krumovgrad License on behalf of the Bulgarian State. An extensive geological mapping, trenching and drilling programme is undertaken in Surnak, together with a minor amount of trenching in the Skalak and Kuklitsa prospects.
2000	BMM, an indirect subsidiary of DPM, is awarded the Krumovgrad License that covers a 130 square kilometre (50 square mile) area in accordance with the Prospecting and Exploration Agreement reached with the Bulgarian Ministry of the Economy and Energy (MoEE). Further exploration commences to better define previously discovered anomalies. In accordance with the Underground Resources Act (1999), time extensions to the Krumovgrad License area require the originally allocated area to be reduced, resulting in the current license area of 100 square kilometres (39 square miles).
2005	DPM announces the discovery of gold deposits and is granted a state certificate for market discovery.
2005	DPM begins a concession application procedure.
2005	DPM initiates the Environmental Impact Assessment (EIA) procedure; gold extraction technology includes cyanide use.
2005-2009	An EJO coalition and local initiatives from affected settlements lead a nation-wide anti-cyanide civil society campaign.
2010	DPM announces that cyanide will not be used in Krumovgrad; a new EIA is ordered.
2011	In February, the Council of Ministers (CoM) of the Republic of Bulgaria approves granting a 30-year concession to BMM to develop the Khan Krum deposit (the Krumovgrad Project). In March, two appeals against the CoM decision are filed jointly by the Krumovgrad Municipality, and two EJOs: Balkani and the Centre for Environmental Education and Information. On 28 October 2011, the Supreme Administrative Court issues a ruling terminating court proceedings on the grounds of inadmissibility of the appeals due to a lack of legal interest in the proceedings, as neither party was a participant in the concession granting procedure.
2011	The Krumovgrad Municipality makes the EIA documentation accessible to the public in early June, and four public hearings are held in the affected settlements near Krumovgrad. A minor technicality arises, but its passage is virtually assured, although Bulgarian Minister of Environment and Water, Nona Karadzova, has yet to endorse it. The EIA was returned for approval a second time, when Za Zemiata invites Dr. Robert Moran to critique the EIA during the public hearings in July as part of the EJOLT project; EJO comments to the EIA are submitted.
2011	In August, a local initiative from Krumovgrad "Zhivot za Krumovgrad" (Life for Krumovgrad) files a complaint petition with the European Commission (EC). A signature campaign against the gold mine starts shortly after.
2011	In September, the Supreme Expert Environmental Council (SEEC) approves the EIA; however, in October the Minister of Environment requests a second review of the EIA documentation by the SEEC, related to a procedural objection filed by the Mayor of Ovchari; in November the EIA is finally endorsed by the same minister.
2011	In October, the EU Commissioner for the Environment, Janez Potočnik, orders that the legality of the gold mining concession granted to BMM—which was concluded without a proper EIA—be verified. Verification followed an inquiry commissioned by MEP Michail Tremopoulos from the Greek Green Party.
2011	In December, Za Zemiata and a private person from Krumovgrad—Margit Vasileva—appeals against the approval of the EIA. These include an appeal for additional expert review of the EIA, posing specific questions on incomplete and unclear parts of the document to be answered by independent experts contracted by the court.
2011	Local initiative "Zhivot za Krumovgrad" (Life for Krumovgrad) start collecting signatures in the municipality against the gold mining project; results are approved and announced in May 2012, and show that 60 percent of the population does not support the development of gold mining in the region. The petition is sent to Bulgarian and EU institutions.
2012	In July, the Chief State Prosecutor orders a thorough inspection of the petition against the development of the gold mine, following a claim by Municipal Councillors from the ruling party regarding false and forced participation; the police in Krumovgrad enforce the order and start checking individual signatures by questioning participants.
2012	After several court hearings, the Supreme Administrative Court rules out in October that the approval of the EIA meets all legal, scientific and technical requirements. Za Zemata files a cassation appeal to the five-member Administrative Court asking for the annulment of the Court's decision. As of November 2 nd 2012 the Court has not pronounce itself on the appeal.

Table 5 Chronology of events in Adatepe

Source: Za Zemiata



Actors involved

The main stakeholders historically involved in the development of the case are described in detail below.

Council of Ministers is the governing body responsible for granting the concession rights to national or foreign investors; comprised by ministers of the governing party GERB (Citizens for the European Development of Bulgaria) dominated by a populist prime minister Boiko Borisov. Borisov has shown close relations with the investor by publicly announcing that he personally arranged the DPM sponsors the national gymnastics team, called also “the golden girls” for the numerous achievements at world championships. The Council of Ministers granted a concession to DPM prior to an approval of the EIA by the Minister of Environment, which was a violation of the law.

The Ministry of Environment and Water is the authority responsible for assessing the quality of the EIA and effectively monitoring the project’s environmental performance. The Minister endorsed the EIA even though all the mayors in Krumovgrad voted against its approval, and ignored its problematic aspects pointed out by EJOs. Moreover, the Minister approved the prior execution of the project, meaning the investor could proceed with the project regardless of ongoing court cases regarding the concession permit or the EIA itself.

Dundee Precious Metals (DPM) is a Canadian-based international mining company engaged in acquiring, exploring, developing, mining and processing of precious metals. It currently operates in Bulgaria (Chelopech and Krumovgrad gold mines), Armenia (Deno gold mine) and Namibia (Tsumeb smelter). Balkan Mineral and Mining (BMM) is a subsidiary of DPM, and manages the Krumovgrad project. Experience from the Chelopech mine shows that the company violated the concession contract and environmental laws on numerous occasions, for which it was fined. It is highly optimistic to believe that the company would manage its new mine at Adatepe well and fulfil its obligations to protect the environment and human health. Moreover, monitoring activities have been assigned to the investor and regulatory agencies in Bulgaria lack the capacity to adequately supervise such a complex project. Thus, the project will largely be subject to self-inspection and self-regulation by the contractor, which is an invitation for further violation of the laws.

National EJOs have closely followed project developments from the start, requesting access to information, analysing the available information, pointing out weaknesses in project design, participating in public discussions of the EIA, maintaining communication with the investor, relevant public institutions and the public, filing appeals to the court and participating in court cases, leading a continuous public awareness campaign on the project’s environmental and health hazards.

The most active EJOs involved are:

Za Zemiata, an independent, non-profit, grassroots organisation established in 1995, aiming to promote sustainable living and combat the exploitation of people



and nature. Za Zemiata assigned a coordinator for the campaign on the environmental ills from extractive industries who follows the development of several new gold mining projects in Bulgaria and acts as a facilitator in forging alliances and organising joint campaigns with national EJOs and local communities.

The Centre for Environmental Information and Education (CEIE) was established in 1994 with the mission to provide more information on environmental topics and problems, raise awareness and offer education and training to citizens, volunteers, EJOs and institutions in Bulgaria, to encourage efficient use of natural resources and sustainable development on the local, regional and national levels. CEIE was the main driving force behind the Bulgaria without Cyanide Campaign; currently one staff member is following the Krumovgrad project, providing support in legal and institutional actions and maintaining contact with local initiatives.

Other NGOs that have been active in the conflict are Balkani Wildlife Society, Ekoforum, GEO Centre for Environmental and Agrarian Projects, Bulgarian Society for the Protection of Birds, and Bulgarian Centre for Green Economics.

Local Initiative Committee Zivot za Krumovgrad is a citizens association founded in 2004 with the sole purpose of protecting the lives and health of the 17,000 citizens living in the Krumovgrad Region. The association has been very active in the resistance against the Adatepe gold mine, employing all lawful opportunities to protest the investment proposal. As in 2005, protest demonstrations were also organised in 2011; two signature campaigns against the gold mine were held and dozens of interviews were given to local, national and international media outlets. The association sought EU assistance by presenting the EC with a petition against BMM's investment intentions. An open letter informed Bulgarian MPs and MEPs in Brussels that the local population disagreed with the concession.

The citizens are determined to continue fighting against the gold mine at all costs and at all possible levels; to firmly stand for their right to participate in local development plans, for a healthy environment and the responsible use of natural resources in the region.

The Krumovgrad Municipality Mayor and the Municipal Council are the institutions responsible for implementing state policies at the local level; the municipality also prepares and executes local development plans. Mayor Sebihan Mehmed has firmly opposed the investment project since its early stages on grounds that mining development will seriously degrade the pristine natural environment in the Krumovgrad region and deprive the municipality of opportunities for environmentally-responsible development. The Mayor was party to the concession court case but has withdrawn from active opposition to the mine since early 2012.

Members of the European Parliament (MEPs) are EU citizens, and form the only directly-elected EU institution that defends human rights and democracy in Europe and abroad. All EU citizens can address the MEPs and ask for assistance and cooperation when their rights as an EU citizen have been violated.

A meeting was held with the Greek Green MEP Michalis Tremopolos, with the help

of environmental organisations, who consequently raised the issue of the concession illegally granted to BMM in the European Parliament. Mr. Tremopolos, along with his Bulgarian colleague MEP Slavi Binev posed questions on the concession to Janez Potočnik, Commissioner for the Environment. Currently Mr. Tremopolos has been replaced by Mr. Nikos Chrisogelos, who is determined to continue working on the Adatepe case.

The European Commission (EC) is the body responsible for enforcing EU policies across member states. Janez Potočnik, Commissioner for the Environment ordered a legal inspection of the concession granted to BMM. He demanded explanations from Bulgarian authorities and stated in response to the Greek MEP that if violations were detected, the EC would not hesitate to institute legal proceedings against Bulgaria at the European Court of Justice.



Photo 2
Campaign poster
against the gold
mine at Adatepe.

Photo credit:
Za Zemiata

2.2 Data for analysis of the conflict and its impact

Geographical data

The proposed mine site is located at Adatepe, approximately 3 kilometres (2 miles) south Krumovgrad in south-eastern Bulgaria. It is approximately 320 kilometres (200 miles) southeast of Sofia, in the south-eastern Rhodope Mountains. BMM was awarded a license that covers a 100 square kilometre (39 square mile) area to realise its investment plans.

Social data

The gold mine of Adatepe incites social problems because the Skalak, Surnak and Zvanarka neighbourhoods will have to be displaced. These are viable villages, comprising 300 households, with traditional livelihood practices such as farming and tobacco production. BMM has requested municipal land for housing



development for the displaced, however it is not clear at what prices the displaced will be compensated since they live in and own old, low-budget houses in poor agricultural land.

The new mine will mostly affect the people in villages closest to the mine, where the majority of the population is ethnic Turks, placing the environmental burden on one ethnic group. In July 2012, the local population faced further intimidation tactics—citizens of the municipality who had supported the petition against gold mining in the region were summoned for questioning by the Krumovgrad police. This oppressive intervention was the result of a call by municipal councillors from the governing party that the petition was invalid, with many of the signatories being manipulated and forced to participate in the petition against their will. In a region where the memories of the Revival Process¹ are still alive, police intervention is especially traumatic. This may be interpreted as a clear indicator of creating fear among the local population on behalf of the state, discouraging any further active participation in legal civil processes expressing public opinion and defending public interest. The situation illustrates how the state clearly defends the interests of a private company, while neglecting its obligation to protect national and local interests and respect people's say in a process of participatory local governance.

Photo 3
Citizen committees
from Greece
supporting
demonstrations
against the gold
mine in Krumovgrad

Photo credit:
 Za Zemiata



¹ The name of the system employed to assimilate the Muslim population (Roma, Turks, Pomaks and Tatars) in the People's Republic of Bulgaria). The process began in the early 1970s and continued until the late 1980s. Measures to advance this policy included compulsory changing of Arab-Turkish names to Bulgarian, restrictions in use of native language, and forced limitation of traditional customs and rituals, and the confession of faith.



Ecological data

The mining development is in a Natura 2000 zone—an ecologically clean and pristine environment in the south-eastern Rhodope Mountains, where there has never been any heavy industry. Local livelihood depends on agricultural production, and people fear that no-one will buy tobacco, vegetables or animals from a mining area.

Locals and environmental organisations are also afraid that the surface mine will use huge amounts of water (roughly 2.9 billion litres/770 million gallons per year) and state that claims to the effect that 98 percent of the water will be recycled is unrealistic and technically impossible. Moreover, the Krumovgrad Municipality is subject to droughts and scarce water resources, and using surface water for drinking and irrigation should be a priority over industrial use.

Yet another concern is that thousands of tons of toxic substances—xanthogens, copper sulphate and dithiophosphates—will be used in the floatation process, risking surface and groundwater contamination. The open pit will result in the removal of huge amounts of soil, which will contain 1,450 tons of highly toxic arsenic. Though presently in an immobile state in the Earth's crust, arsenic compounds may be activated after being exposed to atmospheric weathering and contaminate the groundwater and soil, thus ruining agriculture in the region. It is also worrying that 14 tons of explosives will be detonated in the open pit weekly, which will cause noise, dust and poisonous gas pollution.

Institutional data

Bulgaria ratified the Aarhus Convention on the 2 October 2003, and the Convention is therefore an integral part of national legislation. The basis for creating an effective legal framework to disseminate information was established in Bulgaria in 1991, with the adoption of the new Constitution. Three separate laws regulate this matter, concerning the access to public information, personal data protection and protection of confidential information:

- The Access to Public Information Act (APIA) was adopted in July 2000. It defines the term “public information” and declares the principle of free and unlimited access to such information; it also specifies the procedures for obtaining public information and the authorities responsible for its provision.
- The Personal Data Protection Act was adopted in December 2001. It corresponds to Directive 95/46/EC on the protection of individuals with regards to the processing of personal data and on the free movement of such data; it also specifies the obligations of the persons dealing with personal data processing, the protection of such data, and the terms and procedures for providing access to personal information. The Act provides also for the establishment of an independent Commission on Personal Data Protection.
- The Protection of Classified Information Act was enforced in 2002. The Act establishes a modern legal framework in conformity with NATO



policies and standards, and specifies the principle and procedures for the protection of classified information as well as the responsible specialised authorities and their powers. It also provides for the establishment of a State Commission on Security of Information to carry out the overall organisation, coordination and control in this field.

The Environmental Protection Act (EPA) of 2002 establishes the legal basis for access to information relating to the environment in Chapter II. It defines the term “environmental information” and specifies the responsibilities of the authorities who hold such information. To access information relating to the environment, the procedures established under the Access to Public Information Act apply.

- According to Article 20 (2) of the EPA, information relating to the environment shall be provided within fourteen days after the date on which the applicant was notified about the decision of the competent authority to provide access to the information requested.
- According to Article 28 (1) of the Access to Public Information Act, each request for access to public information shall be considered within the shortest possible time, but not later than 14 days as of date of registration.
- According to Article 20 (1) of the Access to Public Information Act, access to public information shall be free of charge. The expenses incurred for granting access to public information shall be recovered in accordance with tariffs determined by the Minister of Finance, and shall not exceed the actual costs incurred. A justification of the expenses shall be provided to the applicant upon request. According to Article 29 of the EPA the charge made for provision of expressly processed information shall be negotiated in each particular case.

At this stage, there is a well-organised information access system in place at the Ministry of the Environment and Water and its regional authorities that is subject to constant development. The Programme for Access to Information Foundation serves as a mediator in the process of access to information when needed.

Photo 4

Citizens from initiative committees against gold mining discuss environmental justice cases with Za Zemiata lawyer (centre)

Photo credit:
Za Zemiata





Regarding environmental legislation, Bulgaria has a well-developed environmental legislation system, synchronised with EU legislation. Enforcement is difficult however, with laws and legislative procedures frequently being violated. It is mostly civil society groups, sometimes helped by public authorities, who work on improving and strengthening law enforcement.

Regarding the Adatepe gold mine, five court cases have been filed. These are:

1. Court case on granting the concession prior to a favourable decision on the EIA, which was endorsed by the Minister of the Environment and Water.
2. Interlocutory appeal on the court decision that granted the concession.
3. Court case on the state decision for preliminary execution at the Adatepe mine that allows the company to commence the project regardless of pending court cases.
4. Interlocutory appeal on the court decision regarding the preliminary execution.
5. Court case on the favourable decision regarding the EIA.

Results of the court cases were as follows:

1. Court case on granting the concession: the appeal was dismissed due to lack of legal standing of the parties.
2. Appeal was dismissed due to lack of legal standing of the parties.
3. Court ruling confirmed the legality of the preliminary execution decision.
4. Court ruling confirmed the previous court decision.
5. Court ruling confirmed the favourable decision regarding the EIA.

The national and international media has actively followed and reported on case developments. Articles on the controversy around the Adatepe gold mine have appeared in *The New York Times* (31 October 2011) and *Osservatorio Balcani / Caucaso*, while *Reuters* broadcast a video report on the case for Central and Eastern European TV channels.

In Bulgaria, the conflict is politically contextualised (the governing party firmly supports the development of the mine). Since the Bulgarian media is also strongly influenced by political parties, reports on the Krumovgrad case differ significantly according to the political affiliation of the specific media. On the national level, the newspapers *Dnevnik* and *Capital* are rather objective in their reporting. Other newspapers associated with opposition parties are critical of the investment proposal and state support for it (e.g. *Duma*, *Standart*, and *Ataka*). On the local level, there are two newspapers with diametrically opposed positions—*Nov Zhivot* supports the locals in their opposition to the development of the mine, and *24 Rodopi* favours the investor. Bulgarian National Television recently broadcast a movie on the controversies around the gold mine. Smaller TV channels have also done video reporting on the case, mostly criticising the mining project.

Photo 5
Demonstrations
against the gold mine
at Adatepe, 2005

Photo credit:
 Za Zemiata.



The EIA process in Bulgaria is legitimised with the following legislative acts:

1. EU Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.
2. EU Directive 2003/35/EC providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice, Council Directives 85/337/EEC and 96/61/EC.
3. UNO Protocol on the Strategic Environmental Assessment to the Convention on EIA in a transboundary context.
4. National Environmental Protection Act (full transposition of EU Directives) – 2002 (last amendments 2010).
5. Ordinance on the conditions and procedures for the Environmental Assessment of Plans and Programmes – 2004 (last amendments 2010).

The EIA procedure consists of the following steps:

1. Survey and ascertain scope of the environmental assessment.
2. Prepare the EIA report.
3. Consult the public and the relevant authorities.
4. Add results of the consultation into the EIA report.
5. Define measures to monitor and control the plan/programme implementation.
6. Issue a statement on the EIA.
7. Provide a reference that the final plan/programme complies with the EIA results and statement.
8. Monitor and control the plan/programme implementation.



Public involvement is meant to be an integral part of the whole consultation process during the planning of a certain project. There are legal requirements for the minimum of consultations; if there are two or more written objections to the EIA, public hearings are organised. The impact of public participation on project development is presently questionable. In the Krumovgrad case, the public clearly expressed its concerns and objections to the development of the open pit gold mine. With the exception of the company decision to build a wastewater treatment facility—under public pressure—all other comments and concerns were dismissed as being too sentimental and irrational. In fact, public hearings are often nothing more than a staged event that is required by law, but has no real influence on the development of investment projects. In Krumovgrad the hearings were widely attended; locals were well-informed about the investment project, possible environmental and health impacts of mining operations, and risks to local economy and wellbeing. EJO experts on biodiversity, protected areas, water resources, and mining waste also attended the hearings, and supported the local community during the debates, providing scientific backing on the issues at stake.

Krumovgrad's initiative committee was also very successful in involving citizens groups from Greece in opposition to the Adatepe mine. As Krumovgrad is in a border area, the mine will have a cross-border impact on any surface waters, polluting the Ebro River and the Aegean Basin in northern Greece. Citizen groups from northern Greece participated in the public hearings and demonstrations against the gold mine at Krumovgrad in 2011. Representatives from Zhivot za Krumovgrad also took part in a gathering of initiative committees against gold mining in Thessaloniki in May 2012.



Photo 6
Demonstrations in the town of Krumovgrad

Photo credit:
Za Zemiata

Economic data

In the Krumovgrad Municipality, 9,941 people are economically active, comprising 50.23 percent of the total municipal population. The employment rate is at 69 percent, with 4,150 people employed. While 54.2 percent work in agriculture and



forestry, 48 percent are employed in industry. In the service sector, public service dominates the field (25%), followed by trade (9%) and tourism (5%). Women are mainly engaged in agriculture and textiles while men are involved in agriculture, industry and construction work. Recorded unemployment in Krumovgrad is around 13 percent as of 2012, which is higher than overall rate for Bulgaria (12% for the second half of the year). Unemployment patterns appear to be decreasing, however; mainly due to the implementation of temporary employment projects for disadvantaged groups in the population or labour migration.

The main problems associated with unemployment are low education level and loss of work habits among people who have been unemployed a long time. Low labour mobility is another limitation. The unemployed are willing to accept employment without regard to its type and payment. These groups are disadvantaged in the labour market with their employment opportunities being severely limited to activities requiring unskilled labour, participation in subsidised employment programmes, or employment in a self-owned business. Prospects for new jobs are related mainly to investments in agriculture, with the potential to cultivate medicinal plants and work in animal husbandry. The average monthly salary in the municipality was 402 Leva (EUR 201) in 2009, with salaries being lower in the smaller settlements.

Photo 7
Demonstrators against
the mine, 2007

Photo credit:
 Za Zemiata



In this context, BMM claims it can help reverse the state of the local economy and employment by promising to generate 300 jobs in the construction phase and 230 jobs during the exploitation of the mine. In addition, it has pledged to create a municipal fund for infrastructure projects and an investment fund for supporting small and medium-size businesses. BMM will invest USD 127 million in total and pay a royalty to the Bulgarian government, which is expected to be 2.3 percent of the gross value of ore produced from the mine, totalling USD 22.7 million. Half of this will go directly to the Krumovgrad municipal budget over a nine-year period; a sum that will have a modest impact on the current annual municipal budget, which is about USD 5 million. The concession tax of 2.3 percent is considered extremely



low and inadequate by opposition parties and the community; public opinion is that the tax should be increased when the concession contract is signed.

Health data

Since the mine is not yet operational, no health effects have been registered so far in the Krumovgrad Municipality. Potential health effects will be caused by air, water and noise pollution, leading to respiratory and cardiovascular diseases, increase in allergic diseases, and others related to heavy metal contamination.

A worrying detail concerning the production phase of the Adatepe gold mine is that pure metal is not obtained after the ore is processed; instead, a gold-silver concentrate is prepared that will be exported to the DPM-owned Tsumeb smelter in Namibia for further processing. DPM also owns a copper mine in Chelopech, Bulgaria, and has drawn international criticism for the poor health and work conditions at the Tsumeb smelter. It became publicly known that Bulgarian copper contains a high concentration of arsenic and sulphuric dioxide, substances that pose serious health hazards, and as a result many workers at the Tsumeb smelter currently suffer from skin rashes, cancer, blindness, and burned faces among other health problems, which the company refuses to recognise. There is no proper medication and where there is medication, the affected people have to pay for it themselves. The company also failed to provide its workers with quality protective clothes, increasing their exposure to the deadly substance.

These facts raise concerns on the consequences of further processing the Adatepe concentrate in Namibia. Although cyanide will not be used in the Rhodopes, it will probably be employed in the gold extraction process at Tsumeb, adding to the already grave environmental and health conditions caused by the smelter.

2.3 Analysis of the case

This section will review aspects of the case regarding evaluation of the EIA, health issues and legal aspects, thus providing EJOs around the world with insight into problematic issues related to gold mining projects.

EIA analysis

Za Zemiata collaborated with partner EJOs and independent experts on gold mining to carefully study and analyse the EIA report on the Adatepe gold mine investment proposal (Moran, 2011). Detailed comments delineating the EJOs concerns were presented to the investor before the public hearings, at the public discussions, to the Minister of the Environment and Water and to the Supreme Administrative Court. The shortcomings of the EIA are described below.

- *Assessment of atmospheric pollution missing:* Drilling and blasting twice a week will cause fine particles, gases, ammonium nitrate, and other components used in the explosive mixtures to separate. The EIA fails to consider wind direction during the week to model potential pollution pathways, and even more dangerous, provides no information on the process in no-wind



conditions when the fine particulate matter and gases from the blast will move slowly and stay in the Krumovgrad area for a long time. In addition, the open pit will be situated adjacent to the settlements and inevitably threaten the lives and health of people through atmospheric pollution from the mine. Moreover, fine crushing of the ore create conditions for local pollution with fine particles with a predominance of silica; again, this was not assessed by the EIA.

- Management of arsenic unclear:* The EIA report does not include a description of the chemical and granulometric composition of the commercial product—gold-silver concentrate--and no information on the management of arsenic and other heavy metals. Furthermore, the EIA does not mention where the arsenic will go during the operation of the mine. The presence of arsenic in the ore is the main potential pollutant in any mining operation, and thus the EIA should have included a plan to manage and prevent environmental pollution, with detailed explanations of the retrieval technology, and managing mining waste and water, in view of arsenic concentrations.
- Scarce water resources wasted in industrial processes:* The project will use large amounts of water: about 2.9 billion litres (770 million gallons) per year. Although the investor claims that about 98 percent of this water will be recycled, this has yet to be proven. Nowhere in the world has this recycling rate been achieved in mining practices, thus the claim of the EIA report is considered misleading. Moreover, long-term water extraction will increase local competition for water resources, which may also lead to a drop in local groundwater levels and cause wells to go dry. Even the proposed option for water extraction by building a well in the alluvial terrace of the Krumovitsa River will mean that 5 litres (1.3 gallons) of water per second will be used in installing the mine, equalling 157,680,000 litres (41,650,000 gallons) of water a year. Long-term operation of the well will indirectly draw water from the Krumovitsa and lead to drinking and irrigation water shortages, a fact not reflected in the EIA. In fact, the EIA does not provide any quantitative sampling of local aquifers from the specific location of the mining project, thus failing to assess the actual quantities of groundwater available, as well as the long-term effects of pumping on other water resources. Consequently, there is no statistically significant and reliable baseline data on the quantity and quality of water available, meaning the public and regulators will be unable to identify (or “prove”) any changes in the future quality and quantity of water after the mine starts operating.
- No real assessment of alternatives to the investment proposal:* Alternative 2 in the EIA proposes ore extraction with cyanide. Such an alternative is not technically viable, not only because the local community considers it unacceptable, but it is incompatible with the objectives of the Eastern Rhodopes Protected Area. In other words, Alternative 2 is not really an alternative since it does not meet the purpose of the report, namely “equivalent description, analysis and comparison of alternatives”.

Regarding the underground mining alternative, which is a real alternative with great potential for reducing air and noise pollution from blasting activities and

daily work, the EIA only says that “the deposit is located near the surface and it is impossible to effectively mine it through an underground method because of rising capital and production costs of construction and operation of the mine.” Detailed information is not provided on why this is so and how much underground mining would increase capital and operating costs.

The fact that the investment plan may not have an alternative location further amplifies the need for detailed and objective development of other alternatives, to achieve a qualitative and informed choice between real options, including no mining. According to Article 96 of the EPA, “The employer shall provide the competent authority with alternatives, studied by the developer, for the location and/or technology of the project taking into account the environmental impact, including the ‘zero option’”. The “zero” alternative is not included in the EIA.

- *The EIA contains false and misleading conclusions:* The conclusions for alternative tourism and agriculture, stating that “opportunities for expansion of these sectors in the coming years under existing economic and demographic realities are virtually zero” are false and misleading in favour of the investment plan. The impact of transporting ore and gold-silver concentrate throughout the infrastructure is not assessed in the report. The EIA does not assess the potential of the region for the development of these two sectors, described meticulously in the 2007-2013 Municipal Development Plan either.

Overall, the EIA is misleading and poorly organised. Most supporting facts only appear in indexes, none of which are incorporated into the main report. This not only creates confusion for readers and regulatory authorities, but also hinders their ability to make informed decisions on impact assessment.



Photo 8

Strategic meeting of citizen committees against gold mining organised by Za Zemiata, June 2012

Photo credit:
Za Zemiata.

Health issues

Although the Adatepe mine is still in its development phase, conflicts around health issues have already occurred. The EIA approval process requires the



investor to obtain a report on the health impacts of the project from a Regional Health Inspection Office. Over the course of the Adatepe EIA court case it became clear that BMM had neither applied for this document, nor presented it to the authorities. Thus, the Ministry of Health's favourable assessment of the project was proven invalid, since it should have been based on the conclusion of a health inspection. BMM had to delay its plans and go through the official health impact assessment procedure before it could proceed with the investment project. The lesson here is that all documents submitted by the company should be carefully scrutinised; EJOs should work with public health and legal experts to be able to detect if any documentation investors present to decision-making authorities is missing, incomplete or inadequate.

Legal aspects/role of the court

Bulgaria has a well-developed but poorly functioning civil law system. Annual monitoring reports by the EC consistently highlight the weaknesses in the justice system, especially the slow pace of reforms and ineffective high-level anti-corruption measures. When EJOs brought environmental justice issues regarding the Adatepe case to the attention of the Supreme Administrative Court, their complaints were disregarded on grounds of lack of legal standing. EJOs are frequently dismissed from the legal process, since they are often not a legally interested party in the eyes of Bulgarian law. However, EJOs are actively participating in court cases on the approval of the Adatepe EIA, aiming to delay the project and reduce the negative environmental impacts through improvements of the investment proposal, while showing solidarity with and support for local communities.

2.4 Policy recommendations

The environmental justice conflicts occurring in relation to the Adatepe gold mine are not limited to the described case. In the past decade, Bulgaria has become the Klondike of the Balkans, attracting many foreign investors to develop and extract the gold deposits in the country. The rush was instigated by the rising price of gold on the world market, whereby previously unattractive deposits became prosperous and economically-viable to mine. The sites are mostly in green fields, in areas of recreational value where no heavy industry has ever been developed. Such are the cases with the proposed gold mines in Dikanite, Trun, Breznik, and Popintzi.

Moreover, an overall boom in foreign interest in extracting Bulgarian natural resources is observed. This refers not only to precious and other metals, but also to shale gas, natural gas, inert materials, et cetera. This rising appetite for mining in Bulgaria mobilised a more general public campaign against crime in the mining sector. Though still in its early stages, the campaign aims to address common conflicts related to mining in Bulgaria and avoid the fragmented case-by-case work that only causes disputes and legal fights among EJOs, the public and institutions over the same environmental, health or legal problems.



Thus, Za Zemiata recommends that Bulgarian institutions amend the Mineral Resources and Concessions Act so that;

- there are effective mechanisms of public participation in decision-making on the use of mineral resources;
- no offshore companies are given concession rights; concession contracts are made only with real and traceable investors;
- there is state participation in the mining developments, guaranteeing that mining public goods is in the name of public interest;
- local governments have guaranteed real power on questions regarding regional development, including mining issues;
- the mineral resources are used and extracted according to a national strategy and long-term vision for their responsible use;
- the state effectively controls the execution of concession contracts, including the quantities mined and concentration of precious elements in the processed ore;
- there is public access to concession contracts;
- there are public reports on the public benefits from the concession contracts; and
- there are no new mines in green areas.

Going from the general to the concrete, concerning the Adatepe case:

(1) Implementing an investment proposal of this magnitude will have a significant impact on the Krumovgrad Municipality, which currently has no industrial pollution sources and economically relies on a highly developed agricultural sector. The mine will inevitably change the structure of employment and economic activity in the area. The investment proposal is likely to adversely affect the potential for environmentally responsible development through ecological agriculture and tourism.

Therefore, it is crucial to consider the “zero” alternative of no mining development, the economic and social constraints that the investment will impose, and the scope of these constraints in careful detail. The EIA should have addressed the investment proposal’s compliance and non-compliance with existing strategic documents such as the Krumovgrad Development Plan (2007-2013) and the Regional Development Strategy (2005-2015).

(2) This investment proposal applies only to the Adatepe area, but other parts of the Khan Krum deposit are also potential development areas. It has been said that these will be subject to separate EIA and Appropriate Assessment procedures. This approach poses a risk by a partial or “piece by piece” assessment of effects. Therefore, at this stage, the EIA should have included a theoretical assessment of the cumulative effects in developing the entire field and presented a complete and more realistic picture of the potential environmental impact of the whole development.



(3) The EIA should have included a detailed transportation route plan with the amount of concentrate to be transported and assessed the impacts on the Krumovgrad, Zvezdel and Momchilgrad municipalities.

(4) One of the main problems in the implementation phase of the project will be the high level of noise. Experiments with explosives under different conditions should have been performed to assess the expected day and night-time noise levels for normal operation of the open pit, and thus allow for the elaboration of a noise abatement plan.

(5) The EIA should have contained a detailed description of the problems associated with water, including the impact of the planned well on water availability of the river and other wells in the vicinity.

(6) An elaborate management plan on handling the arsenic in the gold-silver concentrate and in the soil uncovered by the mining operations should be developed and presented in the EIA.

2.5 Materials of the case

Besides the documents cited in the text, the following resources provide additional information about the case, including illustrations and/or photos, videos, media reports studies, articles, films, interviews, technical reports and other documents:

1. Pulitzer Centre for Investigative Journalism photo gallery from Krumovgrad and Adatepe: surroundings: <http://pulitzercenter.org/reporting/bulgaria-gold-mining-tobacco-environment-pollution>
2. Pulitzer Centre for Investigative Journalism article on the conflict at Adatepe: <http://pulitzercenter.org/reporting/bulgaria-krumovgrad-gold-mining-environment>
3. DPM website: <http://www.dundeeprecious.com/>
4. BNT movie "The Gold Mountain" on the conflict at Adatepe: http://bnt.bg/bg/news/view/75866/ay_v_kadyr_au_14_maj_2012_zlatnata_planina
5. Krumovgrad Municipal Development Strategy 2007-2013: <http://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=174>
6. Articles from Namibian newspapers on health and environmental conflicts at the Tsumeb smelter: [http://www.namibian.com.na/index.php?id=28&tx_ttnews\[tt_news\]=88515&no_cache=1](http://www.namibian.com.na/index.php?id=28&tx_ttnews[tt_news]=88515&no_cache=1)

3

Responding to exclusion – Esquel referendum against gold mining (Argentina)

by Mariana Walter

3.1 Background

From 1990 to 2001, 12 of the 25 largest mining investments in the world were made in Latin America: two in Peru, nine in Chile and one in Argentina (Bridge, 2004). In fact, according to the Seventh International Gold Symposium (May 2008, Lima) “Latin America is the region where most gold prospecting took place in the world in the 1990s and 2000s, and this is set to continue”. Economic liberalisation reforms undertaken in the global South since the 1980s caused ore (e.g. gold, copper) prices to skyrocket, and are fostering a shift in the international geography of mining investments towards the developing world (Bridge, 2004). Argentina is especially favourable, with a tax system that enables mining projects to achieve outstanding return rates, amongst the highest in the world, only exceeded by those in South Africa and Chile (Prado, 2005). Dozens of communities are mobilising and conducting popular referendums or consultations about mining in Latin America (OCMAL, 2012). Tambogrande (Peru, 2002) and Esquel (Argentina, 2003) are emblematic cases, as their vote led to the mining projects to be cancelled.

The Esquel case is one such example of the struggle for environmental justice, where communities oppose the exploitation of a mine by a company that ignores not only their concerns and priorities, but potential threats to water quality, and their health and livelihoods. Between 2002 and early 2003, an environmental conflict took place in a small town in the Patagonian Andes, in Argentina. It put the mining discussion on the national political agenda, including its environmental,



social and economic impact, and the right of local populations to participate and decide on the introduction of this activity.

Just before the arrival of Meridian Gold, Esquel was undergoing a process of great mobilisation and participation. The need to review and rethink the foundations of the local economy and society in a time of crisis was reflected in several initiatives, such as the design of a local development plan (fostered by Esquel Municipality) and numerous other mobilisation examples that occurred during those years. The introduction of the mining project contravened the dynamics of local participation and leadership, and represented a top-down process that attempted to impose an activity that would have significant local impact, without properly involving or consulting with members of the local community.

Consequently, when American corporation Meridian Gold arrived in Esquel with intentions to exploit a gold and silver mine located 7 kilometres (4.3 miles) from the city, a neighbourhood movement that defended local values and rejected the national government's discourse that imposed mining projects due to their economic profitability emerged. The conflict was resolved (at least for the time being) through a plebiscite, where 81 percent of the population voted against the mine. The Esquel experience also fostered the organisation of a national network of communities affected by mining. As a result of citizen mobilisations, seven out of 23 Argentine provinces banned mining with cyanide, and an increasing number of municipalities are restricting it (Walter and Martinez-Alier, 2010).

The process sheds light on the multiple factors that drove different communities to reject projects promising to improve social conditions and local economies. The case offers an account of the Esquel experience between August 2002 and March 2003, analysing the cycle of the conflict (its origin, turning points, and partial closure); the main factors at stake; and the actors who mobilised and their view points.

Description of the project

The Esquel mining project is located 6.5 km (4 miles) from the small city of Esquel, Chubut, in the Argentinean Patagonia. With an estimated population of 28,089 in 2001, the city is the main Andean settlement in the province, with the most advanced transport, service and educational facilities in the region. The region is also home to Mapuche indigenous communities. The municipality of Esquel lies between the Patagonian steppe and the Andean mountain range. It is characterised by water shortages (394 millimetres or 15.5 inches of rainfall per year), and dry and sandy soil; however, forests and lakes are also found just a few kilometres away from the city in the mountain range.

Traditionally, economic activities were related to public and private services and agriculture. Tourism has gained relevance in the last decades, with the development of sports fishing, mountain and ski activities, and the town's proximity to Alerces National Park. In the 1980s and 1990s, traditional activities suffered a crisis due to national economic politics and severe climatic circumstances. In 2002, 25 percent of the population was unemployed and 20 percent was below the poverty line (INDEC, 2002).

**Photo 9****A view from Esquel**Photo Credit:
esquelonline.com

The Environmental Impact Study (EIA, 2002), presented by U.S. junior mining company Meridian Gold—which was not approved—estimated that the deposit would produce 12 million tons of mineral (gold and silver) and 130 million tons of sterile rock, using 180 tons of cyanide a month. Moreover, according to the EIA (2002):

- The project would trigger a provincial GDP increase of 4.6 percent, with annual revenue from mining royalties of approximately US\$ 981,253 (3.9% of the revenue from provincial taxes).
- It was expected to generate around 300 direct and 1,200 indirect jobs for the local population.
- The project's lifespan was estimated at eight to nine years for the extraction phase, based on estimated total extractable reserves of over 3,000,000 ounces of gold and a production rate of 300,000 ounces of gold a year.
- An open pit mine was envisaged, with the possibility of moving on to a mixture of open pit and underground mining later. The average ore grades in the deposits were approximately 10 grams/ton for gold and 17 grams/ton for silver.
- The proposed method for extracting the gold and silver was by leaching with cyanide in a closed tank, with construction of a slag heap for the tailings close to the workings of the mine, which was to cover a total surface area of 10 square kilometres (4 square miles) for extraction and processing.

The Conflict

The first details about the gold mining project reached Esquel by mid-2002. National and provincial authorities had already expressed interest in the project and began to announce its arrival to the city and the local press. A presentation on risks related to cyanide use, organised by the Provincial Mining Department and



conducted by a representative of Meridian Gold's future cyanide supplier (Du Pont), generated the first reactions. Esquel residents were concerned by cyanide use in the mining project and the room was packed. However, the presentation was weak and underestimated audience knowledge, which triggered more unease.

Doubts about the quality and reliability of the information presented, combined with mistrust about the way in which the government disseminated it, and the poor space for local participation prompted the involvement of two university lecturers from the chemistry department. "It was a slap in the face for knowledge, and for the people, because it was like saying 'I am telling you these things and you believe them because you are stupid.' (...) we felt an enormous responsibility to tell people the truth about what was being said"² (chemistry lecturer from UNSJB, March 2006). These academics began to compile alternative information channels about cyanide and related risks (spills, health, and environmental hazards). They organised a series of parallel talks in schools and other venues that offered alternative spaces for information sharing.

In mid-October 2002, provincial authorities announced the presentation of the EIA, followed by a public audience a month later. The project was publicly scheduled to commence at the beginning of 2003. The insistence on starting the project and the lack of criticism from the authorities that were supposed to monitor it instigated concerns regarding the seriousness of the decision-making procedures. Moreover, assessments indicating technical inconsistencies and errors in the EIA were made public.

Informal assemblies started to convene at a local school. Informal deliberations in the form of assemblies were common during 2001 and have since become one of the most popular means of organising in local conflicts. The first neighbourhood meetings produced no consensus on either the project or mining. Above all, they were a forum for exchanging information and concerns, which brought together

Photo 10
Protests against
mining in September
2012

Photo credit:
 S. Fattori
 noalamina.org



² Original quote: "Era una cachetada al conocimiento, una cachetada al pueblo, porque era decir: "yo les digo estas cosas y ustedes las creen porque son tontos (...). Sentimos la inmensa responsabilidad de informar a la gente la verdad sobre lo que se estaba diciendo."

highly diverging points of view. Some participants wanted to collect information or voice criticism, while others considered the project beneficial, provided adequate controls were put in place (Pizzolón, 2003; Zuoza, 2005). Over the course of the various meetings, data on mining activities, impacts and previous experiences around the world were examined.

In mid-November, after a period of discussion, an assembly of 600 local neighbours voted unanimously to adopt a position against the mining project and formed the Autonomous People's Assembly (AVA) "No to the mine". This took place at a time when the public hearing was imminent, the Environmental Impact Assessment (EIA) was being questioned and the provincial government was ignoring repeated calls for postponement. Beyond its heterogeneity, unlike other types of local organisations, AVA managed to become a forum for deliberation and action by including a broad cross-section of the local population criticising the project.



Photo 11

Protests against mining in September 2012

Photo credit:
S. Fattori
noalamina.org

The AVA against the mine project

Within AVA, the problems surrounding the project were defined and pieced together. At first, the principal concern centred on the risks posed by cyanide use and the impact on water sources (a scarce resource in the region). Later, dissemination of information and experience from other communities in Latin America, such as Tambogrande, led to the emergence of new claims about project impact on the local community (e.g. safety, poverty, health risks, prostitution, population boom) and the environment (e.g. spills, pollution, deforestation). Changes to the natural environment and new risks, such as accidents, pollution and acid leachates, were added to concerns about the impact of mining on local economic activities, both traditional (forestry, agriculture) and new (tourism). Concurrently, news about numerous mining projects in the region heightened concerns about the future of regional nature reserves and respect for



the territorial rights of Mapuche communities near the deposits. The local cooperative in charge of water provision also began to voice unease regarding the lack of information on project risks that could affect Esquel water sources.

In this broad public debate, the fact that citizens had no chance to inject their concerns and differences of opinion into the decision-making process led them to adopt a more complex and political understanding of the project. This is illustrated by the motto “out with them all” that was taken up by the local population during the activities and marches at the time of the plebiscite: a battle cry associated with the intense citizen mobilisation during Argentina’s 2001 national economic crisis, symbolising loss of confidence in the political class. “It was a steady build-up. At first, it was limited to environmental aspects, then it moved on to what the government and the company were doing” (Member of AVA, in an interview with the authors).

Given the urgent need to publicly express its opposition to the mining project and prevent a public hearing, the AVA devised a series of strategies to halt the project and promote a local development model without mining. These strategies also reflected the diversity of the movement, which brought specialists—in chemistry, geography, medicine, journalism, law and education—together with members of the local population and spokespeople for the marginal parts of town.

The marches became the AVA’s most symbolic activity; a platform enabling highly diverse actors who were against the mining project to express their views, even if they did not actively participate in the assemblies. A group of local lawyers related to the AVA prepared an *acción de amparo*—an injunction against infringement of rights—based on a procedural fault: no EIA and public hearing was held before the approval of Meridian Gold’s exploration activities. This led to the temporary suspension of mining activities in February 2003. Moreover, AVA presented a report to national human rights organisations, denouncing 19 instances of verbal, physical and anonymous threats to its members. In an atmosphere of mounting tension and increasing mobilisation of the local community, in early February, the Municipal Deliberative Council approved three municipal orders promoted by the AVA: a ban on the use of cyanide in Esquel,³ a municipal derogation of national and provincial mining laws since they “are harmful to the tourist profile and the interests of the local community”, and the announcement of a public referendum on the mining project.

Outcome of the conflict: A referendum

On 23 March 2003, the plebiscite was duly held with a turnout of 75 percent of the 20,000 eligible voters, where 81 percent said “No to the mine”. In the days that followed, mining activities were halted and the Chubut provincial legislature approved a provincial ban on open pit mining. However, the project was sold to the Canadian company Yamana Gold that is currently lobbying to overcome these bans.

³ Subsequently, rescinded by the mayor on grounds that it might clash with national laws.

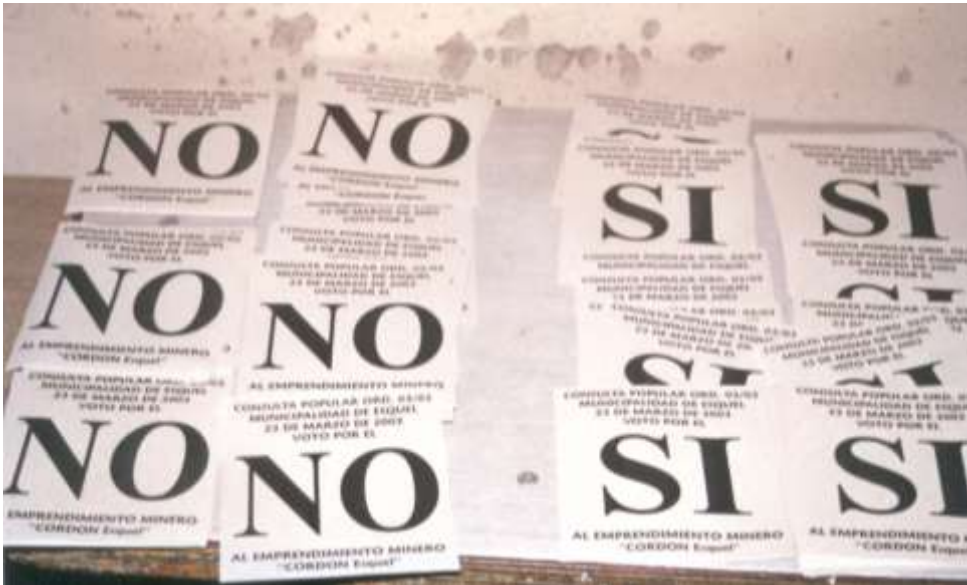


Photo 12

Ballots prepared for the community consultation on 23 March 2003

Photo credit: noalamina.org

After the project was cancelled, the AVA promoted the constitution of the first national network against mining. In November 2003, representatives of communities from six provinces in Argentina met in Buenos Aires and set up the National Network of Communities Affected by Mining. In the following months, new anti-mining movements sprang up in different parts of the country. These movements successfully banned open pit mining that uses toxic substances in seven provinces of the country.

The Esquel case became a national referent and the AVA created the “no a la mina” website⁴ that, in 2010, was still one of the most complete sources in Spanish of news and reports on mining conflicts in Argentina and Latin America. A few years after the referendum, the national anti-mining network composed of local assemblies, joined other assemblies engaged in environmental conflicts (e.g. paper-mills, transgenic soya plantations, deforestation, hydropower plants) and founded the Unión de Asambleas Ciudadanas.

3.2 Two opposing views on development

The conflict revolved largely around two opposing views on mining and development (Walter and Martinez-Alier, 2010). One group, comprised of provincial and municipal governments (though towards the end of the conflict, the latter changed their position), the local chamber of commerce, and the construction workers’ union, saw mining as a beneficial activity if adequate technologies and controls were set up. They did not dismiss environmental concerns altogether, but displayed confidence in the EIA and related expert opinion, reflecting an eco-efficiency perspective that views economic growth as a necessary step towards sustainable development. Environmental concerns were

⁴ www.noalamina.org.



taken into consideration only through expert opinion and technological mitigation measures. Hence, it was a position in which sustainability was defined by experts who had the ability and knowledge to assess the possible impacts and risks, while providing cost-effective adequate solutions. This group was also convinced that mining was compatible with ongoing activities, and would offer new opportunities for local development, generating jobs and incomes and thus improving livelihoods in the community. According to this group, criticism related to environmental uncertainty and questions regarding compatibility with views on local development were alarmist, ignorant, and often motivated by an “environmentalism of the rich” perspective imported from abroad by conservation organisations (Guha and Martinez-Alier, 1997).

The other group consisted of various segments of the Esquel community that were incorporated into the AVA, including the water cooperative, a small businesses group (split off from the chamber of commerce), Mapuche indigenous organisations, and regional NGOs. The scope of this coalition was reflected in the result of the plebiscite, which demonstrated that poverty-stricken and unemployed residents also opposed mining.

Although it would not be accurate to claim that all residents opposed the “Cordon Esquel” mining project, they certainly did not agree with the way it was introduced to the community. From the day of the first official statement, the provincial government and Mining Bureau simply assumed that the project would go ahead, and announced a schedule and anticipated production figures. This attitude rankled the community that was mobilising around and deliberating on local development issues that had not been taken into account.

Throughout the conflict, local actors came to more explicitly embrace and celebrate certain values in relation to local development. An appreciation for participatory democracy was consolidated through the experience of the mining conflict. In addition, local actors asserted a heightened level of appreciation for the environment, particularly as a source of potable water in a region where water is scarce, but also as an inseparable part of the city’s economy and the lifestyle of its residents. Traditional activities like agriculture and forestry, and emerging activities such as tourism, were deemed valuable and environmentally and socially sustainable. Esquel’s residents also felt the small size and quiet lifestyle of the city to be important.

As neighbours began to gather information about open pit mining—its short lifespan, environmental impact, attendant social and urban changes, and generation and distribution of profits—beliefs that it was not compatible with their vision of local development were consolidated. It is worth highlighting the fact that the region already had experience with another large project: the construction of a dam that never affected the level of economic growth or development, as promised by those who promoted it. This precedent generated a sense of “reasoned distrust” that the people in support of the mining project failed to take into account when making their own promises about positive outcomes.



Map 2

Argentinean provinces that banned the use of toxic substances and open pit mining activities: Chubut, Rio Negro, La Pampa, Córdoba, San Luis, Mendoza, Tucumán

Source:
Walter and Martínez-Alier,
2010

The Esquel experience illustrated that the community held its own vision for long-term local development and was willing to defend it. Even in the context of a pressing crisis, the community chose strong, long-term sustainability over a project of uncertain environmental sustainability that privileged pecuniary income in the short-run. This is an example of an action stemming from the “environmentalism of the poor”.

3.3 Decision-making processes: Exclusion and participation

The Esquel case also raises questions about the ways in which decisions are made about large investments that have important implications at the local level. In this instance, there were two opposite approaches: the formal, top-down process implemented by the authorities under the umbrella of the new mining legislation, and the informal bottom-up process lead by the AVA.



Photo 13

Graffiti against the mine and the mining company

Photo credit: noalamina.org

Decision-making structures are value-articulation systems that determine values that can be expressed, the ways in which they can be expressed, and, ultimately, the preferable choices (Vatn, 2005). In other words, they establish procedures that frame the debate and influence what will be negotiated, thereby skewing the outcome. An analysis of the official decision-making procedure in the Esquel case, its underlying values and preferences, allows us to better understand why local unrest increased and an alternative decision-making space emerged, led by the AVA. The comparison between these two value-articulation systems underlines how limited official decision-making processes are when it comes to accommodating local perspectives.



The government and the company responded to growing concerns about the project by avoiding public debate; they claimed that the issues were reserved for the experts, limiting public involvement in the formal assessment and approval process. To express their points of view, residents created an independent, inclusive, and critical space for deliberation, the Autonomous People's Assembly (AVA, *Asamblea de Vecinos Autoconvocados*).

The way in which the AVA was organised demonstrates the need for a different approach in assessing extraction projects with regard to both the shape and the content of the evaluation process. As far as content is concerned, in the framework of the AVA, different valuation languages are considered legitimate (environmental, cultural, social, indigenous, economic, ethical, and democratic), while the EIA was based only on technical responses to variables that had been pre-selected before the document was written. Therefore, the officially organised public hearing, designed to facilitate deliberation on the EIA, was structurally limited because it was based on the restricted terms of reference of the document itself. This made it impossible to express certain “intangible” issues that were at stake (social identities, power networks, belief systems) (Suryanata and Umemoto 2005). The perceived lack of opportunity for participation via official channels led the AVA to boycott the event.

As far as shape is concerned, the Assembly was by definition a local and horizontal space for deliberation, while the EIA was a technical report written by experts in accordance with a procedure designed to be objective, impartial, and unbiased—assumed qualities that have all been seriously questioned. Regarding jurisdiction, the EIA's position was that the province should have the final word. The AVA arose specifically to champion the importance of local-level actors in the decision-making process.

Therefore, due to the structural limitations of the official decision-making process—with regard to its ability to incorporate different interests, values, and visions of development, and channel growing mobilisation at the local level—the community was left with no choice but to oppose mining activities, and push for a ban that would disarm the provincial government's agenda.

Finally, the Esquel case demonstrates that a decision-making process that acknowledges social learning dynamics requires a shift in governance style, toward one based on greater collaboration. Such a decision-making framework also implies a different role for information as a means to support communication, rather than as the sole domain of experts. This, in turn, recalls and reinforces the insight that management should not be understood as a process requiring the identification of optimal solutions in a predictable environment; instead, it should be seen as a process requiring many instances of learning in a rapidly changing world (Pahl-Wostl *et al.* 2008).

4

El Mirador in the Cordillera del Cóndor (Ecuador) – Boundary line to large-scale mining

by Gloria Chicaiza, Beatriz Rodríguez-Labajos and Ivonne Yáñez

4.1 Background

Recently, especially during the current administration, many legislation changes were made in Ecuador that paved the way for large-scale mining: a reactivation of mining projects like never seen before. The Mirador Mining Project, run by ECSA and controlled by the China Railway Construction Corporation (CRCC) and the Tongling Nonferrous Metals Group, is one such projects. On 5 March 2012, Ecuacorriente and the Ecuadorian government signed the first mining contract to exploit a copper mine in Cordillera del Cóndor, located in the Amazon, province of Zamora Chinchipe, southern Ecuador, and is planned as a large-scale open pit mine.

This chapter analyses the mining expansion in Cordillera del Cóndor, Ecuador, with a special focus on the Mirador project and its possible impacts. The facts are examined under three headings. First, Mirador is presented as an example of mining expanding to new frontiers of extraction. Next, the presence of emerging actors in the mining business, such as the Chinese companies is analysed. Finally, different means and scales of resistance involved in the case are described, including community mobilisation and legal strategies.



Box 1 Social characterization of the area

Source: Gobierno Autónomo Provincial de Zamora Chinchipe (2011a); Neill (2007), Sanchez Segobia (2005), El Universo (2 October 2007).

The Amazon Region in Ecuador

Representing nearly 40 percent of the total area of the country, the Amazon is home to only 5.1 percent of the total population, with a population density of 6.2 per km². The population in Zamora Chinchipe accounts for 12.4 percent of the regional total.

The Zamora Chinchipe Province

Area: 10,572.03 square kilometres (4,081.88 square miles), representing 4.4 percent of the national territory

Location: The Southern Ecuadorian Amazon (coordinates: 2°53'S, 79°00'W).

Population: While three-fourths of the population was rural according to the 1990 census, this changed to two-thirds of the population in 2001. As a result of population growth, economic changes in the province and rural-to-urban migration, the rural population now represents 40 percent of the total.

According to the 2010 census, the province has a total population of 91,376, 14,219 of which (about 20 percent) are indigenous. There are 5,475 Shuar (6 percent of the total population, 1.6 percent more than in 2001); 4,950 Saraguros and 3,794 people from other indigenous groups. The male population of the province is at 51.51; there are 106.24 men for every 100.

The Cordillera del Condor (Cc)

Area: 1.1 million hectares (2.7 million acres), about 661,870 hectares (1.6 million acres) in south-eastern Ecuador (2.6 percent of the national territory) and 400,000 hectares (988,422 acres) in northern Peru.

Location: between 3°00'S to 4°30'S and 78°00' W to 79°00'W along the border between Ecuador and Peru.

Protection regime: The Shuar Reserve Mura Nunka, on the Ecuadorian side of the CC became part of the Podocarpus-El Cóndor Biosphere Reserve (RBPC), created by UNESCO in 2007. It covers 1,140,080 hectares (2,817,199 acres) (73.8 percent in the Zamora Chinchipe Province and 26.2 percent in the Loja Province). The Podocarpus and Yacuri Natural Parks are also found here. The RBPC also includes the territory east of the Zamora River and south of the Santiago River, in the provinces of Morona Santiago and Zamora Chinchipe; as well as the Coangos River Basin in the north and the Nangaritza River Basin in the south. The Tabaconas Namballe National Sanctuary is located on the Peruvian side.

Brief description of the geographical, ecological, economic, social, and institutional context

Situated at the south-eastern tip of Ecuador, the Cordillera del Cóndor (CC) is part of the sub-Andean mountain range, which differentiates it from the Andes and the Amazon. It covers an area of 1.1 million hectares (2718160 acres) shared with Peru, and includes the Condor-Kutucu Bi-national Park, created after the 1995 Ecuador-Peru War.

The CC is rich in biodiversity, and includes many species that have yet to be described. Various institutions have conducted research studies in this area, such as Conservation International, which ran a Rapid Assessment Program with the support of the Ecuadorian Army (Schulenberg and Awbrey, 1997) and the Missouri Botanical Garden that conducted studies between 2004 and 2007 (Neil, 2005, 2007) with support from the mining company Ecuacorriente, and BirdLife International (2012), among others. All the studies highlighted the area's scientific value and emphasised that all evaluations carried out so far have not completed studying the region. "The most important fact is that there are new species that are unknown to science".⁵

Conservation International states that the CC is part of the Tropical Andes hotspot that includes the entire Andes Mountain Range, from Colombia to Chile. The area has the highest endemism in the world and unique vegetation due to ecosystem

⁵ Alfredo Luna, Ecuadorian biologist, personal communication, March 2010.



diversity and the changes in altitude and humidity. Huancabamba, south of the Cordillera, is the lowest area of the Andes (2,200 metres / 7,218 feet above sea level). It allows the movement and interchange of the Amazonian and the Andean species, and enables a dynamics of relations west to east (Kingman, 2007:27). The CC has 16 types of ecosystems, described by Sanchez Segobia (2005), including Amazon forest lowlands (300-to-800 metres / 980-to-2,625 feet above sea level), montane and pre-montane forests with sub-temperate, humid weather (800-to-2000 metres / 2,625-to-6,562 feet) above sea level, and montane forests topped with sandstone and limestone plateaus higher than 2,000 metres (6,562 feet) above sea level.

Vegetation formations	Surface	
	Hectares	Percentage
Amazon forest	50.426	7.31
Montane forest	59.828	8.68
Low montane forest	182.782	26.5
Pre montane forest	172.774	25.05
Forest and secondary vegetation	68.345	9.91
Montane scrub in different soil types	39.606	5.74
Clouds	83.018	12.04
Grassland and crops	6.250	0.91
Without vegetation	26.597	3.86
Total	689.626	100.00

Table 6

Vegetation formations in the Cordillera del Condor

Source: Kingman (2007)

The CC’s topographic and geological singularity has made it possible for ecological niches with immense biodiversity to flourish. The region could have the “greatest flora than any other area of the same size in the Neotropics” (Schulenberg and Awbrey, 1997; Neill, 2005), and boasts one of the highest concentrations of vascular plant species on the planet, estimated at over 4,000 species of vascular plants and 300 to 400 bryophytes (Neill, 2007).



Photo 14: Cordillera del Cóndor, Achupallas area

Photo credit: Alfredo Luna, Rapid Assessment Program



Also noteworthy is the number of previously undescribed species; for instance, the 26 out of 40 species collected by International Tropical Timber Organization (OIMT, 2004) or most of the plants of the genus *Clusia* observed by different expeditions in the area. The marsupial *Caenolestes condorensis*; the butterflies *Pseudocharis sp.* and *Macrosoma sp.*; and fish species *Creagrutus kunturu* are apparently new to science.

There are also certain endangered species that find refuge in the CC, including the bearded guan (*Penelope barbata*), endangered; white-necked parakeet (*Pyrrhura albipectus*) vulnerable in Ecuador and critically endangered worldwide; and a total of 11 mammalian species that have been assigned one of the threatened categories (critically endangered, endangered and vulnerable), such as the jaguar (*Pantera onca*), spider monkey (*Ateles belzebuth*), night monkey (*Aotus sp.*), maquisapa monkey (*Lagothrix lagotricha*), neotropical otter (*Lontra longicaudis*) and the Andean bear or spectacled bear (*Tremarctos ornatus*) classified as extinct (Neill, 2007, cited in Chicaiza, 2010).

Table 7
Summary of flora and fauna in the Cordillera del Condor

Source: Developed by the authors based on several sources. Notes (1) Corporación Ornitológica del Ecuador, 2004; (2) Gobierno Provincial de Zamora Chinchipe, 2011a; (3) OIMT, 2004

Group	No. of species	Percentage within the country
Birds ¹	613	38%
Of which, Endemic ¹	71	
Mammals ²	142	38,5%
Reptiles	9	
Plants	2030	10%
Orchids collected ³	40	
Orchids new to science ³	26	
Amphibians (frogs and toads)	56	13%

The ecological value of the area is unquestionable, as is the cultural relevance of the mountain range, which is the ancestral territory of the indigenous Shuar (Ecuador) and Awajun (Peru) nations. Their territories lie on both sides of the border since country borders were not of concern to them.

A final crucial matter is the role this region plays in water cycle regulation; five of the most important rivers in the area originate in the Podocarpus-El Cóndor Biosphere Reserve: the Catamayo, Santiago, Mayo, Jubones and Puyango. This is one of the main reasons the reserve was created in the first place. The Bi-national Catamayo-Chira Basin, which supplies drinking and irrigation water to 600,000 people (El Universo, 2 October 2007), is key in the efforts to oppose mining exploitation in the area in the future.



Description of the El Mirador project

The Mirador Project plans to exploit copper in addition to gold and silver, in a field located in the CC. It covers 9,928 hectares (24,533 acres) in six mining concessions located between 800-to-1,400 metres (2,625-to-4,593 feet) above sea level.⁶

Until mid-2010, Mirador was run by Canadian company Corriente Resources (www.corriente.com), through its Ecuadorian subsidiary Ecuacorriente S.A. (ECSA) formed on 22 December 1999 so as to be able to operate in Ecuador. Junior mining companies that get lucky and find a profitable field are usually bought by some larger company that have sufficient capital to obtain credit through public and private banks and install the technology for mineral extraction. This is exactly what happened when the giant public companies China Tongling Nonferrous Metals Group Holdings Co., Ltd and China Railway Construction Corporation Ltd bought Mirador from junior enterprise Corriente Resources in June 2010.⁷

The project foresees the production of 208,800 tons of copper concentrate annually for 17 years, “operating 24 hours a day, 365 days of the year” (ECSA: 5-2). By the end of the mine’s lifespan, the company expects to have recovered 2,208 million pounds of copper and 535,500 ounces of gold.

Indicator	Magnitude
Reserves	
Copper (lbs)	2,474,026,808.40
Gold (oz)	1,276,917.43
Silver (oz)	10,215,339.43
Investments (USD)	8,740,000,000
Economic value of the mine (USD)	10.7-26 billion
Royalties (2012 – 2015) (USD)	547 million

Table 8
Reserves and economic values
of the mine

Source:
Gobierno Autónomo Provincial de Zamora
Chinchiipe (2011b: 22)

In addition to the field, the facilities projected include tailings (mountains of rocks that do not contain mineral), tailing ponds (for wastes), a crushing primary plant, a processing plant where the copper concentrate would be produced, and a camp to

⁶ Unless indicated otherwise, the data in this section comes from the 2010 Environmental Impact Assessment (EIA) commissioned by Ecuacorriente (ECSA), or its critical review by Sacher (2011) for Acción Ecológica that also refers to the 2005 version of the EIA (ECSA, 2005). Direct quotes are provided with page numbers.

⁷ Tongling and China Railways own Chinese company CRCC – Tongguan Investment Co., Ltd, which in turn owns Canadian company CRCC- Tongguan Investment Co., Ltd that owns ECSA. Source: US Securities and Exchange Commission, Washington, 2010.



house the staff. **Table 9** below describes the main facilities required for mineral extraction in addition to the tailings, camp and crushing plant.

Table 9
Main facilities
contemplated and their
features

Source:

ECSCA (2005:6-7) and
ECSCA (5-2, 5-35, 5-36,
5-2), cited in Sacher
(2011:11-13)

Facility	Description
Pit	The rock would be extracted from an open pit mine at least 250 metres (820 feet) in depth that will span at least 1.2 kilometres (0.75 miles) in diameter by the end of the productive time of the mine. These measurements are valid for the initial projection of 25,000 tons/day. The current version of the EIA does not include pit measurements.
Tailings, tailing ponds and wastes	One of the most important threats to the water sources is the accumulation of two types of wastes: the “waste rock” that consists of solid waste and the chemical treatment waste of the “useful rock” that is a mixture of liquid and solid waste. Tailing ponds are waste deposits called “tailings management facilities”, comprised of a dam where the waste from copper concentrate production is dumped and accumulated. It would cover 250 hectares (618 acres) and hold 74 million tons. Only one tailing pond is planned for the project, although its capacity would only last the first eight years. The EIA does not show the plans or the site of the pool or the pools that should be built in the future.
Processing plant	The industrial unit where the rock is crushed finely and treated chemically to produce copper concentrate.

To transport the extracted minerals, the company is building a special facility in Puerto el Cobre, in the Ecuadorian Pacific. This port will receive dozens of trucks of copper concentrate daily to ship the product to the smelting facilities of China Tongling.

Environmental impacts of the project

The project is situated in a high biodiversity zone with important water resources, which means the environmental impacts of an industrial open pit mine the size of Mirador will be highly significant. Two major sources of potential impact are supplies required for production—namely water and energy—and waste generation, which would both impact water sources.

Supply requirements: Project operation would require 140 litres (37 gallons) of fresh water per second for the chemical treatment of the rock and other procedures, which according to the EIA would come from “the Wawayme River, underground wells, runoff water and Quimi River” (ECSCA: 5-80). Used water would be mixed with chemical products, sub-products and treated rock (potentially excessively acid), which would be stored in waste pools. The power demand of the project is 20 MW, so El Mirador may have an energy consumption of 221 GWh per year, equivalent to the consumption of a city like Ibarra (population: 130,000). The EIA does not establish where this energy would come from (Sacher: 2011:32).

Production residues: Of the 54,000 tons extracted daily, 53,428 would be wastes and only 572 tons would be copper concentrate. By the end of the projected lifespan of the mine—17 years—a total of 325 million tons of waste would be accumulated. In addition, tyre wear, mine wastes and tailings leachate could



increase the concentration of heavy metals in the waters. Quoting the EIA, Sacher (2011:32) adds that there would be other potential water contaminants that should have been included in the EIA, such as, “sewage, grey water and industrial water discharges; alterations due to the fine solids carried by the currents; mixture between surface waters and underground waters pumped from the mine [...]; fuel, crushed material or chemical spills; leakage of the recirculating waters to the treatment plant [...]; the movement of soil during the extraction activities [...]; or the dust generated by the machinery”. The EIA lacks a detailed study of the potential impacts of these effects.

In the case of Mirador, the mineral to be exploited in the field is found mainly as copper sulphide. The sulphurous rocks are most likely to cause contamination by acid rock drainage, or ARD (See Box 2).

Box 2 Acid rock drainage (ARD)

Source: Sacher (2011: 25-27).

Acid Rock Drainage (ARD) is one of the most problematic contaminants that result from mining activities. Its permanent and severe environmental effects have caused the World Bank to consider it as a gravely serious problem. It occurs when rainwater or even water in the air touches rocks that have been brought to the surface as a result of mining and accumulates in the tailings, the pit or the tailings dam of the mine. Chemical reactions between rainwater (or humid air) and the rocks often contribute to sulphide oxidation, which causes a high acidification risk that is usually not found in runoff. This risk is even greater when the rocks are sulphurous (have molecules where sulphur atoms bond with the metal atoms).

Surface waters and groundwater become acidic if drainage waters mix into them, meaning ARD can have an irreversible effect on water quality in the basins. Acidification could be devastating to fauna and flora that have not adapted to live in acidic environments. In the most serious cases, species and whole communities of fish disappear and unbalance aquatic ecosystems permanently. As the 2005 EIA states, the environmental importance of controlling [pH levels] is that waters that are too acidic may cause rivers and streams to die; the Tsolum River in British Columbia (Canada) is a case in point, where all the salmon disappeared as a result of ARD seepage upstream from a copper mine. According to the Canadian Ministry of Natural Resources, “the ARD from tailings is a challenging problem to the mining industry in Canada; [...] tailings that generate ARD are an important threat to the environment and have to be monitored at high monetary costs by the mining industry”.

Mirador’s EIA acknowledges the ARD risk that the tailings pond would cause and how it would impact the soil and waters of the area: “a decrease of the soil quality of the Quimi River valley is possible due to its contact with acid mine drainage [...], potentially the water bodies could be affected directly downstream from the area where the activities take place [...]; special attention should be given to the decrease of water quality due to the possible generation of acid drainage in the tailings dam” (ECSA:7-4).

About ARD, Sacher (2011:32) states that “the lack of the evaluation of this risk in the EIA is a matter of concern due to the magnitude of the tailings that would be accumulated over the life of the project (at least 146 million tons).” The mine rock would be located in an area over 1,300 metres (800 feet) above sea level, so there is a risk of contamination downstream. Sacher finds it surprising that the company fails to include necessary measures despite recognising the potential impacts of its facilities, and argues that ARD risks may only be reliably assessed by a precise characterisation of the hydrology and any modifications that may



result from the various project facilities, and a complete analysis of the physical, geological and geochemical properties of the rock. These specific analyses for Mirador are not found in the EIA.

Impacts to bodies of water: Headwaters of the rivers and the springs that feed them are situated in Mirador's concessions, which is also stated in the EIA: "Mirador Project is located in the Zamora River Basin, in the sub-basin of the Quimi River, in the micro-basins of the Tundayme and Wawayme Rivers that originate in the slopes of the Cordillera del Condor [...] The Quimi River flows into Zamora River, belonging to the hydrographical system of the Santiago River Basin that in turn flows into the Amazon Basin" (ECSA: 8-19).

According to Sacher (2011:30), the mechanisms that would impact the hydrological system are, "alteration of the drainage patterns, sedimentation, lost of the capacity of recharge of the aquifers, modification of the volume in the water bodies, contamination by ARD, contamination by heavy metals and increase of the suspended solids in the water." He also comments on the statements in the 2005 EIA, to highlight the implications of these impacts: "in general, there is the possibility of an impact on the water quality of the sub-basins of the Rivers Wawayme and Paquintza and as a consequence to the health of the populations of Paquintza, San Marcos, Las Maravillas and Santa Cruz" (ECSA, 2005).

Box 3 William Sacher's conclusions following an analysis of the Mirador project EIA

Source: Sacher (2011: 33-34).

Data on water sources within the project site provided in the EIA is incomplete, sporadic and unreliable. The authors' assessments regarding both the quantity and quality of the surface and underground waters, and their interconnections, are unsatisfactory. In addition, characterisations of the physical and geochemical properties of the rock that would be removed are highly lacking.

In consequence, the baseline established by the EIA is inadequate for estimating contamination risk and impact that will result from the project—particularly in terms of critical infrastructures such as the tailings or the tailings pond. It fails to provide sufficient information to safely and appropriately design the main features of the project and guarantee they will resist extreme rainfall and floods.

In the chapter entitled "Impact Evaluation"—the most vital part of the EIA—the method used not only lacks rigour and transparency, but is also highly subjective since the results mainly depend on the opinions of its authors. Therefore, the obtained results are not necessarily replicable (other researchers using the same methods could obtain very different conclusions). In addition, the detailed description of the impacts is unreliable because it is based either on incomplete data, or data that does not exist in the baseline.

Analyses of the risks identified in the EIA are again, not robust and very incomplete. Risk estimations for significant events likely to occur in the area, such as floods, are unreliable since the authors lack the data and the necessary studies to quantify them.

In conclusion, the authors recognise the existence of risks and probable impacts in several instances and identify them satisfactorily, but when it comes to quantifying them, they are faced with unsolvable problems and thus evaluate risks and impacts based on incomplete or non-existent data. This leads to either conclusions based on results without real scientific basis, or complete omission of certain very significant risks. Therefore, in many aspects, the conclusions of the EIA are unreliable because they lack a solid foundation. Overall, the EIA does not reach the basic scientific level hoped for a project the size of Mirador that will be developed in a very sensitive area in terms of biodiversity and rainfall.

Moreover, neither the baseline, nor the impact evaluation complies with current Ecuadorian legislation. In several places, the EIA does not respect the Terms of Reference for the Elaboration of Environmental Impact Assessments for the Underground Exploitation of Metallic Mineral Deposits.

4.2 Analysis of the case

Threats to national sovereignty, ecosystems and communities at the frontiers of extraction

The case of large-scale mining in the CC exemplifies the expansion of the frontiers of extraction, which happens in two spheres: the economical-financial and the political.

This case is part of efforts to incorporate new sources of ‘profit frontiers’ into the global market. Recently, economic media such as *The Financial Times* have openly been using the term ‘frontier markets’ in reference to pre-emerging economies—with unstable institutions—where opportunities to benefit (especially financially) come from extraction companies (mining or other resources including agro-industrial) that require transportation and communication facilities.

“Frontier markets are characterised by the absence of strong political institutions and a paucity of earlier major natural resources investment. Compared to the BRIC nations and more established emerging markets, the frontier nations are generally beset by more severe poverty and deeper social cleavages, through ethnic, regional, or sectarian disputes. [...] Mining companies have been busy scouring investment frontiers that they once avoided. The world’s seven largest gold-producing companies are all developing major projects in frontier markets, including Papua New Guinea, Kyrgyzstan, Mauritania, and Ecuador. Geologically-attractive deposits (especially for gold, and to a lesser extent, copper) in politically-stable countries are scarce today, while large, untapped deposits in frontier markets offer greater promise” (*The Financial Times*, 18 January 2012).

Global economy growth since 2003 resulted in an increased demand for minerals. Mining companies have been placing greater pressure on the national states to develop new mining districts. Latin America has been investing the most in mining exploration in recent years, comprising 24 percent of the global total in 2006, for instance (Vittor and Padilla, 2007; MEG, 2007). In 2011 this share had increased to the 25 percent (MEG, 2012). It is no surprise that Standard and Poor’s (2011) considers countries such as Argentina, Colombia and Ecuador as frontier economies.

Photo 15
Ancestral territory of indigenous communities Awuajúns and Wampís from the Alto Cenepa (at the Peruvian side of the Cordillera del Cóndor) [left, centre]; in Zamora Chinchipe, a Shuar man from the Llawi community points at the Muranunca, ‘the place where the rivers are born’ (now under mining concession) [right]

Photo credits: Marco Guaco (left, centre); Lupe de Heredia (right)





This classification reflects an implicit impact by large-scale mining activities on “unexplored” territories. Often these territories—such as *paramos* (alpine tundra ecosystems), glaciers or wetlands—are environmentally fragile and beneficial for local communities. In the Amazon, the CC mining expansion is one more chapter in the dispute for control of the territory, agricultural lands, water, and biodiversity, where two models of development oppose one other.

While Mirador marks the beginning of large-scale mining in Ecuador, the process does not end there. Wilson Pastor, the Minister of Non-Renewable Natural Resources declared that new mining concessions in northern, central and southern Ecuador—where gold, copper, zinc and silver reserves are located—will continue to be granted through the auction system as established in the Mining Law (Nueva Minería, 30 August 2011). On its website (www.kinrossecuador.com), Canadian corporation Kinross Gold stated its intention to exploit “one of the greatest discoveries of gold in the world”. Located also in the Zamora Chinchipe Province, the Fruta del Norte Project involves an underground mine very close to the copper project Mirador.

Issues such as irreparable environmental impact, restricted freedom of movement, population displacement and production activities that differ from traditional practices are some of the main topics that generate conflict between extraction companies, and farmer and indigenous communities (Cuenca et al., 2011: 61-106). Such processes are induced by economic expansion and—as mentioned above—have a strong financial component.



Photo 16 Demonstrators from Zamora Chinchipe and Morona Santiago, mobilised near the Ecuacorriente facilities in the El Quimi village. At the other side, the Ecuadorian Army blocks the pedestrian bridge with barbed wire. Photo credits: Acción Ecológica

Conversely, this case also exemplifies the economical-political transformation dynamics ‘at the national frontiers’. National borders no longer represent a limit to transnational mining operations, but constitute new expansion areas and a new mechanism to strategically organise their activities. Consequently, the mining

company operates on one side of the border or the other based on available human, natural or logistics resources, with ensuing social and environmental impacts on the same side. This could also happen with governmental support. As a result, borders have become areas controlled by mining companies.

In Latin America, the governments of Chile and Argentina were the first to formally offer their borders for transnational mining exploitation. A bulletin published by several organisations on 20 November 2009 stated, “The Bi-national Mining Treaty gives more than 25 percent of the Chilean territory and 6 percent of the Argentinean territory to the foreign large scale mining companies. Based in a document that intended to safeguard the borders; preserve; reinforce and develop permanent peace bonds and friendship, the executive powers of our countries issued a law that gives away the frontier territories that once were untouchable and where most of the Chilean water springs and all of the glacier ecosystems originate, to the transnational mining companies, unrelated to our social interests” (OLCA, 2009). Although it was difficult to establish such agreements in the past due to geopolitical, migration-related or taxation reasons, they have become the norm and constitute a threat as they may be imposed on other countries in the region.



Photo 17
The Ecuadorian Army blocks the pedestrian bridge in the El Quimi village and represses the demonstrators protesting against mining

Photo credits: Acción Ecológica

The CC is a border area shared by Ecuador and Peru, with extremely diverse and very fragile eco-regions— from paramos to cloud forests—that fulfils irreplaceable ecological functions for northern Peru and southern Ecuador. Parts of it are protected on both sides of the border; the National Sanctuary Tabaconas Namballe in Peru, and the Bi-national Cóndor Park, Podocarpus-El Cóndor Biosphere Reserve in Ecuador. In addition, farmers and ancestral indigenous peoples live along the border as well.

The CC is especially symbolic for Ecuador, as it was the stage where the main territory problems with Peru were played out in the 1980s and 1990s. It became the focal point on the Ecuadorian agenda due to the interventionist approach of the mining industry and state interests under the Rafael Correa administration. In this regard, the contradiction between the terms of the mining concession in Mirador and its implications on national security is a controversial issue, described in Box 4.



Ultimately, the CC is a territory in dispute; rich in culture and resources, it has generated various conflicts of interests, discourses and practices between multiple actors. While argumentations for this double dimension of the frontiers of extraction were described for this particular case, there are indications that this process happens in other cases around the world.

Box 4: Implications of national politics for expanding the mining frontier

In relation to 'national security' along the border, the Constitution of Ecuador states: "Foreign natural persons or legal entities will not be able to acquire any land deeds or concessions in areas of national security or protected areas, in accordance with the law" (Article 405, Section 2).

Despite this prohibition, which was included in the 1998 Constitution and many others, concessions of Chinese company ECSA are located within the national security ring. Therefore, this should be a violation of the Constitution and the National Security Act (Asamblea Nacional, 28 September 2009) that states:

"The possession, acquisition and concessions of land in border security zones and security reserved areas, excepting inhabited villages and urban settlements located in these areas by foreign natural persons or legal entities or national legal entities formed by one or more foreign natural or legal persons, is prohibited" (Section VII, Article 40).

In addition, on 23 February 2012, the Dirección de Auditoría de Proyectos y Ambiente de la Contraloría General del Estado (Direction on Projects and Environmental Audit of the General Comptroller of the State) presented the Provisional Results of the Environmental Audit to the Ministry of the Environment, the Ministry of Non-Renewable Resources and other institutions related to the Mirador Mining Project run by Ecuacorriente S.A. and Pananza-San Carlos on the border with Peru, which will be covered later. The preliminary report states that the borders of the mining concessions were located outside the national territory and reached Peruvian territory. It also posits that the Ministry of Defence did not issue a report within the timeframe established for these types of projects—located within national security borders—in the Mining Law as a requisite:

"Previous Administrative Acts.- To carry on mining activities mentioned in the following chapter, in the places set forth as follows, previously delivered favourable administrative acts with a fair grounding are obligatorily required by the following authorities and institutions, as the case may be: [...] (e) From the Ministry of Defence, within areas or military installations or in adjoining lands, of places used as magazines for explosive or inflammable material; and within zones located on the official borderlines of the country and in licensed seaports, sea beaches or ocean bottoms; [...]

Distances and other technical and environmental requirements for said Administrative Acts shall be established in accordance with the criterion set forth in the respective regulations issued by relevant administrative authorities in each case.

These administrative acts shall be issued within a maximum period of sixty days from the date of the petition, they shall be under the responsibility of the official in charge of issuing administrative acts, and they shall contain conditions that protect the interest of each institution and the rights and guarantees of the citizens. Authorities and institutions in charge of issuing administrative acts, shall not issue additional administrative acts to extend the deadline for their pronouncement.

In case the authorities and institutions before mentioned issue non-favourable administrative acts, the mining concession holder has the option to appeal said resolution before the relevant Minister, who shall issue his resolution in a motivated way, except in the case of the provision set forth in item f) which shall be appealed judicially" (Article 26).

The newcomer: China on the bi-national frontier

The undeniable growth of the Chinese economy has become a worldwide economical referent. In its economic relations with Latin America, the Asian giant prioritises the exploitation of natural resources. Its investments are geared to the primary sectors, capitalising and acquiring companies and building facilities linked to the exportation of natural resources.



In this process, China strengthened its position as a commercial partner with Latin America. Trade between China and Latin America and the Caribbean increased faster than with the rest of the world (CEPAL, 2010). However, trade negotiations between Latin America and China are asymmetric. While China becomes a market increasingly important to Latin America, the Latin American market participates in Chinese exports considerably less.

Currently, Ecuador is the Latin American country that receives the most money from China, USD 6,500 million in 2011 (Agencia Andes, 14/09/2011). Chinese investments in the Ecuadorian mining industry are clear evidence of the sad role Ecuador plays as supplier of raw material. This economic flow comes with several conditions that foster a cycle of indebtedness, dependence, loss of national heritage, and loss of sovereignty over resources and local and national lifestyles.

Mirador is the first of three mining projects that Chinese company ECSA plans to develop in the area. The other two are Mirador Norte and Panantza-San Carlos. On the Peruvian side, along the southern border in the Department of Cajamarca, China Minmetals Non-ferrous Metals Co, Ltd (one of the main subsidiaries of state corporation China Minmetals with headquarters in Beijing) is operational. A transnational corporation, China Minmetals has subsidiaries and offices in 45 countries and regions worldwide. This company extracts and trades metals and minerals (steel, copper, aluminium, tungsten, tin, antimony, lead, zinc, iron, etc.) in the real estate market, finances and maritime shipments (Torres and Sanborn, 2009).

4.3 The conflict

From communitarian resistance to legal activism

The CC is the ancestral territory of the Shuar, Awajun and Wampis indigenous peoples, who have suffered oppression and are under the permanent threat of mining and oil exploitation in their territories imposed by the governments of Ecuador and Peru. In cases where their efforts to mobilise in resistance to mining activities and their demands to be heard do not find the right channels, conflicts reach even higher levels of violence. Attempts to repress the communities have had high social costs, such as the Bagua massacre of June 2009 in Peru, close to Ecuadorian border, or the death of indigenous teacher Bosco Wisum during confrontations with the national police in September 2009 in Ecuador, close to Peruvian border.

Chicaiza (2010) describes in detail the conflicts and resistance that resulted from mining expansion in the CC. In the specific case of Ecuacorriente, once the agreement with the Warintz community was renewed in 2001, exploration activities began to generate tension both within and between families in the villages, between the centres of the local Association, among Association leaders, and between them and provincial leaders. Consequently, the agreement that was supposed to last five years lasted only one, due to the radical opposition by Shuar centres such as the Nunkuy Association or Sinip. Ecuacorriente had to suspend



activities in Warintz. In 2003, the company agreed to transfer the concession to Lowel Minerals Exploration. This corporation initiated new agreements that harmed the collective rights enshrined in the 1998 Ecuadorian Constitution, which in turn caused new claims and actions by various Shuar centres. In this context, Ecuacorriente announced in 2005 that it would begin preparations to start the exploitation phase in Mirador. This project was announced by the company as one of the largest projects in Latin America.



Photo 18 The Shuar Arutam indigenous people warns foreigners (starting from mining companies) against the entrance to village, Morona Santiago Province; Photo credits: Acción Ecológica

Under these conditions, several organisations along the Ecuador-Peru border sustain efforts to look for regional, national, bi-national and Latin American strategies. In places where the mining projects are located, there are also human and cultural resistance corridors to mining expansion.

In Ecuador, the Constitutional process of 2008 gave the Asamblea Constituyente (Constituent Assembly) full powers to re-establish the organisation of the state. The Assembly developed a new Constitution and several Constitutional Mandates that were endorsed by the national referendum in September that same year. During this process, indigenous and farmer communities—especially those affected and threatened by mining projects—mobilised and organised a sit-in at the Assembly headquarters to insist on a declaration that the country was free of large-scale metal mining. As a result, the Constituent Assembly issued Mandate No. 6, the Mining Mandate, with the aim of correcting bad practices common to the mining industry.

Photo 19
Assembly of the Shuar association in Bomboiza, in the area of influence of the Mirador project



Photo credits: Acción Ecológica



The mining mandate

Mandate No. 6 (Asamblea Constituyente, 18 April 2008) will be briefly analysed here to illustrate its legal effects on mining activities—the Mirador case in particular—and show how the Mining Law (Asamblea Nacional, 27 January 2009) imposes the extraction model that violates the Mandate in practice.

The Mining Mandate sought to correct the main difficulties and violations in relation to mining company practices and the policies of different governments that benefited from the mining activities in the country. It also sought to control speculations and the connections some public officials had with the sector.

“When on April 18th we approved the Mining Mandate N°6 in Montecristi with 95 votes in favour and 1 against, we were motivated by the emergency caused in the sector due to the abuses of the mining companies encouraged by the appeasement of the previous governments. Ecuador lived a “mining feast” that almost caused irreparable environmental and social damages. We did it also convinced that the mining activities in Ecuador should change its course to a different path, one that respects human beings and nature” (Acosta, 2008).

The Mining Mandate dictated the immediate suspension of activity on the mining concessions, stated when it would expire, and declared a moratorium on new concessions. In other words, once the Mining Mandate was put into effect, existing rights related to mining concessions ended. In this regard, some of the main statements of the Mining Mandate are:

Article 1: All mining concessions in the exploration phase that *have not invested in project development* by 31 December 2007 or that have not *presented their respective environmental impact studies* or that *have not carried out processes of prior consultation*, including those that are awaiting administrative resolution, shall be abolished without any economic compensation.

Article 3: Mining concessions granted within protected natural areas, protected forests and buffer zones defined by competent authorities, and those that affect springs and water sources shall be abolished without any economic compensation.

Article 12: It shall be obligatory to observe the provisions contained herein. Thus, it shall not be subject to complaints, challenges, legal protection actions, demands, protests, recourse or any administrative or legal action. Neither will it give rise to any compensation.

Any legal recognition of the concessions affected by these mentioned conditions would violate the Mining Mandate, and thus be illegal. However, this is exactly the case with the Mirador Mining Project, which partially meets the conditions in Article 1—for not complying with a prior consultation—and meets the conditions of Article 3 fully. For the same reason, the concessions of the Panantza-San Carlos Mining Project were suspended because there are several springs and water sources in the area.



It is important to note another article of the Mandate:

Article 4: More than three mining concessions that have been granted to natural persons (individuals) or their partners; or legal entities and their related companies, be it through the direct participation of the legal entity or its shareholders and their relatives to the fourth degree of consanguinity and the second degree of affinity shall be abolished without any economic compensation.

According to the Comptroller General of the State (CGE, 2012), after the Mining Mandate came into force, more than one concession of Ecuacorriente S.A. was still running (**Table 10**). Therefore, they were in violation of the Constitutional Mandate.

Table 10
Titled concessions
of the Project
Mirador – Mirador
Norte

Source:
CGE (2012)

#	Name	Code	Concessionaire	Area (ha)
1	Curigem 18	4768	Cia. Min. Ecuacorriente S.A.	1600
2	Curigem 19	4769	Cia. Min. Ecuacorriente S.A.	2120
3	Mirador 3	500976	Cia. Min. Ecuacorriente S.A.	1020
4	Mirador 4	501023	Cia. Min. Ecuacorriente S.A.	8
5	Mirador 1	500807	Cia. Min. Ecuacorriente S.A.	2105
6	Mirador 2	500805	Cia. Min. Ecuacorriente S.A.	880
7	Mirador 1 Este	501181	Cia. Min. Ecuacorriente S.A.	295
8	Mirador2 Este	501182	Cia. Min. Ecuacorriente S.A.	320
9	Curigem 18 Este	500806	Cia. Min. Ecuacorriente S.A.	800
10	Curigem 18 Este	501183	Cia. Min. Ecuacorriente S.A.	550
11	Curigem 19-A	501349	Cia. Min. Ecuacorriente S.A.	230
Total mining hectares granted to Ecuacorriente				9928

Currently, ECSA has four valid concessions—including the Panantza-San Carlos Project—while seven have been suspended (CGE, 2012). By allowing these concessions, the Ministry of Non-Renewable Natural Resources⁸ (MRNNR for its acronym in Spanish) violated the Mining Mandate; to make matters worse, transfers to third parties without complying with the Mining Mandate are invalid.

At the time the Constitutional Mandates came into effect, the Constituent Assembly had full powers; meaning it was the highest legislative and judicial organisation in Ecuador. In fact, Mandates have the same status as laws; consequently, all the regulations in the Mining Mandate were mandatory. The Constitution orders that Constitutional Mandates cannot be reformed or repealed by ordinary laws, as is the Mining Law. In response to the argument by the

⁸ The Ministry of Non-Renewable Natural Resources [*Ministerio de Recursos Naturales No Renovables*, MRNNR] used to be the Ministry of Energy, Mines and Petroleum but was renamed on 24 September 2009.

Ministry of Non-Renewable Natural Resources that the Mining Law issued in January 2009 repealed the Mining Mandate, renowned jurist Julio Cesar Trujillo (2012) stated:

The argument that the Mandate was repealed by the Mining Law cannot be accepted, because this Law does not have the power to revive what ceased to exist on 18 April 2008, before it was issued. Similarly, the argument that they [the concessions] were granted under Agreement No. 172, published in the Official Gazette No. 396 dated 5 August 2008 is invalid, because an Agreement cannot possess the power that the Law does not have, that is to say it cannot grant a concession that ceased before the Agreement was issued, all the more so the Mandate No. 6 only empowers the Ministry to comply with the administrative acts to strictly fulfil the present Mandate.

Moreover, it is not up to the MRNNR or the Ministry of Environment (MAE) to decide if concessions are revoked or not. These were already revoked by the Mandate. The MRNNR only had to identify the mining concessions affected by the Mandate and notify the interested parties that they had been revoked.

The Mandate was created to try and bring order to what Acosta (2009:101) termed a “chaotic situation” and “correct the main difficulties and aberrations” that characterised the mining situation in the country, but above all, it was thought to open “a door for wide national debate”. However, no serious debate initiated; instead, any dissenting opinions or critical voices were immediately suppressed or vilified.



Map 3

Location of Zamora Chinchipe in Ecuador

Source: Gobierno Provincial de Zamora Chinchipe, 2011a

An unravelling report: the Comptroller comes into play

In 2010, CEDHU (*Comisión Ecuémica de Derechos Humanos del Ecuador*) and Acción Ecológica formally petitioned the *Contraloría General del Estado* (General Comptroller of the State; CGE) to conduct an environmental audit for the Mirador Project. This was the responsibility of the MRNNR, MAE, and Assistant Secretaries and Directors of different areas of the mentioned institutions.



In February 2012, the CGE (2012) issued a preliminary report that recognised the noncompliance by many environmental and mining authorities to numerous legal norms, including the Constitution of Ecuador, Mining Mandate No. 6, the Mining Law, the Organic Law of the CGE the Unified Text on Subsidiary Environmental Legislation, the Environmental Regulations for Mining Activities, the Organic Law on Transparency and Access to Public Information, the Organic Statute of Organisational Management for Processes of the Ministry of Environment, and several other Ministerial Agreements and Executive Decrees.

The report also underlined significant results regarding the regulatory noncompliance in this case. The environmental authority did not verify or require the concessions-holder to present the supplementary EIA according to the legislation in force, thereby approving the assessments illegally. In addition, the Ministry of Energy, Mines and Petroleum (now MRNNR) did not request programs and annual budgets, thus limiting future monitoring and follow up actions. The authorities did not verify the evaluation of the comprehensive and detailed fulfilment of the programs stated in the Environmental Management Plan in the audit of compliance. Finally neither the MRNNR nor the MAE attempted to implement the process ensure the free, prior and informed consent of the communities, peoples and indigenous nations in the affected area before the extraction activities begun.

It is important to note that according to the Mining Mandate, concessions that did not complete the process of consulting with indigenous nations and peoples before 31 December 2007 would be abolished. Ecuacorriente had not consulted the people in the Mirador and Panantza-San Carlos concession by April 2011, when the CGE report was issued. Because they did not comply with the process established in the Constitutional Mandate, their current concessions should actually be invalid.

In addition, the CGE's preliminary report on the environmental audit states that Ecuacorriente was in violation of Article 57.7 of the Ecuadorian Constitution (that recognises and guarantees free, prior and informed consent to indigenous communities, peoples and nations), Article 6.2 of the 169 ILO Convention, Article 19 of the United Nations Declaration on the Rights of Indigenous Peoples, Article 81 of the Law of Citizens' Participation, and the sentence of the Constitutional Court on the claim of unconstitutionality of the Mining Law (Sentence 09-IN, 18 March 2010).

In summary, the preliminary observations presented by the CGE identified that the common practices by mining companies violate:

- The Ecuadorian Constitution,
- International Agreements, such as the 169 ILO Convention,
- The United Nations Declaration on the Rights of Indigenous Peoples,
- Mining Mandate No. 6 issued by the Constituent Assembly,
- The Mining Law,

- The Organic Law of Citizens' Participation,
- The verdict of the Constitutional Court published in the Supplement to the Official Gazette No. 176 dated 21 April 2010, on implementing a consultation process to obtain the free, prior and informed consent of the populations located in the area of influence,
- The Environmental Regulation for Mining Activities,
- The Organic Statute for Processes of the Ministry of Energy and Mines, and
- Several Ministry Agreements.

Numerous specific observations of the Comptroller demonstrate the impositions placed on Ecuador as a result of the practices of the extraction industry, at the expense of the environment and in violation of the rights of nature and the affected populations.

The resistance continues: The peoples' march for life, water and dignity

Even though activists involved in the Mirador case spent effort to utilise legal channels a number of times, mobilisation actions are still the main means of resistance against the project. In March 2012, Chinese diplomatic authorities had to react publicly to environmentalist protests that arose after signing the contract with EcuCorriente, in front of their embassy in Ecuador (*El País Internacional*, 16 March 2012).

The Peoples' March for Life, Water and Dignity (la Marcha, <http://marchaporlavida.net/>) was organised at countless local farmer and indigenous Saraguro and Shuar assemblies, starting in January 2012. In addition to motives such as defending the water, the initiative sought to promote a national debate on the implications of large-scale mining operations. The march set off on 8 March 2012 from El Pangui in the Zamora Chinchipe Province, which is the area that the Mirador Project will directly influence. It reached Quito—the capital—in 15 days, arriving on 22 March, International Water Day, three days after the first mining contract was signed between the Ecuadorian government and ECSA.



Photo 20
State of emergency in Zamora Chinchipe and Morona Santiago, and repression o the Ecuadorian Army in the El Quimi area against anti-mining protesters

Photo credits: Acción Ecológica



The government's view of the march was very negative, claiming that its main objective was to destabilise the government that was in the right, and that the call failed. It is not surprising that the march was boycotted via various actions; the marchers were discredited, safe-passes for busses to freely circulate at the national level were denied, police forces were dispatched, the march was infiltrated, and counter-marches were organised and provided with all the logistic resources needed. In spite of all this, the Peoples' March for Life, Water and Dignity was massive and a heroic expression with national support. It was helmed by the indigenous movement, represented by the Confederation of Indigenous Nationalities of Ecuador (CONAIE) that travelled more than 700 kilometres (435 miles) to reach Quito and received several expressions of solidarity along the way.

The march had a 19-item mandate (that may be found on CONAIE's website), which started by asserting that all unconstitutional laws and regulations should be annulled. One of the main rejections of the mobilised group was large-scale mining operations and the first contract signed between the government and the Ecuacorriente. Consequently, the second item of the mandate states "No to large-scale mining. Repeal the Mining Law for being unconstitutional, and the mining contract with ECSA signed on March 5th". Similarly, the Mandate rejected other extraction activities—such as oil extraction—and mega hydropower projects, and promoted the defence of rights, such as access to water. Overall, the different items of the march advocated for the protection of community lifestyles, especially those of indigenous peoples and nations. Finally, it is important to note the items against the criminalisation of social protest and the right to prior consultation.

Ultimately, the Peoples' March for Life, Water and Dignity was a pilgrimage of hope that restored the voice of the social movement, and a necessary announcement of social and collective resistance to large-scale mining in the country.

4.4 Policy recommendations

The CC is one of the areas with the richest biodiversity in the world, and also one of the lesser-known scientifically. Its environmental and cultural (and therefore spiritual) wealth is threatened by extraction-oriented, short-term policies to mine copper and gold on a large scale.

Both the mining industry and the Ecuadorian government claim that existing technology and respecting current standards and laws would resolve social and environmental problems. However, analyses of the first EIA for the Mirador Project indicate the exact opposite is true.

Mining projects, especially those run by Chinese firms, in the CC along the border between Ecuador and Peru are examples of the increasing territorial control in frontier areas. Frontier zones are often associated with National Security policies, and therefore there are laws that prohibit the establishment of such industries; however, these laws have been openly violated.



The achievements accomplished by the resistance to Mirador may be assessed in two ways. First, community mobilisation and actions clearly demonstrated that there is a popular and persistent opposition. Second, the issue was successfully included in the institutional policy-making sphere through the Mining Mandate, and CGE's preliminary report on the environmental audit. However, this second approach has several obstacles. The Ministry of Energy, Mines and Petroleum was fully aware of the Mining Mandate but did not fully enforce it, and continued to grant licences and sign concession contracts that were probably covered by the Mandate—meaning, annulled. Consequently, as mentioned earlier in the case of Mirador, the Ecuadorian state's lack of will to monitor compliance with the Mining Mandate resulted in the violation of national laws and rights.

A major recommendation would be for the Constitutional Court of Ecuador to resolve the issue of noncompliance with the Mining Mandate. This way, omissions and disregards by the local, regional and national authorities would be corrected. The Constituent Assembly decided to revoke the concessions; hence the MRNRR (then Ministry of Energy, Mines and Petroleum) should have identified the concession-holders who fit the conditions of the Mining Mandate and notified them about the suspension of their concession rights. Concessions covered by Mining Mandate No. 6 have been revoked; it would therefore be best to declare them, and other relevant activities, invalid.

This means that mining concession titles, authorised environmental licences, and changes to the mining phases in the CC should all be invalidated. Another main reason to suspend mining operations in the CC is that indigenous peoples were not consulted. In addition, the ministries that decide on mining policies should take the studies conducted by various institutions on the threat the Mirador Project poses for the CC into account. Under this disregard it is considered appropriate to remove from office, among others, the Minister of Energy, Mines and Petroleum, the Minister of Non-Renewable Natural Resources, and Undersecretaries and Regional Directors of Mining.

A practical recommendation is the need to improve information transparency, on a timely basis. Currently, actors involved in this case have great difficulties in accessing information. In most cases, these documents can only be obtained from the Ministry of Non-Renewable Natural Resources at a cost.

Ultimately, it is recommended that mining companies in the CC stop their activities in the area, until the acts that violate the Mining Mandate have been resolved.



5 Uranium mining in Namibia – Is this a latent conflict?

by: Bertchen Kohrs, Marta Conde, Bruno Chareyron

“The unleashed power of the atom has changed everything except our way of thinking, and therefore we drift into an unprecedented catastrophe”
(Albert Einstein, 1946)

5.1 Background

Increasing energy demand, climate change and peak oil created an opportunity for the nuclear lobby to promote nuclear energy as a “clean” alternative as nuclear fission does not emit CO₂. Important advisory groups such as the Organisation for Economic Cooperation and Development (OECD) and the World Energy Organisation see nuclear energy as necessary for future energy matrices (OECD, 2008). Yet, the nuclear energy industry often overlooks the fact that the nuclear reactor is just one part of the long production process. Uranium extraction, processing and transportation as well as the disposal of nuclear material with impacts along the nuclear chain, are often ignored or forgotten (Kuletz, 1998).

Uranium is extracted by processing the ore to obtain “yellow cake”, generally done *in situ*, on the mine compound. The concentration of uranium in the rock is generally very low, varying from 0.075 to 0.01 percent and as such, huge quantities of residues containing uranium isotopes are created and deposited, forming tailings stored in dams. Seepage from the dams into surface and underground water systems poses one of the highest risks. The radon gas released to the atmosphere also creates health risks to the workers and surrounding communities as well (Brugge, 2005; Kuletz, 1998).



Year	Event
1966	London-based Rio Tinto Zinc (RTZ) obtained the concession to mine uranium at Rössing. South Africa's apartheid regime governed Namibia (then South West Africa) and exempted Rössing from paying tax for nine years, until investments turned into profit.
1970	The British government secured crucial contracts to purchase Namibian uranium for both atomic and civilian purposes (Roberts, 1981; Moody, 1992).
1974	The United Nations (UN) applied a decree prohibiting any trade with Namibia which made import and export of goods and any other business with Namibia illegal. Importing and enriching uranium from Namibia was thus against the UN Charter. Despite the decree, when Rössing opened, it supplied large quantities of uranium for nuclear weapons and power plants in South Africa, USSR, China, Japan, Europe, and the U.S.
1976	Operations commenced at Rössing.
1976	Due to poor working and living conditions, Rössing workers mobilised and held strikes (Hecht, 2010; Moody, 1992).
1977	The Campaign Against the Namibian Uranium Contract (CANUC) was initiated with the objective of stopping the uranium trade between the U.K. and Namibia (Roberts, 1981).
1980s	The anti-apartheid movement and PARTIZANS organised several protests against importing Namibian uranium (Moody, 1991).
1988	The Rössing Mineworkers Union was formed.
1990	Namibia gained independence.
1992	"Past Exposure" (Dropkin and Clark, 1992), a report that denounced the high levels of radiation and pollution through the mining activities was published.
1996	Publication of Dr. Reinhard Zaire studies, denouncing increased risks of genetic damage and a worrisome reduction in testosterone levels (Zaire et al., 1996, 1997).
1997	Edward Connelly, a former mineworker with cancer, filed and won the court case that granted him the right to bring his US\$ 650,000 compensation case to the U.K. (Meeran, 2011; Hecht, 2010).
2005	Earthlife Namibia appealed to the government, politicians and all Namibian political parties to stop mining operations at the Langer Heinrich Mine, located within the Namib Naukluft National Park.
2007	The government enacted a moratorium on new Exclusive Prospective Licenses (EPL).
2008	Earthlife Namibia and the Labour Resource and Research Institute (LaRRI) began an awareness campaign about uranium expansion in Namibia and the risks it may cause.
2008	A 25-year mining licence was granted to Forsys Metals Corp. to develop Valencia Uranium (Pty) Ltd.
2008	A court case questioning the Ministry of Agriculture, Water and Forestry decision to grant water abstraction permits to Valencia Uranium was filed with the High Court.
2009	Ministry of Mines and Energy grants mining license to AREVA to start the Trekkopje mine. However, due to a low uranium grade and uranium price, mining activities have been postponed till economic conditions improve.
2011	In January, Swakop Uranium received environmental approval from the Ministry of Environment and Tourism (MET) to develop the Husab mine.
2011	Epangelo was created, which allowed the government to own licences for strategic minerals, generally in partnership with mining companies.
2012	Etango mine, a controversial project for being located next to the tourist hotspot of the Moonlandscape, was given Environmental Approval by the Ministry of Environment and Tourism (MET)
2012	Chinese state-owned Guandong Nuclear Power Corporation (CGNPC) took over the Husab project, the biggest project in Namibia, located very close to Rössing (Namibia Economist, 2 March 2012).
2012	Following a visit by the Commission for Independent Research and Information on Radioactivity (CRIIRAD) in Namibia in September 2011 in the context of the EJOLT project, CRIIRAD and Earthlife staged an awareness campaign.

Table 11 Chronology of events in Namibia

Source: Own elaboration



The increase in uranium demand, reflected in rising uranium prices, has boosted exploration efforts and the number of mining companies searching uranium. Social reactions and stricter environmental regulations regarding uranium mining in countries such as Australia and the U.S. coincide with the shifting of mining activities to poorer countries with less restrictive legislation (Campbell, 2009; MMSD, 2002; Otto, 1998). John Borshoff, Managing Director of Australian mining company Paladin Energy expressed this clearly: “The Canadians and the Australians have become over-sophisticated in their environmental and social concerns over uranium mining, the future of uranium is in Africa” (Sun Herald, Melbourne: April 2006). Most African countries lack proper legislation, and taxes and royalties are also significantly lower than in industrialised countries.

Consequently, Namibia emerged as a new frontier for foreign uranium investors with four to 12 more mines opening in the future. Although one would expect to find environmental conflicts such as those with the Navajo Nation in the U.S. or Aboriginal communities in Australia, the mines in Namibia are located in a remote stretch of the desert and many communities have not yet been (and might not be) impacted. The Namibian government is very keen to promote this sector as it needs foreign revenues, and Namibia has a very high unemployment rate. However, conflicts against uranium mining arose and receded in the past, and the current uranium rush has triggered different reactions. Is Namibia a good place for mining or are we facing a latent conflict? The following report gives some clues to answer this question.

Brief description of the geographical, ecological, economic, social, and institutional context

Namibia has emerged as a frontier for foreign investors in uranium mining, and is experiencing a “uranium rush” that could well turn into a “uranium crush” if not managed properly. With a production of about 5,200 tons of uranium oxide (U_3O_8) in 2010 by two operating mines, Namibia is the world’s fifth largest uranium producer.

A Strategic Environmental Assessment (SEA) was conducted on behalf of the Ministry of Mines and Energy (MME) and three possible scenarios were investigated. According to the study, by 2020, four to 12 uranium mines could be operating in the Namib Desert (MME, 2010). At present, the construction of four factories on the coastal area that will produce chemicals to be used by the mining industry is being discussed. Industries, uranium mines and chemical factories are in stark conflict with environmental conservation and tourism. There are plans to meet the demand for huge volumes of water and electricity by constructing a second desalination plant and a coal-fired power plant. Even a nuclear power plant is under discussion.

Uranium mining provides short-term income with long-term impacts. Of primary concern is the destruction of the natural environment, the possibility of radioactive contamination of surface and groundwater, the high demand for water in an arid area and the health risks for the mineworkers and people living nearby. To a large extent, the uranium deposits are situated in the protected Namib Naukluft Park



and the recently proclaimed Dorob Park, both pristine tourist destinations. Thus uranium mining, like any other mining activity, creates an imbalance between economic benefits and ecological conservation.

Description of the project(s)

Presently, there are two operational uranium mines in Namibia, the Rössing Uranium Mine and Langer Heinrich Uranium (LHU). Construction of the Trekkopje Uranium Mine has been completed, however, production is currently on hold. The Etango, Husab, Omahola, and Valencia mines are expected to start operating within two to five years and the Aussinanis, Ripnes, and Marenica mines are at the exploration stage.

The expansion of uranium mines will be accompanied by an estimated threefold increase in demand for chemical reagents required for the leaching process. These chemicals are currently imported, mainly from Asia. In April 2011, South Africa-based Gecko Chemicals announced the development of several industrial plants; a sulphuric acid plant, a soda ash and bicarbonate plant, a phosphoric acid plant and a caustic soda plant. Namibia has one deep sea harbour, Walvis Bay. According to Gecko, an additional harbour will be necessary for exporting and importing bulk commodities. The name for the proposed development is Vision Industrial Park (VIP). Four sites are earmarked for the factories; three of which are north of Swakopmund towards Wlotzkasbaken, and the fourth behind Dune 7 at Walvis Bay (Gecko,2011).

All sites are situated in the Dorob National Park and the Namib Naukluft Park, legally not meant for heavy industrial development. The entire coastal area is a special attraction for tourists, and the tourism industry now fears great income losses. This is again a very controversial issue that has sparked local opposition, especially in the town of Swakopmund, the residents of which feel more threatened by this development than by the mines that are located deeper in the desert. The projects are summarised in **Table 12**.

Environmental and socioeconomic impacts of uranium mining

Mining activities can have devastating long-term effects on the environment, the health of the workers and nearby communities. Uranium mining is more dangerous than other forms of mining due to the radioactivity of the ore. Although Rössing (and uranium mining companies in general) does not acknowledge radiation-related occupational health diseases, many workers have been suffering from cancer and other diseases that they link to their work in the mines (LaRRI, 2009). It is, however, very difficult to prove this link.

The socioeconomic impact of large-scale projects are often not properly considered, which was also the case in Namibia. The uranium boom in the Erongo region will likely draw migrant labourers and their families from other parts of the country. This will drastically increase the pressure on housing, schools, and hospitals, other public institutions, traffic, and water and electricity supplies. Dense settlements will add to the HIV/AIDS infection rate. Some fear that once the mining boom ends, artificial towns like Arandis and Usakos will turn into ghost



towns—and what will happen to the communities, heavily dependent on income from the uranium mines, when the mines are decommissioned?

Case Studied (Community)	Arandis	Topnaar		Spitzkoppe		Swakopmund			Valencia
Associated mine(s)	Rössing	Aussinanis	Ripnes	Trekkopje	Marenica	Etango	Omahola	Langer Heinrich	Valencia
Main mine owner	Rio Tinto	Reptile Uranium	Toro Energy Limited	AREVA	West Australian Metals /Hanglong Energy Limited	Banner-mans	Reptile Uranium	Paladin Energy	Forsys Metals
Nationality of owner	Australia/UK	Australia	Australia	France	Australia/China	Australia	Australia	Australia	Canada
Start of project	1976	na	Na	na	Exploration Phase	na	na	2007	na
Duration of project	12 years	na	Na	11 years	na	16 years	12 years	15 years	17 years
Location (Distance from mine)	8 km (5 mi)	5 km (3 mi) (approx)	30 km (18 mi)	50 km (31 mi)	55 km (34 mi)	36 km (22 mi) (approx)	45 km (28 mi) (approx)	82 km (51 mi)	5 km (3 mi) (approx)
Location (Near river)	Khan River	Kuiseb River	Kuiseb River	No	Omaruru River	Swakop River	Swakop River	Swakop River	Khan River and Aquifers
Location (National Park)	No	Yes	Yes	Yes	No	yes	Yes	Yes	No
Resource quantity (tU)	na	8,203	Na	103,000	na	68,900	23,043	74,500	38,100
Estimated mine output/year (tU)	4,500	na	Na	3,200	1,000	2,300-3,200	1,000	1,700	1,600
Type of company (jr/sr)	Senior	Junior	Junior	Senior	Junior	Junior	Junior	Junior	Junior
Number of Employees	2,384	na	Na	na	na	na	na	852	na
Subcontracted (% total employees)	969 (88%)	na	Na	na	na	na	na	637	na
Economic advantages	Rössing Foundation	None	None	CRS by AREVA	None	Influx of people and business			None
Tourism	No	Yes (Two camp sites)	Yes (Two camp sites)	Yes (one camp site)	Yes (one camp site)	Yes	Yes	Yes	Planned

Table 12 Description of uranium mining projects in Namibia

Source: Conde and Kallis, 2012

After mine closures, tailings and waste rock dumps will be managed by a fund that is supposed to be built by the mining companies. Mining companies have been doing this voluntarily so far, but presently there is no legislation that requires companies to do so or oversight by the government. Moreover, will this fund be sufficient to manage radioactive tailings that will endure for 100,000 years?

In terms of power consumption, future demand for power by the uranium mines will be between 150 to 200MW (MME, 2010). Presently, Namibia can produce 380MW and has a peak demand of 465MW. The deficit is imported, mainly from South Africa. NamPower, the state-owned utility, plans to build a 150 to 300MW coal-fired power plant that may be upgraded to 800MW in the future. The coal will have to be imported from South Africa, Botswana or Indonesia. The proposed location is Arandis, near the Rössing Uranium Mine. The government is even considering the construction of a nuclear power plant.



Photo 21 Tailings pumped into dams contain radioactive and toxic substances, and pose a threat to the environment and the groundwater resources for thousands of years

Photo Credit: MME (2010)

Tourism is one of Namibia's main income-generating enterprises. Tourists come to Namibia to experience its natural beauty. Namibia should continue to benefit from its unique natural attractions by keeping the natural environment intact and not letting it be damaged by mining. Uranium is mined heavily in the protected Namib Naukluft Park and Dorob Park, both attractive tourist destinations; a fact often not properly addressed in environmental and social impact assessments (ESIAs). According to natural park regulations, no heavy industrial development should be undertaken in protected areas. However, the MME is planning to grant more exploration and mining licences in the parks. Crisscrossing water pipes, power lines, roads and prospecting sites have already irreversibly disfigured the once beautiful and pristine Namib Desert.

The conflict

The conflict can be divided into two phases. The first began when Rössing, a Rio Tinto mine that opened and became operational in 1976, in the context of South African apartheid regime. The mine sparked international opposition and several international campaigns, some coinciding with the struggle for independence.



The second stage of the conflict is happening presently, as a reaction to the “uranium rush” described above. Reactions to these new projects have been patchy and unorganised, with few actions carried out by different small groups, organisations and individuals.

By the early 1980s, the U.K. was importing nearly half its uranium requirements from Rössing alone (Moody, 1991). The deal triggered the international “Campaign against the Namibian Uranium Contract” (CANUC), which brought together different organisations from the Namibian independence movement, the anti-apartheid movement (the deal was in breach of UN resolutions), and PARTIZANS (People against Rio Tinto Zinc and Subsidiaries), a London-based grassroots organisation. A number of direct actions and demonstrations were held in the U.K., Germany and Japan, mobilising students, anti-nuclear groups, nuclear disarmament campaigners and trade unions in the process. Uranium continued to flow from Namibia to the U.K., despite the fact that shipments were delayed and rerouted on several occasions, such as the February 1988 strike of the Liverpool dockworkers refusing to handle 13 containers with processed uranium originally from Namibia (Moody, 1991).

Photo 22
Members of the National Society for Human Rights (NSHR) protested at the ground-breaking ceremony of the Langer Heinrich Uranium Mine, held on 15 September 2005



Photo Credit:
 Kirstin Kraft, Allgemeine Zeitung

The international campaign highlighted the appalling living conditions, wages and worker rights in Arandis, the town built by Rössing to house its workers (Dropkin and Clark, 1992; Roberts, 1981). Rössing’s workers also mobilised and held continued strikes in 1976 and 1978 (Hetch, 2010; Moody, 1992). The crackdown was fierce, as the apartheid regime prohibited unionising, and in 1980 closed the main workers’ workers’ Union of Namibia, imprisoning much of its leadership without trial. Still, the combination of local and international pressure partly paid off. In the early 1980s Rio Tinto set up a special foundation to invest in improvements for Arandis. And in 1988, with independence around the corner, workers formed Rössing’s Mine Workers Union and fought to end racism in the workplace, extending this to safety and health demands (Hetch, 2010).



Nonetheless, in 1989 half of Rössing's workers lived in hostels without their families, while whites continued having the better jobs (Moody, 1992). The publication of "Past Exposure" by Dropkin and Clark in 1992—a report that denounced high levels of radiation and pollution in the mine, and documented massive seepage of some 3 billion litres of radioactive tailings prior to 1980—pushed the campaign even further. In response, Rössing invited experts from the International Atomic Energy Agency (IAEA) for inspection, who concluded that the mine had an "outstanding" track record and that radiation was well below limits (Hetch, 2010).

The health problems that many workers suffered from in the 1990s became the focal point of both the international campaign and the Mine Workers Union, who made this a priority objective. The Union hired a black Namibian medical student working in Germany to conduct a health assessment of Rössing's workers, who concluded that miners experienced a higher risk of genetic damage and a worrying reduction in testosterone levels (Zaire et al., 1996, 1997). Rio Tinto disputed these findings via two internationally recognised scientists, who concluded that there was "no chromosomal aberration" (Lloyd et al., 2001). The campaign reached a peak and then receded in 1998, when a former mineworker with cancer won the right to bring his US\$650,000 compensation case to the U.K.; however, the case was dismissed because the statute of limitations had run out (Meeran, 2011; Hetch, 2010).

The conflict entered a latent period that also coincided with low uranium prices and Rössing almost closing down. With the upsurge of uranium prices in 2003 that peaked in 2007, many exploration companies became interested in Namibia again, sparking a uranium rush with 66 exclusive exploration licenses being granted and the prospect of three to 12 more mines opening in the near future.

This expansion generated social reactions reflected in separate actions organised by various groups, mostly in response to the different individual projects:

- Earthlife Namibia and the Labour Resources and Research Institute (LaRRI) initiated a campaign in 2008 in which they denounced the implications and possible impacts of the "uranium rush". LaRRI exposed the health conditions of several current and former Rössing workers who were dying of cancer and other diseases. Many of them did not trust the company doctors, believing they weren't told the truth. As part of the campaign, three conferences were held (Windhoek, Swakopmund and Arandis) and several foreign experts were invited. This was the start of a debate that was widely covered in the national press.
- The Topnaar community near the Kuiseb River that could be affected by the exploitation of the Aussinanis Reptile Uranium deposit also made it public that they were concerned about the encroachment of these mines on their territory (*New Era*, 13 October 2008).
- The tourist sector in Swakopmund may be affected by mining operations in the Namib Naukluft National Park and the Dorob Park, as many tours are organised in the same areas. Moreover, there is also concern that people



arriving in Swakopmund in search for work might cause a sense of insecurity in the town, presently Namibia's top ranking tourist destination. The reaction from the tourist sector so far has not been too great, expressed via newspapers and internal meetings with a mine company (*The Namibian*, 31 October 2008; *The Namibian*, 2 October 2008). The residents of the town itself reacted when an associated industrial development that will produce reagents for the mine was envisaged adjacent to Swakopmund.

- A court case questioning the Ministry of Agriculture Water and Forestry decision to grant water abstraction permits to Valencia Uranium was filed at the High Court in April 2008, by a farm owner situated about 5 kilometres (3 miles) from Valencia asking the court to review the permit. The case is still pending in court and water has not been supplied to the mine. Farm owners in the Valencia area are very concerned about how the water extraction process might impact the environment and wildlife in a region where groundwater is already scarce.

Outcome of the conflict

After the Fukushima disaster, the "uranium rush" was put on hold to wait for the nuclear industry's response. The price of uranium fell, and some projects became unprofitable; however, several projects are still moving forward in Namibia. In the meantime, through the EJOLT project, Earthlife Namibia reignited the campaign; several public meetings were held, an internal meeting took place with mine representatives and a "Uranium Film Festival" was organised.

5.2 Relevant data for the analysis of the conflict and its impacts

Geographic data

Rössing uranium mine is located 65 kilometres (40 miles) inland from the town of Swakopmund in Namibia (coordinates: 22°29'03"S 015°02'56"E). The rest of the mines are found within a 100-kilometre (62-mile) radius from Swakopmund, all in the Erongo Region. Map 4 shows all the mines and most important communities.

Map 4
Main uranium mines in the area
(operational, under construction and planned)

Source:
Conde and Kallis, 2012





Social data

Namibia is a vast country, and the second least densely populated in the world; 2.1 million people share 824,292 square kilometres (318,261 square miles). Most of central and south Namibia is suitable only for sheep herding or other small-scale agriculture and is inhabited by scattered, small ethnic tribes. Uranium prospecting is concentrated in central Namibia, in the Erongo region, where the population is sparse; as a result, health concerns are more relaxed and possible resistance movements that can delay operations are rare. Several black communities and white groups in Namibia have or will have a relationship with one of the present or future uranium mines. The white communities (presented below) only represent small groups of people, whilst the black communities have larger numbers.

A short description of each community, their location and present socioeconomic status is given in **Table 13**.

Case studied (Community)	Arandis	Topnaar		Spitzkoppe		Swakopmund			Valencia
Associated mine(s)	Rössing	Aussinanis	Ripnes	Trekkopje	Marenica	Etango	Omahola	Langer Heinrich	Valencia
Indigenous community	No	Yes		No			No		No
Sacred value	No	Yes		No			No		No
Prior information consent	No	No		No (Areva consultation through ESIA)			No		No
Historically marginalised	No	Yes		Yes			No		No
Perceived health risk	Yes	Yes		No			Mixed		No
Health impacts	Yes	No		No			No		No
Powerful chief	No	Yes		Yes			No		No
Voiced discontent	Yes	Yes		No			Few		Yes
Legal challenge	Yes	No		No			No		Yes
Demonstrations	No	No		No			Yes		No

Table 13 Description of communities Source: Conde and Kallis, 2012

Arandis: Arandis was created by Rössing in 1976 to house their workers. It was built on an arid piece of land that was previously uninhabited; 8 kilometres (5 miles) from the mine. During the initial years, working and living conditions in Arandis were very poor (Dropkin and Clark, 1992), but improved greatly in the 1980s. In 1992, following Namibia's independence and low uranium prices, Rössing handed the town over to the government. This was accompanied by several retrenchments in the 1990s. The government was incapable of maintaining all the services and Arandis lost many of its facilities; the bank and the



petrol station were closed and the hospital was reduced to a clinic. Town residents suddenly found themselves having to pay for services, schooling and housing. Presently the town houses 4,500 people and the largest employer is Rössing, providing work for around 500 people from Arandis. Given that the town was created specifically for the purpose of housing mineworkers, there are very few alternative sources of employment (Hoadley et al., 2005).

Topnaar: The ancestors of the Topnaar community had lived in the vicinity of the mouth of the Kuiseb River for several centuries. During colonial and South African rule, the area where the Topnaar lived was declared a Game Reserve in 1907 and a National Park in 1979. They were threatened to leave their land on several occasions. Refusing to leave, they were granted semi-permanent rights in 1979, the year the Namib Naukluft National Park was established. In 2007, the total number of Topnaar in Walvis Bay and the Kuiseb Valley were estimated at 620, with almost half of them living along the Kuiseb (Henschel and Wenning, 2009). Their livelihoods are intimately linked to their land, subsisting mainly on livestock and the !Nara fruit that grow on the riverbed of the Kuiseb river. Water is still scarce and some settlements are made to purchase water from NamWater. The Topnaar community has been the only black community to show public concern about the encroachment of the current mining project on what they consider their homeland: the Namib-Naukluft National Park. Their apprehension was made public by Chief Seth Kooitjie and the disputed King Khaxab through different local newspapers (*New Era* 13 October 2008, *The Namibian* 28 October 2008). Many community members believe that the traditional authority (the Chief) has the power to stop the mines. There is a widespread belief that he will receive money from the mines. The Chief, however, seems to be more pragmatic; recognising that he lacks the power to stop the mines, he believes the company should at least provide jobs and help develop the community (Conde & Kallis, 2012).

The Valencia farmers: After independence, some of the unproductive farms in the arid northern areas of the Erongo region were divided and sold. Some white Namibians, attracted to the area's unspoiled nature bought five farms, approximately 6,000 hectares (15,000 acres) each. These were previously sheep farms, but underutilised due to water scarcity. When the new owners bought the land, their prime intention was to enjoy nature, the open spaces, and the landscape. In 2008, Canada-based mining company Forsys Metals obtained a mining license to develop one of the farms—the Valencia farm—into a uranium mine.

Although Valencia mine was granted the mining license, construction seems to be on halt. This may be due to its possible acquisition by the Forrester Group, the fall in uranium prices since 2007 and the lack of water. In fact, this last point actually initiated the only court case against a mine in Namibia. One of the farm owners near Valencia challenged the Ministry of Agriculture, Water and Forestry decision to grant four water permits that would have allowed the mine to extract 1,000 cubic metres (35,000 cubic feet) of groundwater per day in its construction phase (Court Case, 2008). Although all the farm owners are concerned and against the mine being located near or on their farms, only one challenged the water permits,

with the help of the Legal Assistance Centre (an independent legal non-profit organisation). The owner argues that not enough studies have been carried out and that the “precautionary principle” should prevail, especially when 30 percent of this water would come from an ancient underground reservoir. The court case is still pending.



Photo 23
A view from Arandis

Photo credit:
Marta Conde

Swakopmund: Swakopmund is a popular tourist town where the historic and colonial influence is readily apparent. With 145 restaurants, 135 tourism businesses, 97 B&Bs and 13 hotels, most of the town’s 29,000 inhabitants benefit directly or indirectly from tourism. Most of its travel agencies offer popular excursions to well-known areas in the Namib Naukluft Park, such as the Welwitschia Plains or the Moonlandscape. Several mines are in the process of obtaining licenses that will completely impair the sightseeing areas. The Etango project will be near the Moonlandscape, closing one of the roads the tourguides normally use. The Husab project will be located on the Welwitschia Plains, another tourist hotspot. Other mines will be located in nearby areas. Reactions have been varied; some are quite resigned to the existence of the mines since they feel they lack the power to stop them, while other operators think that although it will affect their business, it will be good for the general development of the country. Some defend the importance of conserving the park intact in the long run, as tourism is a sustainable source of income.

Ecological data

The present and future mines are all located in the Central Namib Desert, although small in size, is characterised by being one of the oldest and most diverse deserts in the world. Over 400 plant species and about 10% of Namibia’s flora occur in the central Namib (Burke 2003a). More than 30% of plant species are believed to be restricted to this area.

The impacts these mines can have on the flora and fauna are unknown as very few studies have been carried out in these areas. In fact, the EIAs carried out by



the mines generally discover new or rare species unknown before in this area. On the site of Langer Heinrich the extremely rare Waterberg sand lizard is of high concern due to its restricted range (Langer Heinrich 2004). There is also much concern for the regions flora as they are generally very slow growing. Any impact would therefore be long-term (Langer Heinrich 2004). Another example of this degradation are the unique lichen fields east of Wlozkasbaken that are under severe threat due to the desalination plant and the water pipeline from the Atlantic coast to the Trekkopje mine. Lichen fields are very peculiar phenomena that have developed in evolutionary time scales and require a very specific combination of environmental factors. There is nothing similar elsewhere on our planet (Juergens, 2007).

Table 14
Description of communities regarding ecological issues

Source: Conde and Kallis, 2012

Case Studied (Community)	Mine(s)	Water issues (present and potential)	Water scarcity	Impacts on env. (present and potential)	Closure plan/ closure fund
Arandis	Rössing	Yes	Yes	Yes	Yes/Yes
Topnaar	Aussinanis	Yes	Yes	Yes	na
	Ripnes	Yes	Yes	Yes	na
Spitzkoppe	Trekkopje	Yes	Yes	Yes	Yes/no info
	Marenica	Yes	Yes	Yes	na
Swakopmund	Etango	Yes	Yes	Yes	na
	Omahola	Yes	Yes	Yes	na
	Langer Heinrich	Yes	Yes	Yes	Yes/No info
Valencia	Valencia	Yes	Yes	Yes	na

Of concern is also the proliferation of mines and associated infrastructure such as roads and electricity lines criss-crossing the desert, greatly affecting the movement of wild animals.

Isolation, aridity, and the use of water-intensive techniques to extract low-quality ore means the mines need new water supplies, and the government is in search for funds for a new desalination plant. A 25 million cubic meter desalination plant has already been built by AREVA to feed its mine Trekkopje. When it becomes fully operational, it is expected to demand 15 million cubic metres (530 million cubic feet) annually. Desalinating seawater can impact marine life, and should be considered carefully.

Because of high salinity, the mines use the underground water of the Swakop and Khan Rivers. There are fears that if not monitored properly, the proliferation of uranium mining and production activities will deplete the Swakop and Khan Rivers.

One of the biggest threats is the contamination of rivers with radioactive seepage from the tailings dam. In a low-rainfall country like Namibia, it might take a long time for pollutants to reach the groundwater table. To avoid this, the groundwater needs to be monitored and tested over the long-term. An independent monitoring was carried out as explained in the next section.

Preliminary results of radiation monitoring near uranium mines by CRIIRAD

Uranium tailings contain a variety of contaminants that have to be safely contained for hundreds of thousands of years to avoid environmental hazards, due to the long half-life of some of the decay products. Since the milling process only extracts the uranium from the ore, about 85 percent of the original radiation and the decay products remain in the tailings. Among these are long-lived radionuclides such as thorium-230 (half-life of 75,000 years) and radium-226 (half-life of 1,600 years). The latter is of specific concern, since it continuously decays to radon-222, a carcinogenic gas.



Photo 24
The team taking water samples and making radiological measurements

Photo credit:
Marta Conde

In September 2011, CRIIRAD visited Namibia in the context of the EJOLT project. Two experts collected soil, sediment and water samples in the vicinity of the Rössing and Langer Heinrich mines. They also took radiological measurements at strategic places in the Namib Desert.

The preliminary results show that:

- The public parking area in front of the entrance of the Rössing mine has a dose rate six times above natural background value ($0.9\mu\text{Sv/h}$ compared to $0.15\mu\text{Sv/h}$).
- The waste rock dump of Rössing has no fencing and confinement.
- The tailings have contaminated the topsoil collected up to 2 km away from the tailings dam with radium-226 (between 960 Bq/kg and 7 400 Bq/kg) .
- The high uranium concentration in groundwater collected downstream of the Rössing mine from the alluvium of the Khan and Swakop Rivers raises the question of the origin of the uranium. Rössing has a network of dewatering wells and trenches to allow pumping contaminated waters back to the tailings. The efficiency and durability of the system is questionable.



Map 5

Uranium-238 concentration in underground water samples. Note the increase of radiation downstream of the open pit and the tailings dam

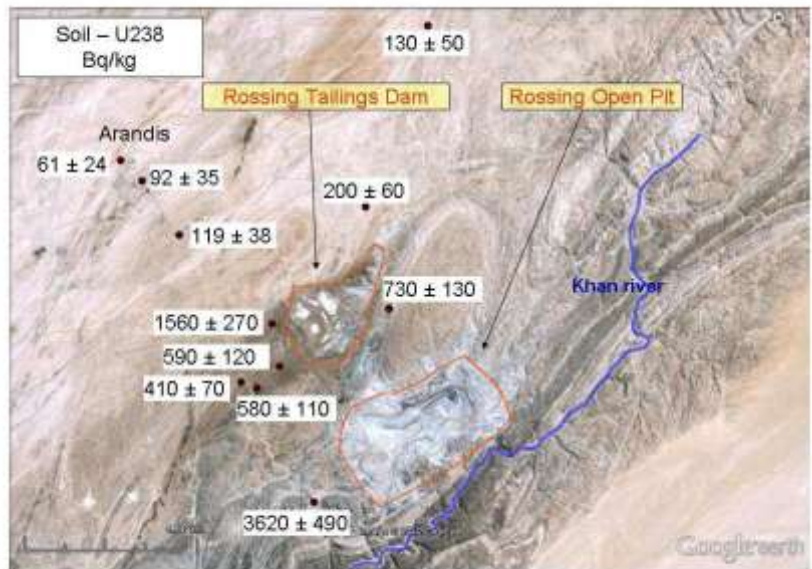
Source: CRIIRAD



Map 6

Uranium-238 activity in topsoil samples

Source: CRIIRAD



Map 7

Radium-226 activities in sediments of the Swakop, Gawib and Khan Rivers

Source: CRIIRAD





Institutional data

In terms of legislation, the Minerals Act of 1992, presently under review (as is many of Namibia's legislation) is the main concrete body of law. In its present form, it lacks important regulatory aspects such as for the provision of funds or a closure plan for the rehabilitation of the mining sites, and only mentions that the Minister of Mines and Energy may require an EIA. In a similar vein, the "New Environmental Act", passed in 2007 and recently implemented is lacking in that it neither requires an EIA nor provides for the closure funds once mines close (Environmental Management Act, 2007). Important also is the Nature Conservation Ordinance (No. 4 of 1975) that was breached with the Langer Heinrich uranium mine and other exclusive prospecting licences (EPLs) in Namib Naukluft National Park.

Environmental management is largely left to industry self-regulation such as ISO or corporate responsibility standards or the "Uranium Stewardship Committee" attached to the Namibian Chamber of Mines that aims to ensure all mining companies comply with the World Nuclear Association stewardship principles. However, this system is voluntary, not legally binding, not independently monitored and there are no penalties for non-compliance.

In terms of taxing mining companies, in 2004 the government tried to introduce a 5 percent royalty on all non-diamond mining companies. Following an outcry by the mining companies and the mining lobby, a clause was added to the 1992 Mining Act, stating this would only be done on a case by case basis. The tax is therefore still in dispute and remains at 23 percent. From 2000 on, the non-diamond corporate tax was replaced by a flat rate of 37.5 percent. These taxes are comparable to other African countries, but lower compared to Australia and Canada (Otto et al., 2006).

Corruption in Namibia is relatively low; the nation ranks 61st out of 180 countries in the global Corruption Perception Index. Yet, according to the Afrobarometer (IPPR, 2008), 49 percent of Namibian respondents felt officials were corrupt. Critics contend that there is an emerging black elite based around South West Africa People's Organisation's (SWAPO) control of the growing public sector (Melber, 2003; Bauer, 2001), which employs 22 percent of the working population, spending more than 30 percent of the GDP (Sherbourne, 2009), and channelling public funds to privileged interests in defence, paramilitary security and intelligence (Mbai and Sherbourne 2004 cited by Melber, 2007). Mineral exploration licences are protected by a secrecy clause in the 1992 Minerals Act, and the Minister of Mines and Energy has much leverage over the terms of agreement with foreign corporations, with no public oversight (IPPR, 2010).

In 2007, the government realised that the country was experiencing a "uranium rush" after it had handed out 66 EPLs, and passed a moratorium on new EPLs. According to the Mines and Energy Deputy Minister, the temporary moratorium provided time to produce a modern law and regulations that conform to international standards.



A Strategic Environmental Assessment (SEA) for the “Central Namib Uranium Rush” was carried out on behalf of the Ministry of Mines and Energy (MME). The SEA provides an overview and advice on how to avoid excessive negative cumulative impacts and how to enhance opportunities within the uranium industry. The SEA stated that “there is inadequate capacity in the Government of Namibia and the parastatals to administer the additional burden of the Uranium Rush in terms of implementing, contracting and building the necessary infrastructure, as well as permitting, licensing, authorising, enforcing and monitoring the mining companies and all related developments”(MME, 2010).

There is wide recognition within the government and private sectors that most government departments are understaffed. In the Ministry of Environment and Tourism, for instance, only one person is in charge of revising all the EIAs for the whole country (not only mining). The main hurdle is the lack of qualified and experienced workers in Namibia (Conde & Kallis, 2012).

The 2005 Atomic Energy and Radiation Act No. 5 has yet to come into force, because no regulations are in place. The draft regulations have several loopholes giving too much room for interpretation by the mining companies and ultimately a judge. If the court were to rule in favour of a company, the public could have far less protection from the mines than expected. Although the procedure for an ESIA is legally stipulated, the time for public response to a draft ESIA (21 days) is much too short for proper review and comments.

Box 5 Relevant Legislation on Mining, Nuclear Energy, and Environment

- **The 1992 Minerals (Prospecting & Mining) Act, No. 33** requires an Environmental Management Plan for all mining projects whilst rehabilitation efforts are at the discretion of the Minister.
- **The 2002 Minerals Policy** has some provisions on the protection of the environment but not the nuclear industry in particular.
- **The 2005 Atomic Energy and Radiation Protection Act 5** has not yet come into force.
- **The 2007 Environmental Management Act 7** has been in force since February 2012. A number of policies and regulations exist. Applicability depends on the promulgation of the Environmental Management Act, but it is unclear at the moment when it will become applicable. Draft regulations for SEA and EIA were published in 2008 to set uniform standards for EIAs and ensure that policies and plans are considered.
- **The 2011 Draft Nuclear Fuel Cycle Policy** is in progress; the first draft was published in December 2011.
- **The 1995 Environmental Assessment Policy** was not implemented until February 2012, when its precondition—to fill the post of an Environmental Officer at the Ministry of Environment and Tourism—was fulfilled.
- **The Namibian Constitution of 1990 states in Article 95:** “The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at ... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of natural resources on a sustainable basis for the benefit of all Namibians both present and future; in particular shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory.”



Economic data

Namibia is considered an African success story, with an average economic growth of 4.5 percent per year since independence and a GDP per capita of US\$ 3,614 (BoN, 2008), as well as a “well-functioning physical infrastructure and a market economy, coupled with rich mineral resources and a relatively strong public administration” (World Bank 2007a). This picture is overshadowed by three connected features: high levels of poverty; high unemployment and the country’s unequal distribution of wealth and income. This is reflected in Namibia’s income distribution; with a Gini coefficient of 0.56, it is amongst the highest in the world (World Bank 2007b).

It is true that by African standards, Namibia has a relatively good infrastructure that enables material export from the mines connected to port facilities.

In Namibia, the mining industry has been the main contributor to GDP since independence (15.8 percent in 2008), and also became the main exporter, with 50 percent of exports (BoN, 2009; Chamber of Mines, 2009). However, when several mining commodity prices fell to historical lows due to the 2009 crisis, all four copper mines closed (one recently opened), while NAMDEB (the 50:50 joint venture diamond mine of the Namibian government and De Beers) declared a three-month “production holiday” and downsized. The only commodity increasing in value has been uranium, surpassing diamond exports in 2009 (Chamber of Mines, 2009).

Namibia has its own development agendas such as the “Third National Development Plan” (NDP3 and presently developing NDP4) and “Vision 2030”, which “stipulates Namibia’s plans to be a prosperous and industrialised nation with per capita income equal to that of developed countries”⁹ (NPC, 2008). In order to achieve this prime objective, mining has been positioned as crucial in acquiring the much needed funds and foreign investment. This goes in line with development strategies promoted by the World Bank.

Health data

As a relatively new science, radiation protection emerged mainly after Hiroshima and Nagasaki were hit by nuclear bombs in 1945 and the military and scientists began to study the effects of ionising radiation. However, little is still known about the effects of low-level radiation (Lindemann, 2008).

There is no such thing as a safe dose of radiation. In uranium mines, cancers may take years or decades to develop. It is very difficult to determine whether the radiation dose causes a specific cancer. So it is problematic to relate the delayed impact on workers’ health to former work in a uranium mine, and for workers to obtain legal proof to receive compensation. However, through statistical research, the effects of radiation—including low-level radiation—on humans has been studied, and effects could be proven. The Navajo Uranium Miners and Millers

⁹ http://www.npc.gov.na/vision/vision_2030bgd.htm (accessed 8 August 2009).



Compensation Committee in Arizona, U.S., for instance, has succeeded in securing compensation from the U.S. government for uranium miners.

In Namibia, several studies confirmed health impacts on workers:

- In their 1992 study “Post exposure: Revealing health and environmental risks of Rössing Uranium”, Greg Dropkin and David Clark concluded that “workers in the final product recovery area were exposed to very high levels of radiation in the period up to 1982, and even now their exposures are significant. Their lifetime risk of fatal cancer is probably at least 1 in 25 and possibly as high as 1 in 9. The workforce at Rössing has not been told the truth about the dangers they face.”
- In 1993 and 1994, Dr Reinhard Zaire from the Benjamin Franklin University in Berlin, Germany studied 473 current and former Rössing mineworkers, and discovered changes in the chromosomes of their lymphocytes (white blood cells) (Zaire et al., 1996). This condition could pose an increased risk of cancer. Once the Namibian government was aware of the results, the authorisation for further studies was withdrawn and publication of the results banned. Two international experts appointed by Rössing refuted Dr Zaire’s findings.
- A qualitative (interview-based) study carried out in 2008 by LaRRI (LaRRI, 2009) revealed that many mineworkers complained of illnesses they attributed to their work at Rössing. The study concluded that:
 - Workers were not informed adequately about the dangers associated with uranium mining,
 - Many workers were exposed to dust and inhaled radon gas on a daily basis,
 - Some current and former workers contracted respiratory diseases such as TB and lung cancer,
 - Many workers developed chest and breathing problems, and
 - Workers no longer trusted the opinions of Rössing’s medical staff, because they believed that the true nature of their health problems was never revealed

Photo 25
Rössing mineworkers

Photo credit:
Marta Conde





5.3 Analysis of the case

Currently, the social reaction in Namibia is not very strong because the three “enabling factors” noted by Conde and Kallis (2012) are not yet fully present in the conflict:

1. Spatial ecology and the perceived degree of threat to their livelihoods. In Swakopmund, for instance, residents were much more fervent in their reactions to industrial development in their backyard than to mines located only 60 kilometres (37 miles) away.
2. The glocal factor, that links local organisations with extra-local actors, was very present in the 1980s and 1990s due to the anti-apartheid and liberation movement in Namibia, which receded greatly after independence.
3. Marginalisation that affects both white and black communities in Namibia. White communities are politically marginalised although they have access to the press and legal tools. Black communities like the Topnaar, although poor, are not marginalised. They are able to defend their livelihoods when faced with eviction orders. However, communal reaction will depend on the chief’s reaction, who presently is in favour of the mines and mining expansion.

Increased mobilisation and actions may be expected in Namibia; encroachment of the mines in the Erongo region will likely cause larger opposition, as their impacts become more noticeable (spatial ecology factor). The joint campaign by Earthlife Namibia and LaRRI, and the more recent actions with the EJOLT project are part of a “glocalisation” process, whereby these organisations create ties with international actors and help make impacts more visible. Such efforts, could be the first steps of an environmental justice conflict. However and for now, the situation in Namibia over the past decade—since the beginning of the uranium rush—may be characterised as a latent conflict.

5.4 Policy recommendations

The specific problems and related policy recommendations (with actors to execute them and the obstacles to overcome) are presented in the following **Table 15**.



Problem	Why does something need to be done?	Recommendations		
		What should be done?	Who could do what?	Obstacles
<ul style="list-style-type: none"> EIAs are not properly revised neither by the public and CSOs nor by the government through the Ministry of Environment and Tourism (MET). The EIAs must be revised by the public over a mere three-week period, and the MET lacks specialised staff to revise them. 	<ul style="list-style-type: none"> The public does not have enough time to revise the EIAs, which in many cases are several hundred pages long and contain highly technical terminology. The MET occasionally uses consultants for the revision of certain EIAs. However, selecting consultants and the parts to be revised is not done systematically, but at the discretion of a civil servant employed by the MET . 	<ul style="list-style-type: none"> If the Namibian government is serious about this consultation period, it should be extended to three months. This will also allow time for the MET to revise the EIA in an appropriate manner. Inappropriate EIAs for mining and uranium mining projects can be very damaging and thus they should be revised more thoroughly. Experts should be used systematically to revise each part of the EIAs. A shortlist of specialists for each part should be prepared in consultation with other ministries and CSOs. 	<ul style="list-style-type: none"> The MET and the MME should prepare an amendment to increase the revision period. The MET could be responsible for compiling a shortlist of experts and specialised consultants, and manage the process. 	<ul style="list-style-type: none"> There should be no obstacles to extend the revision period. The main hurdle would be financing the expert consultants.
<ul style="list-style-type: none"> There is no legislation in place to ensure the mines develop a Closure Fund and Rehabilitation Fund. Mine closure is very costly and needs to be built up in advance. Currently, mines generate a fund as they go along, but this is not compulsory and carried out at the discretion of the different mines companies. Rössing used its Rehabilitation Fund during the late 1990s and early 2000s, when it went through a bad period. In a country where water sources are scarce, preserving clean water sources should be a national priority. 	<ul style="list-style-type: none"> - Mines (especially uranium mines) can become serious environmental hazards if a closure and rehabilitation plan is not carried out. Important threats include the tailings dams, the waste rock dumps, the pits and the processing infrastructures themselves. Otherwise, impacts on the environment—water sources and soil—can cause irreparable damage for future generations 	<ul style="list-style-type: none"> A comparative study of rehabilitation funds in other countries—how and by whom are they managed, how much is earmarked beforehand, etc.—should be carried out by independent consultants with recommendations. Uranium mining should be studied separately, and specific recommendations should consider the special characteristics of uranium as radiation lasts for over 100,000 years. 	<ul style="list-style-type: none"> The study should be commissioned by the MME and the MET. The CSOs in Namibia should also be allowed to participate in the process. The recommendations should be put forward as part of the new mining legislation (revisions of the 1992 Minerals Act). 	<ul style="list-style-type: none"> The mining companies are going to lobby the government to make this fund as small as possible. The Ministries should take into account long-lasting future costs if this is not done properly.

Table 15: Policy recommendations for Namibia

Source: Own elaboration



Problem	Why does something need to be done?	Recommendations		
		What should be done?	Who could do what?	Obstacles
<ul style="list-style-type: none"> The mines are located within or in close proximity to Namib Naukluft National Park and the Swakop and Khan Rivers, and in the future may approach the Kuiseb River. Although the first two rivers are currently not used for human consumption due to high salinity, they should not be allowed to be polluted with radioactivity. While the Namibian government conducts monitoring work through the Water Affairs Department, it is not very stringent due to lack of staff (Conde & Kallis, 2012). Relying on monitoring efforts carried out by the mine companies is the norm. There are plans to improve the monitoring system. It is not only the environment that has or could be affected. For decades, uranium mineworkers have been complaining about falling ill due to working in the mines. The Namibian government has not dealt with this issue either through the MME or the Ministry of Health and Social Services. 	<ul style="list-style-type: none"> Mining companies need to be controlled to make sure they comply with the environmental regulations. There is a conflict of interest if they monitor themselves. Uranium mineworkers have been dying in the past decade; many of them probably from occupational diseases. Often, these workers are not fully aware of the implications of their diseases and unable to receive adequate treatment. The mining company is not transparent with neither the mineworkers nor the government, not handing in all the requested medical files. 	<ul style="list-style-type: none"> An independent monitoring program should be put in place. The mines should be monitored inside and out, and the results compared to results obtained by the mining companies. More staff should be trained and allocated to comply with this. The Ministry of Health and Social Services should demand the medical files of all workers at Rössing and the other mines, and conduct a proper health review. Workers who are ill should be monitored independently. If a link to an occupational disease is suspected, an epidemiological study based on all present and past cases should be carried out. 	<ul style="list-style-type: none"> The independent monitoring program should be carried out by the MET. More staff and resources should be allocated for this task. The Erongo Regional Health Department has already demanded the medical files of Rössing with no success. The Ministry of Health and Social Services should step in and demand those files. They should also be in charge of the health monitoring programme. 	<ul style="list-style-type: none"> Lack of qualified staff and funds in the MET and MME are the main hurdles which are not allowing for independent monitoring to happen. Lack of funds within the Ministry of Health and Social Services could be the main hurdle. The mines could be reluctant to hand in the medical files in full; moreover, they may choose not to provide the real medical files. Hence, an independent health monitoring programme should be put in place.

Table 15: (cont'd): Policy recommendations for Namibia

Source: Own elaboration

6

Synthesis

The aim of this section is to offer a synthesis of the described mining cases, review their commonalities, link gained insights with research needs outlined in the introductory section and discuss some policy recommendations that might follow from this analysis. As any other case-based study, this synthesis does not aim to provide evidence through statistical testing, but the number of cases involved and the systematic approach in addressing the narratives facilitate the identification of noteworthy patterns. Rather than being as the most comprehensive review on mining conflicts, this report is the first step in a large-scale collaborative effort to obtain key insights from some of the best known mining conflicts in the world.

General data and geographical span

Table 16 summarises the 24 cases selected and reported by EJOs and included as chapters along this report. As already mapped in the introduction, the cases comprise projects in three different continents, with a particular focus on mining conflicts in Latin America. The selection includes both national and transborder mining projects quite diverse in size, with investment budgets ranging from USD 100 million to USD 8,500 million, half of them close to or exceeding USD 1 billion. Therefore, there is a remarkable representation of large-scale mining. Often the projects are the largest mining investments in the respective countries. Such is the case, for instance, of San Cristóbal in Bolivia (where it is also the biggest foreign investment) or the announced investment of El Mirador in the Ecuadorian side of the Cordillera del Cóndor.

The selection of cases includes both national and transborder mining projects quite diverse in size, with a remarkable representation of large-scale mining

From a socio-metabolic perspective, 17 of these cases focus on conflicts related to metal mining (mainly gold, silver and copper), four address uranium mining, one refers to coal mining, and another to sand mining. Therefore, the targeted commodities are not only base metals (e.g. copper and zinc) or mineral commodities of interest to the energy or construction industries (e.g. coal, uranium, sand). They also involve precious metals such as gold and silver, mostly needed for the capitalist economy rather than for increasing the material scale of the economy, despite some of the industrial applications of these metals. In this latter case, the metabolic dimension should be rather explored through the amount of materials mobilised for the extraction, which is remarkable in the case of open-cast gold mining, including waste water.



Case	Country	Investment (USD M)	Material
La Angostura	Colombia	3.5 for exploration, 150 in land acquisition	Gold
La Colosa	Colombia	Na	Gold
Crucitas	Costa Rica	Na	Gold
Marlin	Guatemala	45 (WB loan)	Gold
San Xavier	Mexico	Na	Gold
Bergama	Turkey	Na	Gold
El Dorado	El Salvador	Na	Gold, silver
Cerro Blanco	Transborder (Guatemala, El Salvador, Honduras)	Na	Gold, silver
Mount Ida	Turkey	234.6	Gold, silver
Adatepe	Bulgaria	127	Gold, silver
Esquel	Argentina	100	Gold, silver
Pascua Lama	Transborder (Chile, Argentina)	4,700 – 5,000	Gold, silver, copper
El Mirador	Transborder (Ecuador, Peru)	8,740	Copper, silver, gold
Conga	Peru	Support of IFC (WB)	Gold, copper
Intag	Ecuador	Support from JICA	Copper
Tía María	Peru	946	Copper
Los Pelambres	Chile	760	Copper, molybdenum
San Cristóbal	Bolivia	1,400	Zinc, lead, silver
India Sand Mining	India	Na	Sand, building materials, minerals (gold, silver, silicates)
TES6	Slovenia	1,670	Coal
Namibia Uranium	Namibia	Na	Uranium
Niger Uranium	Niger	Na	Uranium
Caetité	Brazil	Na	Uranium
Kremikovci	Bulgaria	Na	Uranium

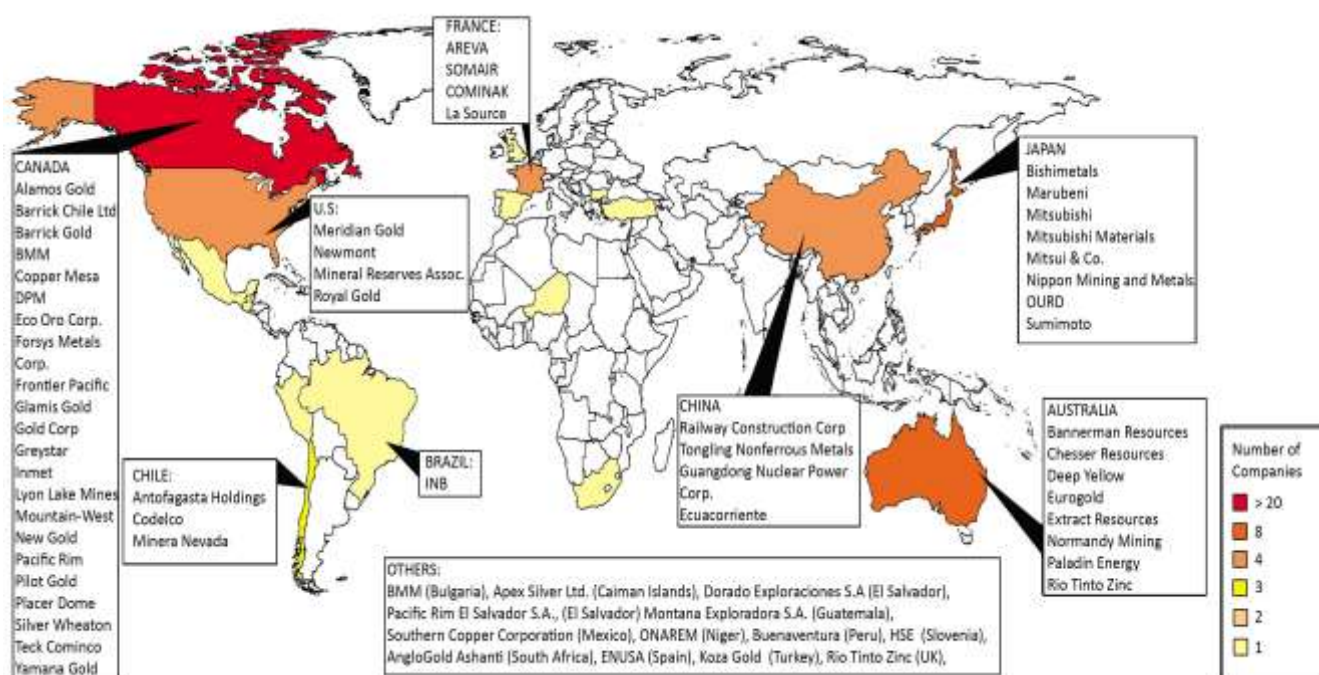
Table 16: Project descriptions

Source: Own elaboration

In many of the projects, the extracted mineral is (or is planned to be) shipped and exported to the global North or China

In fact, the geographical diversity of the selection provides the grounds to discuss the influence of neoliberal reforms and globalisation on the mining industry, particularly with regard to the rapid expansion of multinational mining capital throughout the developing world. These projects often generate the main domestic extraction of the respective commodity (e.g. zinc in Bolivia [San Cristóbal], gold in Colombia [La Colosa], uranium in Namibia) while the materials (and/or the monetary benefits from this extraction) do not remain within the national borders. As explained in different sections of this report, in several of the projects, the total production is (or is planned to be) shipped and exported to the global North or China (e.g. copper in Tía María and Los Pelambres; zinc and lead in San Cristóbal; uranium in Niger and Namibia). Noteworthy, in these cases, the country of destination is also the origin of the investment.

Table 16 shows the multinational firms involved in conflict case by case, with a map indicating the country of origin for each firm (see Map 8), with a clear predominance of countries from the global North. Still, the direct attribution of origin is not easy. On the one hand, the mining industry is the arena of frequent merger and acquisition activities between companies. Besides the difficulty of tracing the real origin of the capital involved the state of affairs changes very quickly. For instance, Ecuacorriente, operating in Ecuador under Canadian control, was acquired by Chinese corporations in 2010. On the other hand, many companies with diverse origin create their head offices in Canada in order to be listed in the Toronto Stock Exchange, the world's leading capital market for natural resource firms. This explains well the high number of Canadian companies represented in the map.



Map 8: Mining companies by their country of origin

Source: Own elaboration



Case	Companies involved
San Cristóbal	Mineral Reserves Associates (US) [planning]; Apex Silver Ltd. (Caiman Islands) [since 2007]; Sumimoto (Japan) [since 2008]
Los Pelambres	Antofagasta Holdings (60%) [Chile]; Nippon Mining and Metals Co. Ltd (15%); Marubeni Corp. (8.75%); Mitsui & Co. Ltd (1.25%); Mitsubishi Materials Corp. (10%); and Mitsubishi Corp. (5%) (Japan)
La Angostura	Greystar (Canada) [since 1995 and 2003]; Eco Oro Corp. (Canada) [since 2011]
La Colosa	AngloGold Ashanti (South Africa)
Crucitas	Placer Dome (Canada) [since 1994]; Lyon Lake Mines Ltd. (Canada) [since 1999]
Intag	Bishimetals (Japan) [since 1990]; Copper Mesa (Canada) [since 1997]; Codelco (Chile) [since 2012]
El Dorado	Pacific Rim (Canada) [since 2002]; Pacific Rim El Salvador S.A., Dorado Exploraciones S.A. (Salvador)
Marlin	Montana Exploradora S.A. (Guatemala) [1998]; Gold Corp (Canada); Glamis Gold (Canada)
San Xavier	New Gold (Canada)
Tía María	Southern Copper Corporation (Mexico)
Conga	Newmont (US); Buenaventura (Peru)
Cerro Blanco	Entre Mares S.A. , Gold Corp (Canada)
Pascua Lama	Barrick Gold Corporation , (Canadá); Mountain-West Resources Inc. (Canadá); Royal Gold, Inc. (Us); Silver Wheaton Corp.(Canadá); Compania Minera Nevada Ltda.(Chile)
Mount Ida	Alamos Gold; Teck Cominco; Pilot Gold; Australian Chesser Resources
Adatepe	Dundee Precious Metals (DPM), (Canada); Balkan Mineral & Mining (BMM) (Bulgaria-Canada)
Esquel	Meridian Gold (US); Yamana Gold (Canada)
El Mirador	Ecuacorriente S.A. (Canada) [since 1999 to 2010];(China) [Since 2010] China Tongling Nonferrous Metals Group Holdings Co., Ltd (China) [Since 2010]; China Railway Construction Corporation Limited (China), [Since 2010]
Bergama	Normandy Mining (Australia), La Source (France), Inmet (Canada), Eurogold (established by Normandy in Turkey in 1989), Newmont (US), Frontier Pacific (Canada), Koza Gold (Turkey)
India Sand Mining	n.a.
TES6	HSE (Holding Slovenske elektrarne d.o.o.), (Slovenia) [100% state-owned]
Namibia Uranium	Rio Tinto Zinc (Australia/UK), Paladin Energy Ltd (Australia), AREVA (France), Guangdong Nuclear Power Corp. (China), Forsys Metals Corp. (Canada), Extract Resources (Australia), Bannerman Resources Ltd.(Australia), Deep Yellow (Australia),
Niger Uranium	SOMAIR, COMINAK. (France) [Subsidiaries of AREVA]; ONAREM (Niger) [State Owned]; OURD (Japan); ENUSA (Spain).
Caetité	Nuclear Industries of Brazil (INB),(owned by Nuclear Energy National Commission (CNEN), [Brazilian regulatory agency for nuclear energy])
Kremikovci	State owned enterprise

Table 17 List of mining companies by projects

Source: Own elaboration



As depicted in **Table 18**, the projects under discussion are mostly open pit mines and at different stages—some are in the planning or exploration phase and others are operational. Some of the projects have been paralysed or stopped as a result of the environmental justice movement. In this respect, as often highlighted by the involved EJOs, even if cancelled, the risk of a project going on is high. As long as the deposit is still underground, there will be incentives for its extraction, since its value may increase with the mineral scarcity. This uncertainty is damaging to alternative local investments in agriculture or tourism, as illustrated in the cases of La Colosa and Intag.

Case	Country	Status
La Angostura	Colombia	Planned
Adatepe	Bulgaria	Planned
La Colosa	Colombia	Exploration stage
Mount Ida	Turkey	Exploration stage
El Mirador	Transborder (Ecuador-Peru)	Exploration stage
Cerro Blanco*	Transborder (Guatemala, El Salvador, Honduras)	Under construction
TES6	Slovenia	Under construction
Marlin	Guatemala	Under operation
San Xavier	Mexico	Under operation
Pascua Lama	Transborder (Chile, Argentina)	Under operation
San Cristóbal	Bolivia	Under operation
Los Pelambres	Chile	Under operation
India Sand Mining	India	Under operation
Namibia Uranium	Namibia	Under operation
Niger Uranium	Niger	Under operation
Caetité	Brazil	Under operation
Bergama	Turkey	Under operation
Crucitas	Costa Rica	Paralyzed
Intag	Ecuador	Paralyzed
El Dorado	El Salvador	Suspended
Conga	Peru	Suspended
Esquel	Argentina	Stopped
Tía María	Peru	Stopped
Kremikovci	Bulgaria	Closed

Table 18
Project status of the conflicts

*Underground mine

Source: Own elaboration



Why do people protest? Environmental justice dimensions behind mining conflicts

According to Bebbington et al. (2008), witnessing extensive conflicts related to mining is no surprise, since compared to a few nuanced conceptual arguments about the potential benefits of mining, complaints against mining activities are numerous, complex and diverse. A general overview of the conflicts collated for this report is a case in point. All the cases studied here address specific underlying causes of the conflicts and successfully highlight the territories contested between industry and government experts, and the populations affected. Mainly, this concerns (i) the distribution of burdens and benefits, and the struggle over knowledge and risk, given scientific uncertainties; (ii) rights in terms of environmental conservation and preserving cultural integrity, indigenous rights, and moral values; and (iii) participation in decision-making on local development and the environment. These categories of arguments are rather intertwined in nature, and very much in line with Schlosberg’s (2003, 2007) analysis indicating that the demands of the global environmental justice movement are actually threefold: (i) equity in the distribution of environmental risk, (ii) recognition of the diversity of the participants and experiences in affected communities, and (iii) participation in policy-making. Additionally, there is also a claim against the threats to the communities functioning and capabilities, building on theoretical developments by Amartya Sen and Martha Nussbaum (e.g. Nussbaum and Sen, 1992; Nussbaum, 2006). As described next, the cases discussed in this report provide worthy examples for each of these four categories.

The demands of the global environmental justice movement are threefold:
(i) equity in the distribution of environmental risk,
(ii) recognition of the diversity of the participants and experiences in affected communities,
and
(iii) participation in policy-making

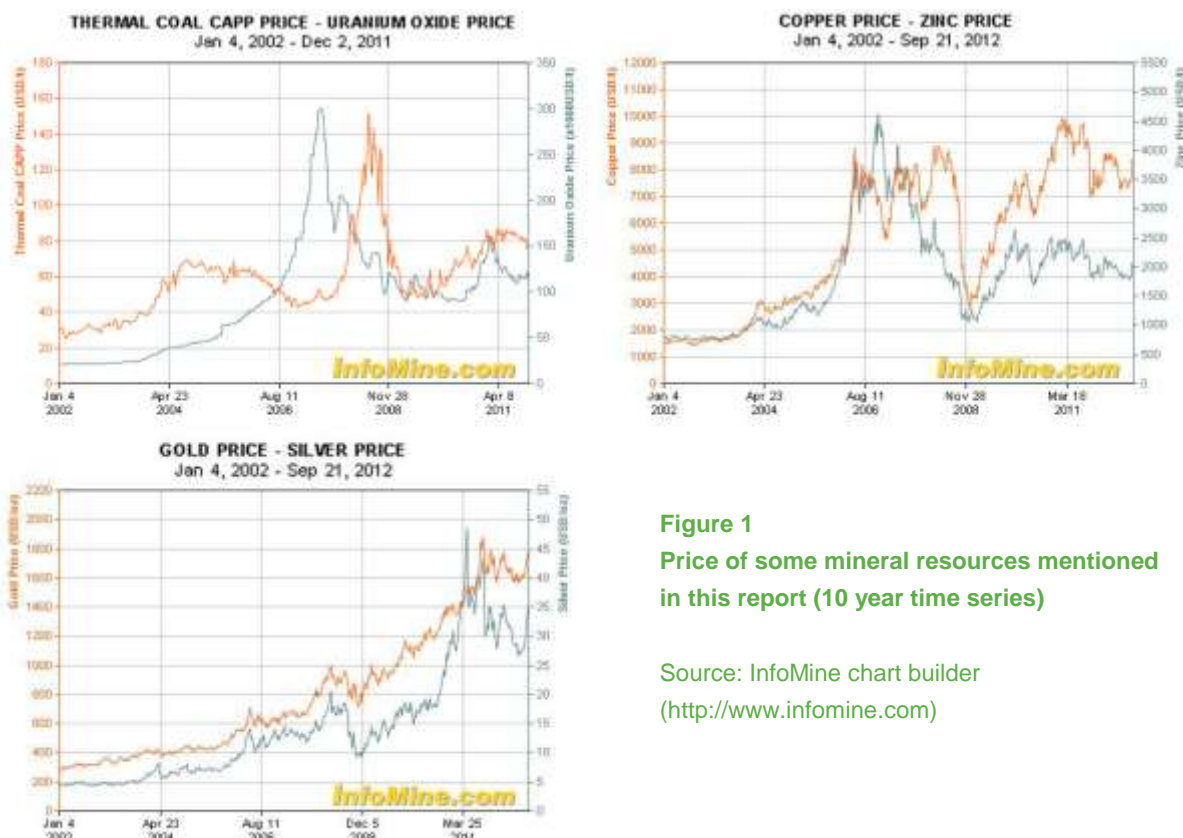


Figure 1
Price of some mineral resources mentioned in this report (10 year time series)

Source: InfoMine chart builder
 (<http://www.infomine.com>)



Despite global recession, the prices of base metals, energy resources and precious metals have been increasing during the last decade, with noticeable peaks in some periods

But, prior to this, looking at the market price trends of some of the mineral resources mentioned in this report (see **Figure 1**) one can see that corporate benefits of mining are a main incentive for new investments. Despite global recession, the price of base metals, energy resources and precious metals have been increasing during the last decade, with noticeable peaks in some periods. The particularly high prices of uranium oxide and gold have boosted interest in developing projects in regions where it used not to be profitable to invest.

For international investors, private profits are not the only reason to promote the projects. Industries in the country of origin (such as energy, construction/housing, automobile, shipbuilding, and consumer electronics) are highly dependent on stable imports of the involved mineral resources. In some of the cases reported (e.g. Japanese investment in San Cristóbal), this is stated as a benefit in an explicit manner by the companies themselves. In this respect, the role of China as a mining investor intensifies the pressure to acquire base metals around the world. This Asian country is now the world's biggest purchaser of copper, with 38 percent of the total demand, at a growth rate of 13.6 percent in the past 20 years (*The Economic Times*, 12/04/12). Even in a softened growth scenario, the Chinese demand for this metal—not domestically satisfied and driven more by long-term strategic interests than by the search for quick profits—is expected to push new mining projects around the world. The conflict about the Mirador project in Ecuador should be understood in this context.

Benefits are also argued for the country where the project takes place. Box 6 summarises the domestic arguments made in favour of mining, which really centre on a strategy of commodity extraction and export for economic growth and development.

Box 6 Domestic strategic interests in mining industry

- **Increasing exports** (e.g. San Cristobal, Los Pelambres, Tía María, Mount Ida, Niger Uranium, Adatepe)
- **Increasing government revenue** (e.g. Esquel, Namibia Uranium)
- **Production for domestic industries** (e.g. San Cristobal, Los Pelambres)
- **Prestige/strengthening of large-scale mining in the country** (e.g. La Colosa, El Mirador, Conga)
- **Attracting foreign direct investment** (e.g. Namibia Uranium)
- **Electricity production** (e.g. TES6)

This view sees economic growth as a necessary step towards sustainable development and believes that the mining industry will offer new opportunities for both local and national development, generating jobs and incomes. It was on that basis that the World Bank Group and other international financial institutions encouraged countries to commit to extractive industry growth as a development strategy in 1990s (Campbell, 2008). This led to significant increases in investment,

but has been accompanied by intense debate and conflict as well, when the costs of the projects are faced with the argued benefits.

At first glance, disagreements over resource extraction are primarily driven by actual or potential physical impacts. **Table 19** categorises the ecological, socio-economic, health and cultural impacts most frequently reported by EJOs within a time scale; namely, in terms of short/medium-term vs. long-term/potential impacts. These range from distributional concerns of income gains and losses or environmental burdens and risks, to adverse effects on human and ecosystem health and historical and cultural values. In fact, within Scholsberg's categorisation of justice demands, these complaints fall well under the first category—distribution of burdens and risks.

As depicted in **Table 19**, adverse health effects and risks are in many instances related to air and water contamination, cyanide use and uranium extraction. Moreover, ecological impacts refer not only to local concerns, but to biodiversity loss as well, including the extinction of endangered endemic species. Here, the water issue requires particular attention since it counts among the major environmental complaints.

At first glance, disagreements over resource extraction are primarily driven by actual or potential physical impacts. Adverse health effects and risks are in many instances related to air and water contamination, cyanide use and uranium extraction

Photo 26
An example for the
ARD in Rio Tinto,
Spain

Source:
Carol Stoker NASA





	Ecological	Socioeconomic	Health	Cultural
Short- or mid-term impacts	<ul style="list-style-type: none"> • Deforestation • Adverse impacts on climate and air quality due to noise, dust and poisonous gas contamination • Water depletion due to exploitation of underground and surface waters for mining • Water pollution due to waste dumping to open pits and waste rock disposal over water bodies (including toxic pollutants such as lead, arsenic, cadmium, chrome, cobalt and mercury) • Soil pollution due to waste discharges • Soil erosion due to mechanized sand mining • Risk of spreading of pollution due to the placement of waste facilities very close to the river • Dispersal of radioactive gas and dust due to open air storage of the radioactive ore and waste 	<ul style="list-style-type: none"> • Impact on grasslands and thus on cattle production because of mine dust • Adverse impact on water supply used for drinking and agriculture • Endangerment of local agricultural activities and food provision due to water uptake by the mine and decrease in soil quality • Sharp decrease in agricultural sales of residents because of the risk of radioactive contamination • Impact on land use due to the amount of mining right concessions appropriated by the company • Income losses due to loss of agricultural economic activity and livelihoods 	<ul style="list-style-type: none"> • Adverse effects on health due to mine dust • Increase of illnesses such as cancer, alterations in kidney function, central nervous disorders, genetic disorders and skin diseases related with toxic water exposure • Risks of poisoning due to cyanide use • Health effects caused by air, water and noise contamination (leading to respiratory and cardiovascular diseases, increase in allergic diseases) • Dead livestock due to water and soil contamination 	<ul style="list-style-type: none"> • Loss of livelihood due to displacement of neighborhoods • Damage to the ancestral homeland of indigenous communities • Unequal distribution of environmental burden on some ethnic groups • Damage to areas of peasant tradition • Damage to historical and cultural values given the location of waste rock piles very close to historical and touristic sites such as archaeological remains or sacred places
Long-term or potential impacts	<ul style="list-style-type: none"> • Changes in the water cycle such as in the drainage regime, sedimentation, loss of groundwater recharge, volume depletion in water bodies • Displacement of the glaciers beneath which most of the deposits are and impacts on the permafrost • Damage to environment and irreversible disfigurement of landscape due to desalination plants, water pipe lines, power lines, roads and prospecting sites • Degradation of the bio-physical environment, resulting in habitat and biodiversity losses including the extinction of endangered endemic species 	<ul style="list-style-type: none"> • Damage to glaciers which guarantee agricultural production during the dry season • Risk of dam failure with possible effects on the neighboring fields and the local community • Potential physical damages to residences due to mining activity • Security and social problems such as increase in criminality, addictions and prostitution; militarization of the area at the extreme • Income losses in tourism due to loss of natural landscape and damage to historical sites • Increased pressure on housing, schools, and hospitals, other public institutions, heavy traffic as well as water and electricity supplies due to boom in mining activities and related immigration • Incompatibility of the enforced development path with the regions' original development path/vision • Adverse impacts on social cohesion 	<ul style="list-style-type: none"> • Higher mortality rates due to exposure to radioactivity because of toxic materials dumped to tailing dams, contaminated wells, selling radioactive scrap from the mines and mills and re-use of radioactive waste rocks in buildings • Health impact due to decreasing water quality • Increase in HIV/AIDS infection rate due to dense settlements around the mines 	<ul style="list-style-type: none"> • Total/incompatible change in the regions' traditional way of life and vision • Adverse impacts on landscape qualities with historical and cultural importance

Table 19: Impacts of mining activities

Source: Own elaboration



Table 20 takes a closer look at water-related arguments offered here, underlying the utmost importance of the water issue. As it can be observed, water is a concern in practically all the reported conflicts, although the context may differ. In some cases the mining project comes to impair the access to the resource in naturally scarce areas; in other cases, there is a threat to water rich areas that have a key role in the maintenance of the hydrological cycle and its ecological functioning.

The twofold impacts encompass pollution and water depletion due to overuse. The cases offer examples of proved pollution (e.g. the cases of uranium mining in Niger and Namibia) and actual depletion (several on-going projects in Latin America) whereas there is a high risk of these two processes taking place in many of the new projected mines. Often both pollution and water depletion have occurred at once (e.g. Los Pelambres, Tía María, Marlin).

From the hydrological point of view, the effects are diverse. Physico-chemical and hydro-morphological characteristics of the water bodies are modified in a way that severely impairs water quality (both in surface and ground waters). This happened, for instance, in Los Pelambres, Caetité and Kremidovci and was foreseen to happen in Adatepe, La Angostura, Cerro Blanco, El Mirador and Conga. Abatement of groundwater levels has been detected in Tía María and San Xavier, both projects in water-scarce areas, and in the sand mining conflict in India. This issue was seen as a potential problem in La Angostura, Cerro Blanco, El Mirador and uranium mining in Namibia. Surface waters are also impacted (actually or potentially) through different means: water body depletion in El Dorado, La Angostura and Conga; instream flows decrease in Crucitas and uranium mining in Namibia; or induced glacier retreat in Pascua Lama.

In some cases, the actual or potential impact is a change in the hydrological cycle affecting surface-underground waters interaction (e.g. San Cristóbal, Intag). This has negative long-term effects, difficult to foresee with precision in the present, due to the diverse uncertainties involved. What it is certain is that some of the effects in the water cycle, such as the radiological pollution, the abatement of the groundwater levels of the glacier retreat are long-term or even irreversible damages.

The negative impact on the hydrological cycle adversely affects other uses of water, sometimes in areas where there is not an alternative source of supply. Sixty seven percent (16 out of 24) conflicts in this report involve damages for agriculture (either for irrigation or for cattle production) and sixty two percent (15 out of 24) entail impacts in drinking water supply. This basic right was the principal concern in the cases of uranium mining in Namibia and Niger, as well as the conflicts in La Angostura, Crucitas and Gonga.

Water is a concern in practically all the reported conflicts. In some cases the mining project comes to impair the access to the resource in naturally scarce areas; in other cases, there is a threat to water rich areas that have a key role in the maintenance of the hydrological cycle and its ecological functioning

	Name	Water pollution from mining waste	Water depletion due to overuse by the mine	Impacts on the hydrological cycle	Damage to other uses
Naturally dry, water scarce areas	San Cristóbal		Actual	Surface - underground interactions; surface water depletion	Agricultural uses
	Los Pelambres	Actual	Actual	Decrease in physico-chemical quality of groundwater	Drinking water supply (rural areas); agricultural uses
	Tía María	Actual	Actual	Abatement of groundwater levels	Agricultural uses (including cattle production)
	Adatepe	Potential	Potential	Decrease in physico-chemical quality of groundwater and surface water bodies	Drinking water supply (rural areas); agricultural uses
	Esquel	Potential	Potential	Decrease in flows and pollution of water sources	Drinking water supply, tourism uses
	Namibia Uranium	Potential	Potential	Decrease in instream flows and abatement of groundwater levels	Drinking water supply
Water rich areas	La Angostura	Potential	Potential	Surface water depletion and decrease in physico-chemical quality	Drinking water supply (urban area)
	Crucitas	Actual	Actual	Decrease in instream flows	Water supply for local communities
	Cerro Blanco	Potential	Potential	Abatement of groundwater levels; decrease in physico-chemical quality of surface water bodies	Drinking water supply; agricultural uses (including cattle production)
	Pascua Lama	Potential	Potential	Headwaters (glaciers)	Agricultural uses
	El Mirador	Potential	Potential	Decrease in hydromorphological quality of rivers; abatement of groundwater levels; decrease in physico-chemical quality of water bodies	Agricultural uses
Other areas	La Colosa	Potential	Potential		Agricultural uses
	Intag	Actual	Potential	General impact on the hydrological cycle	Water supply for local communities
	El Dorado	Actual	Actual	Surface water depletion	
	Marlin	Actual	Actual		Drinking water supply; agricultural uses
	San Xavier	Potential	Actual	Abatement of groundwater levels	
	Conga	Potential	Potential	Surface water depletion and decrease in physico-chemical quality of surface water bodies	Drinking water supply
	Mount Ida	Potential			Drinking water supply; agricultural uses
	India Sand Mining		Actual	Decrease in hydromorphological quality of rivers; abatement of groundwater levels	Agricultural uses
	Niger Uranium	Actual			Drinking water supply
	TES6		Potential	Changes in groundwater hydrology	
	Caetité	Actual		Decrease in physico-chemical quality of groundwater	Drinking water supply; agricultural uses
	Kremikovci	Actual		Decrease in physico-chemical quality of groundwater and surface water bodies	Drinking water supply; agricultural uses
Bergama	Actual			Drinking water supply; agricultural uses	

Table 20 Detected impacts on water

Source: Own elaboration



All in all, an overview of the conflicts discussed here effectively indicates that mining is widely regarded as an environmentally and socially disruptive activity. However, mining conflicts arise not only from physical impacts and distributional concerns. As Bridge (2004) notes, the problem is not always one of “cleaner production” or “environmental standards” but more of recognition of rights, closely linked to the second dimension of justice in Schlosberg’s categories. As in other social movements, recognition as a legitimate partner in the debate is as important as the distributional outcome. What are the requisites to recognise a Union in an industrial labour dispute or in a peasant struggle? In environmental mining conflicts, lack of recognition would be expressed through the devaluation of individual and collective rights of the communities by the promoters of the mining projects. Affected communities in Adatepe, for instance, demand their right to be heard as a peasant livelihood and agricultural production; in Esquel or Mount Ida, people claim respect for the right to a healthy environment and ecological integrity; or in the case of el Mirador, locals demand respect for their communitarian lifestyles and for indigenous territorial integrity. The work conditions in mines are a source of struggle particularly in the case of uranium mining; both in Namibia and in Caetité, people claim a right to healthy work conditions. **Table 21** lists the rights-based arguments collected from the case studies, according to some emergent categories. Interestingly enough, such categories also allow portraying the evolution of the environmental justice debate, from consideration of fundamental rights of disregarded minorities and communities to the recognition of rights, such as Nature. We also notice some overlaps in arguments, cases (e.g. uranium mining in Namibia) of working class demands for health. This is quite common in mining conflicts.

As indicated in Table 21, recognition here also refers to the right for alternative local visions of development, or for alternatives to development¹⁰ that are not compatible with mining. In the case of Esquel, for instance, the conflict revolved largely around two opposing views on mining and development. While one group of stakeholders saw mining as a beneficial local activity, other Esquel residents deemed the small size and quiet lifestyle of the city to be very valuable. The latter mainly wanted to choose strong, long-term sustainability over a project of uncertain environmental sustainability that privileged pecuniary income in the short-run.

Mining conflicts arise not only from physical impacts and distributional concerns but also of recognition of rights. Misrecognition would be expressed through the devaluation of individual and collective rights of the communities by the promoters of the mining projects

¹⁰ "Alternatives to development" was an idea developed since the 1980s by Arturo Escobar, Gustavo Esteva, Ashish Nandy, Shiv Visvanathan, Serve Latouche, Wolfgang Sachs and other authors who rightly claimed that Development implied a uniform pattern of economic growth that sacrifices populations, environments and cultures. For a recent statement: <http://transitionculture.org/2012/09/28/alternatives-to-development-an-interview-with-arturo-escobar/>

Dimensions of recognition		Examples
Fundamental rights	Human rights	La Colosa, Marlin
	Claims of adequate health care	San Cristóbal
Health-related rights	Claims of healthy labor conditions	San Cristóbal, El Mirador, Namibia Uranium, Caetité
	Claims of a healthy environment and ecological integrity	La Angostura, Mount Ida, Esquel
Rights to nature	Claims over clean water, access to water and water use	Los Pelambres, La Angostura, Tia Maria, Conga, Adatepe, Esquel, El Mirador
	Territorial rights of indigenous communities	Esquel
	Right to property	Intag
Right to livelihood security	Right to self-sustenance, work and livelihood	La Angostura, Intag, Mount Ida, El Mirador
	Right to peasant livelihood and way of life; right to agricultural production	Mount Ida, Adatepe
	Demand of recognition for local visions of development that are not compatible with mining	Esquel
	Claims of communitarian lifestyles and indigenous livelihoods; Buen Vivir (Good Living)	El Mirador
Rights of nature and sacred places	Rights of nature	El Mirador, Conga, Crucidas
	Claims of the protection of religious and sacred places	India Sand Mining, San Cristóbal

Table 21 Right-based claims in mining conflicts

Source: Own elaboration

This brings us to the third dimension of environmental justice, which focuses on the political and institutional order for decision-making and the ability of the community to participate in decisions about local development with prior informed consent. As in the cases of Intag, Conga and el Mirador, in several of the conflicts reported by EJOs, participatory procedures proved to be insufficient in terms of taking local views and concerns into account (see **Box 7**).

The Conga project was suspended by the company and the state of emergency was lifted by the government in Lima when an opinion poll in August 2012 showed that a majority of the population of Cajamarca was against it. The many demonstrations, the general strikes, the police violence that had led to five deaths of opponents and the persistent outspoken critiques against the project by the



elected regional authorities were not enough. The government and the company wanted to show until the end that they were in control; there was a very explicit attempt to downgrade regional and local participation. When Esquel's citizens realised that the decision-making processes excluded local values and interests, they focused on promoting alternative deliberation and participation spaces. The successful call for a local referendum reflected well the local communities' participation concerns and their determination in this respect.

Box 7: Participation related arguments in mining conflicts

- **Imposition of an external development model; right of local populations to choose their own development path** (e.g. La Angostura, Esquel, El Mirador)
- **Lack of consultation of the communities; lack of involvement in decision making** (e.g. Intag, Conga, El Mirador)
- **Lack of transparency in the mining project** (e.g. Pascua Lama)
- **Rights of the free, prior and informed consent (under the ILO Convention No. 169)** (e.g. Marlin)

The recognition and participation dimensions of justice are visible in particular with regard to water claims (**Table 22**). In naturally dry, water-scarce areas, for instance, such as Los Pelambres, Esquel, Adatepe or Namibia, affected communities claim access to water and demand clean water by prioritising surface water use for drinking and irrigation purposes and not for industrial interests. Even in cases where there is enough water available, such as in Pascua Lama, el Mirador, or Cerro Blanco, people are concerned by potential overuse of underground water or glacier damage, and demand more control over such natural resources that guarantee agricultural production and hence their livelihoods.

In addition to the unequal distribution of burdens and risks, lack of recognition and few opportunities to participate via official channels leads communities to protest mining activities as well. But how exactly do people protest? The following section will offer an overview of the various ways people have protested in the cases reported and discuss their effectiveness.

The recognition and participation dimensions of justice are visible in particular with regard to water claims



	Name	Water pollution from mining waste	Water depletion due to overuse by the mine	Participation and rights claims on water issues
Naturally Dry, Water Scarce Areas	San Cristobal		Actual	Right of access to drinking water: the company claims that it uses non-drinkable water which is denied by the residents
	Los Pelambres	Actual	Actual	Right to clean water, water access and use
	Tia Maria	Actual	Actual	Right to clean water, water access and use
	Adatepe	Potential	Potential	Right to clean water and water access and use; right to peasant livelihood and way of life and to agricultural production; the demand to prioritizing the use of surface water for drinking and irrigation purposes and not for industrial installations.
	Esquel	Potential	Potential	Right to clean water and water access and use; right of local populations to choose their own development path
	Namibia Uranium	Potential	Potential	Water scarcity issues
Water Rich Areas	La Angostura	Potential	Potential	Right to clean water, water access and use
	Crucitas	Actual	Actual	
	Cerro Blanco	Potential	Potential	The use of groundwater that is currently in use for agriculture and cattle production
	Pascua Lama	Potential	Potential	Concern on damages on glaciers which guarantee agricultural production during the dry season
	El Mirador	Potential	Potential	Right to clean water and water access and use; claims of communitarian lifestyles and indigenous livelihoods, Buen Vivir (Good Living)
Other Areas	La Colosa	Potential	Potential	Prevention of adverse impacts on food production
	Intag	Actual	Potential	Adverse impact on livelihoods and environmental resources (including hydrology)
	El Dorado	Actual	Actual	Water use
	Marlin	Actual	Actual	
	San Xavier	Potential	Actual	Pressure on water resources
	Conga	Potential	Potential	Right to clean water and water access and use; lack of public consultation and involvement in decision making
	Mount Ida	Potential		Right to peasant livelihood and way of life, agricultural production
	India Sand Mining		Actual	Threat on agriculture and local livelihoods due to water scarcity
	Niger Uranium	Actual		Concerns on environmental and health impacts
	TES6		Potential	
	Caetité	Actual		Conflict over access to public water supply: communities residing close to the mine do not have access to it, thus they rely on groundwater wells or dams (which might be contaminated by radionuclides) to meet their water demands
	Kremikovci	Actual		Concerns on environmental and health impacts
	Bergama	Actual		Demand to prevention of water contamination due to cyanide leak endangering both agricultural activities and drinking water

Table 22: Water-participation and right claims

Source: Own elaboration



How do people protest? Alternative means of protest

From an activist perspective, an analysis of the cases studied shows that opposition groups used various means in their struggles. EJOs and communities involved in mining conflicts developed networks and established platforms; organised awareness campaigns, panels, seminars; created alternative reports and knowledge that can be disseminated through the media in close collaboration with international EJOs and experts; held demonstrations and street protests; went on strikes; when possible, took the issue to parliament to voice their concerns and demand explanations from the government; appealed to judicial activism by filing court cases and objecting to EIAs; and promoted community consultations through alternative means and via referendum. In addition, the uncertainties of environmental risk and the difficulties in gathering statistical data in relation to radioactivity or toxicity gave rise to a new practice of activism in mining conflicts, where laypeople gather scientific data and other relevant information; the so-called popular epidemiology (Brown, 1992) discovered and promoted by the Environmental Justice Movement in the United States. In Caetité, for instance, the risks and uncertainties related to uranium mining and milling are at the heart of the conflict. Local EJOs argued that there is a lack of adequate information regarding human exposure to different levels of radioactivity and possible health effects (e.g. cancer), and a priest formed an alternative database by collecting as much evidence as possible about cancer-related deaths in the region, to undermine the official discourse that denied the risks to public health.

Moreover, two types of alliances may be observed: at different scales (the issue of glocality), and between the environmentalism of the poor and the conservation movement. In Pascua-Lama, for instance, the issue of the glaciers mobilised the conservation community to unite with local inhabitants. This has to do not only with how the conflict develops, but also with the type of impact (fundamentally ecological) prioritised in many of the high intensity conflicts analysed. In mining conflicts, however, alliances with consumer groups are lacking, contrary to what might be observed in certain biomass (wood extraction, where certification processes are sometimes active) or diamond mining conflicts. There, the so-called Kimberly Process has been effective until recently (until the Marange Diamond Mine in Zimbabwe under Chinese management endangered the international surveillance process). Meanwhile, “consumer blindness” seems to reign supreme in the cases studied in this report, although there are some attempts elsewhere to certify gold production.

In some cases, activists also employed less pacific means such as sabotage of machinery, arson and blockades in direct opposition to the involved companies or to different government levels. This tends to happen in the context of long-term conflicts, such as Intag, Adatepe or Caetité, where other means of protests have been disregarded by the authorities. It is interesting to notice in the Conga case the explicitly pacifist stand taken by Marco Arana as one of the leaders of the resistance, and the international repercussion of his violent arrest in Cajamarca on 4th July 2012 – this has led to talk on Gadhian ways of behaving that might or might not spread to other similar conflicts.

Two types of alliances may be observed in mining conflicts: at different scales (the issue of glocality), and between the environmentalism of the poor and the conservation movement. Alliances with consumer groups are often lacking



In fact, while the use of violent means is not the most common feature of mining activism, it is well documented that suffering violent repression is a relatively common situation. Activists involved in the assessed cases have dealt with various pressures (such as arrests, violence and even deaths/assassinations) and challenges imposed on them at different stages of the resistance movement. Box 9 lists some common methods of pressure that EJOs encountered in the conflicts under discussion.

Box 8: Common methods of pressure

- **Arresting activists** (La Colosa, San Xavier, Cerro Blanco);
- **Assassination of activists** (El Dorado, San Xavier, India Sand Mining);
- **Intimidation of activists, threats** (San Cristóbal, La Angostura, San Xavier, Caetití, Adatepe, Esquel);
- **Kidnapping activists** (El Dorado, Cerro Blanco);
- **Suing community representatives; false accusations** (Los Pelambres , Intag);
- **Violent repression of the protests** (India Sand Mining, Conga, Marlin);
- **Limiting public involvement** (Mount Ida, Esquel);
- **Sexual harassment** (Marlin);
- **Torture** (Conga, El Dorado).

Under such pressures and company lobbying, maintaining firm local cohesion against mining activities has not always been easy. In many instances—such as in the cases of Mount Ida, San Cristobal, La Colosa, El Dorado and San Xavier—mines create social schisms and tensions within families, between families and between communities. Companies have started adding anthropologists to their list of employees so as to better know how to divide the communities. While some local people start working for the companies or welcome development projects economically supported or sponsored by the industry, others consider the job offers and benefits as bribes to win hearts. They also claim that those who work for or cooperate with the companies are sacrificing the common good of the community for their own personal interests. Overall divisions within communities, combined with the promotion strategies and advertisement campaigns of mining companies create obstacles to opposition movements and lead to the questioning of their legitimacy (e.g. Pascua Lama).

Not all justice movements in this report were able to stop the projects completely. In fact, only a few of them did (e.g. Esquel, Tia Maria, perhaps also Conga). Success is always provisional. Another company might come later. Or artisanal mining (in the case of gold) might appear in the area. Crucitas in Costa Rica was also stopped and the president of the country declared in 2012 a moratorium on open cast mining. Even those struggles which have been unsuccessful, made critical differences in problematising the concept of development and/or the mining activity itself and as such can be considered successful justice movements contributing to a world movement. As mentioned in the methodology section, this is why many of the case studies in this report are seen as emblematic environmental conflicts in their countries within the context of the environmental



justice movement, and in some instances, of the global anti-mining movement that surpasses geographical boundaries. The following section offers a more detailed analysis of advances and results of the justice movements considered.

Box 9: Towards a theory of mining conflictiveness – some preliminary hypothesis

This report is based on a sample of mining conflicts from around the globe as characterised in **Table 23**. The political culture of each country (and region), and the average level of violence (comparing for instance Colombia and Argentina) are undoubtedly relevant for a more comprehensive theory of mining conflict and forms of resistance, but are not considered here.

The report links cases with low level conflict to an assorted series of impacts in African and European countries. Its primary assertion is tied to uranium mining's proven impacts on the environment and ensuing health effects, or foreseen ecological impacts of gold mining in Turkey. In the latter case, the level of conflict used to be more intense. Consequently, the question why areas that already suffer the negative effects of mining do not react through high intensity conflicts seems a valid one. Possible explanations might be:

- (i) Ignorance of the occurring impacts, or uncertainty regarding the nature of the impacts due to denial tactics the involved companies use, and
- (ii) Low population density that makes it difficult to share concerns and organise local responses.

Cases with the highest level of impact are mostly related to gold mining in various Latin American countries and Bulgaria, together with sand mining in India. Note however that gold and copper are often mined together (as is the case in El Mirador). Health concerns does not seem to be central in the protester' claims, who rather emphasise the water issue, among other actual and potential impacts on the environment, and the socioeconomic effects of the project. The paradigmatic cases of Conga and Esquel constitute situations where the right to community participation was impaired, triggering a higher level of conflict.

There are cases where impact is likely but not yet realised, because the project is not operating as originally planned. Still, the level of conflict tends to be high. What are the possible reasons? In the cases studied, the coincidence of both criteria (high/medium level of conflict and prevalence of potential impacts in non-operating projects) is usually linked to a main claim— to prevent environmental impacts. This may happen in areas where local livelihoods are highly dependent on the biophysical environment; be it the indigenous (e.g. El Mirador; Conga) or the non-indigenous population (e.g. Intag, Tía María, La Colosa). This may also occur in sparsely populated areas where ecosystems provide benefits on different scales of influence, such as the case of La Angostura, which supplies drinking water to Bucaramanga and the urban areas of the region, and Crucitas in Costa Rica or Cerro Blanco in Guatemala, trans-boundary areas that give water to communities on both sides of the border

Case	Main claims on impacts	Intensity of conflict	Hypotheses / Lessons	Ecological impacts	Water issue	Waste materials	Socio-econ.omic impacts	Health impacts	Cultural impacts
Mount Ida	Ecological	Low (Currently) Medium (Past)	Different intensities in different periods	P	P	P	P	P	P
Bergama	Ecological, Health	Low (Currently) High (Past)	Different intensities in different periods	P	P	P	A	P	A
Niger Uranium	Ecological, Health	Low	Not a high level of conflict in spite of actual health effects of uranium mining	A	A	A	A	A	
Kremikovci	Ecological, Health, Water	Low	Not a high level of conflict in spite of actual health effects of uranium mining	A	A	A	A	A	A
Namibia Uranium	Ecological, Health, Water	Low	Not a high level of conflict in spite of actual health effects of uranium mining	A	A	A	P	A	
Cerro Blanco	Ecological	Medium		P	P		P	P	P
Pascua Lama	Ecological	Medium		P	P	A	P		
Crucitas	Ecological	Medium	High importance of benefits of ecosystem services for the local population	P	P	P		A	
TES6	Ecological	Medium		P	P	P	P	P	
Los Pelambres	Water	Medium		A	A		A	P	
Tía María	Water	Medium	Local livelihoods dependent on the biophysical environment	P	P	P	P	P	
San Cristóbal	Water, Cultural	Medium		A	A		A	A	A
La Angostura	Ecological, Water	Medium	High importance of benefits of ecosystem services for the local population	P	P	P	A		P
Caetité	Ecological, Water, Health	Medium	Greater level of conflict in uranium mining	P	A	A	A	P	
El Mirador	Ecological, Water, Health	Medium	Local livelihoods dependent on the biophysical environment	P	P	P	P	P	P
La Colosa	Ecological, Socioeconomic	Medium	Local livelihoods dependent on the biophysical environment	P	P	P	P		
Intag	Ecological, Socioeconomic	Medium	Local livelihoods dependent on the biophysical environment	P			P	A	
Esquel	Ecological, Water, Socioeconomic	Medium	Participation and rights demands; Water as the main concern	P	P		P	P	P
El Dorado	Water	High	Water as the main concern	P	A				
Marlin	Water, Health	High	Water as the main concern	A	A		A	A	
San Xavier	Ecological, Water	High	Water as the main concern	A	A	A	A		A
India Sand Mining	Ecological, Water	High	Water as the main concern	A	A		A		A
Adatepe	Ecological, Water	High	Water as the main concern	P	P	P	P	P	P
Conga	Water, Socioeconomic	High	Participation and rights demands; water as the main concern; local livelihoods dependent on the biophysical environment	P	P	P	P		

Table 23 Relation between impacts and intensity of conflict .

Note : (A) Actual; (P) Potential. Source: Own elaboration



Outcomes of the justice movements

As this report shows, conflicts over mining and opposition movements, first of all, help demonstrate that mineral extraction and the expansion of commodity frontiers result in a broad set of concerns about the scale of human intervention in the environment, and directly relate to the social and ecological costs of globalisation. These concerns are reflected in various ways; for instance, as distributional concerns; as a demand to respect human rights to life and health; as insistence on indigenous territorial rights; as the introduction of alternatives to development (e.g. *buen vivir*) or of alternative visions of development and participatory decision-making; and as claims for the sacredness of nature. These arguments all make up the inseparable dimensions of justice, and are vital in rightfully contextualising the mining debate.

Second, different movements have been successful in involving a broad number of EJOs and articulating their demands forcefully through existing national and international networks and alliances or through new alliances and platforms emerging specifically to deal with mining issues, such as OCMAL in Latin America. Building networks and linking with movements in other parts of the country and the world are important not only for finding and circulating information, but also for sharing experiences and enhancing communal capacity for self-determination; and for strengthening the movements' agency and legitimacy.

In the case of Esquel, for instance, the Mineral Policy Centre and Greenpeace were important international agents, writing reports and financing local activities in the conflict, while the Autonomous People's Assembly (AVA), managed to become a real forum for deliberation and action. Later, the AVA promoted the establishment of the first national network against mining as well—the National Network of Communities Affected by Mining—and created the “*no a la mina*” website (www.noalamina.org) that is one of the most comprehensive sources of news and reports on mining conflicts in Latin America and across the world, in Spanish.

In some cases, academics working on these issues also became part of these networks and helped communities validate their arguments. The case of Namibia Uranium, for instance, is a good example of an alliance between activists and experts, where Earthlife Namibia collaborated with CRIIRAD to monitor and measure the radioactivity around the mines and communities. Similarly, in Adatepe, Za Zemiata invited Dr. Robert Moran to review the EIA during the public hearings and submitted a thorough critique of the EIA to the court. Dr. Moran was also publically active in the Conga Case in 2012 reviewing the company's EIA. Similarly, the cooperation between local EJOs and Fiocruz in Caetité has been effective in giving counter expertise and helped organize the data produced by local communities about environmental risks and health problems. Such collaborations between science and activists help communities learn from others' experiences and gain more self-confidence in their own capacity. In the end, they also become models for other cases and justice movements.

Concerns are reflected in various ways; distributional; demand to respect rights to life and health; insistence on indigenous territorial rights; alternative visions of development and participatory decision-making; and claims for the sacredness of nature

These arguments all make up the inseparable dimensions of justice, and are vital in the mining debate



In some of our presented cases the environmental justice movement led to concrete government action, through effective institutions that capture benefits and allocate the costs of resource development, or through changes in legislative and governance settings

Third, even if the justice movements were unable to bring the projects to a complete standstill, in many instances, they were able either to paralyse or suspend the project or improve project technology and management. In the case of Bergama, for instance, the mine has been operational since 2005. However, a professor of ecological chemistry played a highly influential role in shifting the movement's focus to cyanide-leaching, and opposition groups were able to force the company to make a number of salient technological changes before operations began. Similarly, in the case of Niger Uranium Mining, due to the accumulation of facts and scientific evidence showing the radiological impact of the uranium mines on the environment, AREVA had to make improvements in work conditions, close down contaminated wells and take the contaminated materials back to mines.

Fourth, there are also cases where the environmental justice movement led to some concrete government action where effective institutions that capture benefits and allocate the costs of resource development were established, or changes in legislative and governance settings related to resource use were made. In the case of Caetit , for instance, after negotiations, a Provisory Institutional Commission was created to monitor the management of radioactive materials, which also included representatives of local EJOs. In the case of sand mining in India, the Uttarakhand government ordered a ban on mining activities in the rivers considered sacred, following a hunger strike.

Table 24 offers a concise summary of alternative means of protest, their respective outcomes and the current project status for cases where there the opposition either succeeded or failed.



	Means	Outcome	Status
Kremikovci	Creation of alternative reports and knowledge Demonstrations and street protests Science-led activism	Technological improvements – by the state	Closed
Crucitas	Judicial activism Demonstrations and street protests Hunger strikes	Court decision (success) Compensation to affected families	Paralysed
Intag	Arson or sabotage Judicial activism Local ordinance limiting/banning mining	Company sued the state for compensatory damages	Paralysed
Tia María	Demonstrations and street protests Community consultation or referendum Strikes Objections to EIAs	Objection to EIA (success)	Stopped
Esquel	Demonstrations and street protests Community consultation or referendum Judicial activism	Governmental action (success) – new legislation	Stopped
Conga	Demonstrations and street protests	Company retreats due to resistance	Suspended
Adatepe	Judicial activism Blockages in roads Demonstrations and street protests	Court decision(s)(failure)	Planned
La Colosa	Demonstrations and street protests Judicial activism Local workshops or panels	Fine (for breaking environmental rules)	Exploration stage
Los Pelambres	Judicial activism, hunger strikes Blockages in roads	Fine (for water pollution) Court decision (success)	Under operation
India sand mining	Demonstrations and street protests Blockages in roads Hunger strikes Judicial activism	Court decision (success) Governmental action (success)	Under operation
Niger – Uranium	Creation of alternative reports and knowledge Networking with international NGOs	Management improvements – by the company Technological improvements – by the company	Under operation
Caetité	Science-led activism Demonstrations and street protests Blockages in roads Creation of alternative reports and knowledge Participatory research (popular epidemiology)	Management improvements – by the company Technological improvements – by the company	Under operation
San Xavier	Judicial activism Awareness campaigns	Court decision (success) Governmental action (failure)	Under operation
Bergama	Awareness campaigns Blockages in roads Community consultation or referendum Judicial activism Demonstrations and street protests Networking with international NGOs	Governmental action (failure) – new legislation Court decision (success) Technological improvements – by the company Compensation to affected families - by the state	Under operation

Table 24: Means and outcomes of the environmental justice movement in the assessed cases

Source: Own elaboration



An overview of the cases in this report illustrates the significance of environmental justice movements in strengthening the visibility of actual or potential environmental liabilities in legislative and governance settings as well. Box 11 depicts some of the socio-environmental obligations that governments and companies involved in the conflicts discussed here met, including remedying cases of contamination, and paying monetary compensation for damages, or fines and penalties for resource use rights. Unsurprisingly, there are also cases where the companies in fact sued the state for compensatory damages due to the revocation of mining rights (e.g. Intag).

Box 10: Liabilities in selected cases

- **Los Pelambres:** Small fine for water pollution (US\$ 4,300), compensation for water rights use (US\$ 0.5 M according to the court decision)
- **La Colosa:** Fine for breaking environmental rules and mining within a natural reserve (US\$ 140 M)
- **Crucitas:** Court order to pay compensatory damages to affected families. The minimum value of the environmental damage and cost of recovery after the forest clearing is estimated at US\$ 674,000/ha
- **Intag:** Copper Mesa sued the Ecuadorian State for US\$ 120 M in compensatory damages due to the revocation of mining rights in 2010
- **El Dorado:** Pac Rim asked for US\$ 77 M from the State
- **Mount Ida:** Because the mine site sits on top of water resources for more than 20 villages, the company needed to find another water source and construct the infrastructure to carry it to the villages
- **Niger Uranium:** AREVA had to make improvements such as washing the contaminated cloths used by the workers at the mine and not at home, and closing down the most contaminated wells used to supplying drinking water so that less radioactive water is used for drinking
- **Kremikovci:** Two water purification plants were built
- **El Mirador:** Potential liabilities, particularly over the water sources. The environmental authorities failed to fulfil their duties by allowing mining operations in Zamora to proceed without complying with regulations. Likewise, the authorities did not repair / compensate for persistent damages to the water in the Conguime area.
- **Bergama:** Villagers were able to force the company to make a number of salient technological changes. In addition, in its 2004 decision, the European Court of Human Rights found the State of Turkey guilty and ordered it to pay € 3000 to each of the 315 individuals taking part in the lawsuit.

Obviously, there are many reasons to expect that mining activities will continue to trigger protest, and EJOs have to continually learn from past experiences and work to turn such conflicts into forces for environmental sustainability. The following section aims to conclude this extensive discussion which is largely based on 'activist knowledge' with some general insights and policy recommendations.



7

Key lessons and conclusions

- The mining conflicts EJOs described in this report are a product of both social metabolism and the capitalist economy, with varying consequences regarding health, social cohesion and the environment. Then, the respective justice movements are part of **“corridors of resistance against mining districts”**—as characterised in the case of el Mirador—and have their own roles and contributions in the long-term struggle for environmental justice and sustainability.
- In the mining debate, a general overview of opposition discourses illustrates that justice claims are broad and diverse, encompassing distributional concerns, recognition of rights and participatory claims. While these claims are in many ways integrated and overlapping, **deciding which dimension(s) of justice is more relevant** in a particular case or at a particular time **should be the strategic decision** of the opposition movement.
- The cases covered in this report clearly show that EIA-related controversies are very common in mining conflicts (see, for instance, Los Pelambres, Conga, TES6, Caetité, el Mirador, Adatepe, Esquel, Namibia Uranium, and Bergama). Again, from a strategic point of view, such controversies seem to be worth pursuing. Experiences so far prove that **EIAs are neither well prepared by businesses nor well reviewed by governments** and, in this battleground, EJOs are usually able to make strong arguments against the validity of EIAs.
- **EJO collaboration with academia and experts** for critical reviews of EIAs seems to be a very fruitful endeavour. In el Mirador, for instance, expert consultation revealed that a) the EIA used incomplete data regarding water resources; b) the baseline was not adequate for the assessment of risks and impacts; c) the evaluation of impacts was not transparent; and d) the EIA did not provide mitigation alternatives for recognised risks and likely impacts. Yet, the main difficulty for the EJOs appears to be getting in touch with independent experts able to critically

The mining conflicts EJOs described in this report are a product of both social metabolism and the capitalist economy, with varying consequences regarding health, social cohesion and the environment. The respective justice movements are part of “corridors of resistance against mining districts and have their own roles and contributions in the long-term struggle for environmental justice and sustainability.



review the EIAs and experienced in detecting any missing, incomplete or inadequate information. Financing such independent consultation is another key obstacle EJOs face. Formal and informal networking among EJOs and academic institutions is particularly important for such purposes and can help to overcome both difficulties. These should be in fact public policies geared to improve the scope and quality of EIA by financing ‘opposing EIAs’.

Collaboration with science also clearly strengthens and legitimises justice movements by using technical and analytical tools, which help different actors to communicate and understand the arguments. There are good examples of such collaborative work, but much remains to be done. Multi-criteria analysis, participatory methods, economic valuation techniques, action research, legal instruments and technologies such as GIS mapping are some of the tools that EJOs can use, and the academia should make it easier for them to access these tools.

- Setting up **independent monitoring programs** both inside and outside the mines seems to be crucial, so that results may be compared to those obtained by governments and the mining companies. This somewhat necessitates public engagement in research, which also means that providing information is not the sole domain of experts and communities are capable of taking more control of their shared environments. Without doubt, such monitoring efforts require good training in popular epidemiology and close collaboration with people at the local level.
- Types of action EJOs resort to are diverse as well. **Different methods are used at different stages of the opposition movement**, and seem to be effective in different contexts for politicising the mining issue; legitimising and validating people’s arguments; in improving project technology and management; in ensuring government action. Sharing knowledge and experience through networks and partnerships as another concrete outcome would appear to be significant for EJOs’ continued success.
- On the whole, in all cases, **decision-making processes that acknowledge social learning dynamics** seem to be a prerequisite. Clearly, this necessitates a change in governance style; a shift toward greater collaboration at different scales—local, national and global—among different stakeholders.
- There are often links between local movements and international EJOs, or conservationist networks. However, there is a lack of **contact with consumer organisations, trade unions and fair-trade initiatives**, sometimes because of the nature of the commodity involved (uranium, copper), which makes this impossible.

Setting up independent monitoring programs both inside and outside the mines seems to be crucial, so that results may be compared to those obtained by governments and the mining companies. Such monitoring efforts require good training in popular epidemiology and close collaboration with people at the local level



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Appendix Factsheets

Ore & building
materials extraction

Keywords

- > Gold mining
- > Cyanide leaching
- > Risk politics
- > Peasant social movement
- > Turkey

Introduction

For much of the 1990s, the tourist town of Bergama was the epicentre of Turkey's most effective and visible environmental social movement against a multinational mining corporation aiming to establish the first modern gold mine in the country. Bringing relatively prosperous peasants together with a small group of ambitious policy entrepreneurs, the movement marked a turning point in environmental politics in Turkey. Motivated primarily by the environmental and public health risks posed by cyanide leaching, the peasant activists waged an unprecedented campaign that acted as a forceful reminder of the potential of social mobilization to impart lasting change both at the local and national level. While the peasant activists failed at the end to stop the operation of the mine, their campaign sparked a national discussion over the environmental costs of rapid economic growth in Turkey.

Background

Strictly speaking, the gold mine in question is not in the city of Bergama but located 12km west in the village of Ovacik. Despite the strong presence of peasant activists in the movement from surrounding villages, the movement has come to be identified with Bergama, a city with a population of approximately 50000 in the province of İzmir. Home to the ancient Greek settlement of Pergamon, Bergama is dotted with numerous sites of historical significance such as the Acropolis which attract tens of thousands of tourists every year. Some of the most important remnants, notably the Great Altar of Pergamon (also referred to, especially in Turkey, as the Altar of Zeus), were moved to Berlin at the end of the 19th century and are now on display in the Pergamon museum. Beyond tourism, Bergama is surrounded by some of the most fertile lands in the country renowned for high quality agricultural produce.

In many ways, the Bergama Resistance responded to not just to a particular case of mining development but to broad and



Symbol protest: shirtless villagers

Source: NTV

<http://arsiv.ntvmsnbc.com/news/93991.asp>

far-reaching political economic changes that have been implemented in Turkey since the early 1980s. These changes began at the end of Turkey's last military government (1980-83) and brought with them a spate of political, economic and social transformations that can be summarized as 'neoliberalization'. The mining law of 1985 was a clear example: whereas previously extraction of national underground resources could only be carried out by state-owned enterprises, the new law enabled and encouraged the involvement of foreign corporations. The goal was to massively increase foreign direct investment which would help in the structural transformation of the economy from its agrarian base into an export-oriented industrial character.

The Project

At the start of the project, the corporation behind the mine was Normandy Mining from Australia, though the complicated ownership structure also tied together several other partners including La Source from France and Inmet from Canada. As per the requirements of the Mining Law of 1985, Normandy established a company in Turkey in order to be able to operate. Established in 1989, it was named 'Eurogold' – an evocative choice given Turkey's long standing and frustrated ambition to join the European Union – and during the course of the resistance movement, Eurogold became synonymous with the mining operation even though at a later stage the company was renamed. Its plan was to operate for 8 years, extracting 24 tons of gold and 24 tons of silver using a combination of open-pit





One of the symbols for the resistance: Granpa Obélix

Source: NTV

<http://arsiv.ntvmsnbc.com/news/93991.asp>



Villagers versus Gendarmes

Source: NTV

<http://arsiv.ntvmsnbc.com/news/134353.asp>



Reconstructed Temple of Trajan at Pergamon – Ancient Greek City (Pergamon Museum)

Source: Wikipedia

<http://tr.wikipedia.org/wiki/Pergamon>

and underground mining techniques. Processing was also going to take place on site through cyanide leaching and a tailings pond would be constructed. For its operations, the company acquired land from local peasants, primarily from those based in Ovacık, as well as receiving permits to operate on state-owned land from relevant authorities. In 2002, Normandy was acquired by Newmont from the United States. In 2004, having failed to secure a permanent permit for extraction, Newmont decided to give up on the Ovacık mine and sold it to Frontier Pacific, a 'junior' from Canada. At the end of another year of failed attempts to overcome legal and bureaucratic hurdles, Frontier Pacific too pulled out of Turkey by selling the mine to Koza Gold, a subsidiary of the Koza-Ipek holding corporation from Turkey which used the Ovacık mine to add the mining sector to its large and varied portfolio of operations.

The movement to resist the plans of Eurogold began as a number of urban intellectuals and activists entered into a dialogue with peasants from the villages surrounding the mine. During the heyday of the movement, 17 villages in total came together to speak as one, though later the population of Ovacık largely moved to the side of the mine. By and large, these villages depend on irrigated agriculture for their livelihoods and due to the nature of their crops (particularly but not limited to cotton) also attracted large numbers of seasonal workers both from the immediate area and farther out from Anatolia. Some of the villages were distinguished by a number of social, geographic and historical characteristics. For instance, Ovacık had a large concentration of residents who had migrated from the Turkic communities of the Balkans and were resettled in the region on land that was considered by many to be relatively poor in quality. Several of the most important villages in the movement – for instance, Narlıca and Pınarköy – were predominantly populated by peasants from the Alevi faith – a sect within the Shi'ite tradition that has historically suffered discrimination both during the Ottoman

times and the modern Republic of Turkey. The Alevi are also renowned for their collective social democratic posture that lends itself well to political mobilization.

The peasants' initial response to Eurogold was very much positive, shaped by lucrative land sales and hopes for well-paying jobs resulting from mine development. A number of key events gradually soured this relationship. Explosions at the mine site used for exploration damaged several nearby. A local woman blamed her miscarriage on the explosions. Some peasants complained that their water supply was contaminated by chemicals used in exploratory drilling. Most importantly, however, word spread in the villages that the cyanide leaching process would pose grave and lasting danger if it were to contaminate the local water supply.

While it was not legally required, Eurogold had commissioned an Environmental Impact Assessment (EIA) report that suggested that the proposed operation would conform the highest standards and pose no environmental risks to the surrounding communities. However, the peasants feared that the tailings pond that was built to contain the discharge coming from the processing of the ore would pose a permanent risk since the region is characterized as a major earthquake zone. Indeed, the region was devastated by a strong earthquake in 1939. There were several key actors in Bergama and İzmir who were instrumental in channeling scientific knowledge on cyanide leaching and assisting the creation of a coherent and sustained resistance movement. Chief amongst these was Sefa Taşkın, who was during much of the 1990s the mayor of the city of Bergama. Taşkın had cut his teeth in activism when he launched an international campaign to repatriate the Great Altar back to Bergama. While this campaign failed, it did endow Taşkın with extensive contacts within German civil society and gave him valuable experience in transnational activism which would prove to be useful for the Bergama resistance.

1985	New mining law liberalizes extractives sector
1989	Normandy from Australia establishes Eurogold
1989-1991	Peasants sell their lands, permits are secured
1992-1995	Minor but strongly felt environmental impacts from exploration
1992-1995	Peasants and local activist begin to mobilize
1995-1997	Local and national demonstrations calling for Eurogold to quit
1997	Council of State victory for peasants
1998	TUBITAK report commissioned by Prime Minister
1998-2004	Legal deadlock, mine in experimental production only
2002	Newmont from the US takes over Normandy
2004	Newmont sells the Ovacik mine to Frontier Pacific from Canada
2005	Frontier Pacific sells the mine to Koza from Turkey
2005-today	Mine is operational

Chronology of Major Events

Taşkın was also able to build a national profile as a young, ambitious and patriotic political figure with a bright future. Following the gradual collapse of the Altar campaign, Taşkın's attention then turned to the simmering discontent in the villages surrounding the Eurogold mine and it was not long before he took a leadership role in the movement.

There were a number of others who provided other important skills and assets to assist the peasants. Birsal Lemke, who went on to win the prestigious Right Livelihood Award in 2000 was instrumental in the formation of a coalition of actors especially during the early phases of mobilization. Her extensive connections in Germany helped bring significant support from international networks, for instance from

Food First Information and Action Network (FIAN). Senih Özay, a lawyer based in İzmir, and his colleagues from the İzmir Bar Association, provided massively important and sustained legal support to the peasants in both enacting effective acts of civil disobedience that stayed on the right side of the law and launching legal challenges against the operation of the mine. Oktay Konyar, a vocal political activist and real estate broker, was key in the organization of numerous colourful, high-impact demonstrations. Konyar also performed the role of spokesperson for the peasant activists. It is also important to mention the role of Friedhelm Korte, a German professor of ecological chemistry, who played a highly influential role in shaping the movement's focus on cyanide leaching as the key reason for opposing Eurogold.

As the movement became more vocal and its impact reached beyond Bergama, it drew a variety of actors into the conflict. It was able to forge links with a number of NGOs and other emerging campaigns in Turkey, particularly the movement against the proposed Akkuyu nuclear power plant. It also established mutually supportive relationships with other left-leaning and nationalist movements such as the one against the privatization of the Turkish Airlines. The movement's initial legal challenges were mainly against Eurogold or its operational permits. At this stage, the movement was challenging the bureaucratic mechanisms of the Turkish state and to the extent that the state was involved, this was limited to more technical branches of government. As the legal process matured, however, through various stages of appeals, the Eurogold issue became deeply politicized. During the late 1990s the case travelled up to the The Council of the State, the highest administrative court in the country. At that point, even Prime Minister Bulent Ecevit became involved, supporting the cause of Eurogold at the behest of the Australian Prime Minister John Howard who visited Turkey in 2000. Essentially, by the time it reached its apex, the Bergama Resistance had moved on from being a small peasant movement against locally unwanted land use to a national case which, by highlighting the tension between environment and development in a rapidly developing and globalizing Turkey, involved a vast array of stakeholders.

This document should be cited as:

Arsel, M., 2012. Opposition to Gold Mining at Bergama, Turkey, EJOLT Factsheet



A view from the mine (Source: <http://kozaaltin.com.tr/operasyon-ve-projeler/isletme-sahalari>)



A view from the mine

Source:
<http://kozaaltin.com.tr/operasyon-ve-projeler/isletme-sahalari>



A view from the mine

Source:
<http://kozaaltin.com.tr/operasyon-ve-projeler/isletme-sahalari>

Mobilization

The peasants' mobilization was a long process that ebbed and flowed in response to the actions of Eurogold and decisions of the courts. By early 2000s, following the devastating earthquake of 1999 which helped push Turkey into a deep economic recession that made campaigning against foreign direct investment especially difficult, active protests had dwindled down with only the core members of the movement taking part. But, especially between 1995-1998, peasant activists staged numerous high profile demonstrations that attracted much national and international attention.

The activist utilized an impressively varied and creative repertoire of action in their demonstrations. In a particularly memorable episode, they travelled to İstanbul to the picturesque bridge connecting the city's European and Asian sides, chaining themselves on the railings while shouting slogans such as 'No to cyanide leaching'. At a different occasion, the peasants demonstrated outside the building in which the modern Turkish parliament was established. When asked about their decision to hold their protest at that spot rather than the current parliament building, they responded that they were because the 'new' parliament was now serving the interest of the IMF and the World Bank.

Yet another performative event saw tens of men strip down to their underwear and march through the streets of Bergama. They claimed that their desire to rid Bergama of Eurogold was so strong that the act of parading around naked – an act that would in normal circumstances be associated with a loss of dignity – was acceptable.

Not all acts demonstrations were as peaceful or male-dominated. In fact, women played a strong role in the movement, helping in consciousness raising, mobilization and planning of activities. A number of other episodes saw the peasants come in direct tension with the security forces – usually the *jandarma* forces who are responsible for maintaining public order in rural areas – who, especially in 1990s Turkey would not be shy of using blunt force against groups protesting against the state. Two key incidents stand out from this period. In one, more than two thousand peasants – many traveling on their tractors – entered the mine, occupying the site for ten hours. In another episode, another large group blockaded the busy road between Bergama and Dikili. That such demonstrations did not turn violent was largely due to peasant women who formed the front ranks of the demonstrators that came into direct contact with the security forces who would be much more reluctant to beat up (elderly) women activists. Nevertheless,



Villagers protesting with torches
 Source: NTV
<http://arsiv.ntvmsnbc.com/news/134353.asp>



Villagers in the Farm
 Photo: M. Arsel

numerous activists were arrested in such demonstrations, some being charged in the State Security Courts (*Devlet Guvenlik Mahkemesi*), notorious for its heavy handed treatment of dissent.

The Bergama Resistance also made extensive use of the courts – both national and international – to prevent the operation of the mine. Two decisions characterize both the unprecedented success the peasant activist had in the courts and the difficulty in translating these decisions into concrete outcomes outside the courtroom. The first case had started in local courts and travelled upwards all the way to Council of State (Danıştay) which had the final say in the matter. In 1997, invoking for the first time Article 56 of the Turkish constitution which states that “Everyone has the right to live in a healthy, balanced environment”, the court ruled in favour of the peasants. The decision stated that the environmental and public health risks of cyanide leaching amounted to a breach of peasants’ constitutional rights. The jubilation of the activists, however, did not last long. Prime Minister Ecevit, in a move clearly designed to find a legal opening to overcome the verdict of the highest administrative court of the nation, instructed The Scientific and Technological Research Council of Turkey (TÜBİTAK) to prepare an assessment of the risks of cyanide leaching. TÜBİTAK came back with a report that ruled that cyanide leaching posed “zero risks”. The government argued that the TÜBİTAK report essentially neutralized the decision of the court and gave Eurogold the green light to operate. This set off another round of legal challenges, which saw the mine operating on a trial basis in fits and starts. Failing to score a decisive legal victory in Turkey, the movement also took its case to the European Court of Human Rights. In its 2004 decision, the court found that the state of Turkey had indeed violated the activists’ procedural rights and awarded 3000 euros each to the 315 individuals taking part in the lawsuit. However, the ECHR refused to

back the activists in their calls to order Turkey to shut down the mine.

The legal battle has continued and there have been occasional but much less visible attempts at holding protest meetings and demonstrations. However, Koza has been far more effective than its multinational counterparts in navigating the vagaries of the Turkish political and economic processes and has started to produce gold at the mine.

Outcome

Putting aside the relatively minor impacts observed at the exploratory phase and the transformation of the local landscape through the establishment of the mine, the worst environmental fears of the activists did not come to pass. Tourism in the region has also not been affected, though whether the mine has helped the region economically – especially the villages surrounding the mine – remains to be seen. The main negative impact has been in the sociocultural domain – after more than a decade of activism, many villages have become highly polarized. Stories of family feuds over the mine are not uncommon and there have been a number of violent incidents. The worst example came in 2002 following the decision of the family of a local religious leader from the Alevi community to support the mining company. The ensuing friction in the village gave way to a gun battle that lasted through the night and claimed the life of one the peasants.

At the national level, the Bergama Resistance sparked up several important and still on-going debates.

Unsurprisingly, the role of mining in contemporary Turkey has been at the heart of these debates with numerous new sites being made available for mining interests. Some of these have been met with relatively strong resistance as it has been in the case of Mount Ida. But many have gone unchallenged and no other attempt at resistance has matched the high profile or popularity of Bergama. A related discussion has focused on the two

modifications – in 2004 and 2010 - of the 1985 law on mining which had started the process of liberalization. While a degree of clarity has been brought to the way in which permits would be granted, one of the main aims of the government seems to have been to prevent the type of obstruction achieved by the Bergama Resistance. Another, more complex, line of discussion has concerned not the role of multinational corporations but transnational activists. Conspiracy theories alleging that the activists in Bergama were being 'used' (knowingly or otherwise) by foreign interests aiming to undermine a rapidly developing Turkey had been simmering even during the early days of the resistance movement. These rumours reached national news when Necati Hablemitoğlu, an academic based in Ankara, published a book arguing that Germany had been using covert operations to prevent the expansion of Turkey's gold production. Such allegations have since been shown to be baseless. However, they have proven to be persistent and the assassination of Hablemitoğlu in 2002 has ensured that conspiracy theorists continue to have ample material to work with.

Outlook

The Bergama Resistance demonstrated the power of effective and highly motivated social action to alter the course of national debates over environment and development. That the peasants mobilized over the risk of environmental damage rather than its actual experience has further shown the political purchase of environmental risk, which is further amplified in the absence of a deliberative planning processes and a democratic scientific culture that responds to genuine environmental fears moulded by broad, historical and sociocultural processes.

Overall, the Bergama Resistance was a turning point for environmental politics in Turkey. It is remembered as the largest and most effective civil society mobilization for environmental protection in Turkey. Moreover, it has influenced national environmental policies, informed

and inspired numerous other mobilizations that followed and popularized environmental politics at the national scale. Conversely, it has fallen short of its ultimate aim of preventing the operation of the gold mine against which the movement developed. Nevertheless, given its impact at the national scale, it can be considered as a success story.

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Nuclear Energy / Uranium Mining

Keywords

- > Uranium mining
- > Radioactivity
- > Health risks
- > Caetité / Brazil
- > Science-led activism

The project

Since 2000, state-owned Nuclear Industries of Brazil (INB) has been exploring uranium ore in Caetité, a municipality in the semi-arid region of Bahia, Brazil. The only operational mine in Brazil, the Caetité mine aims to provide fuel for two Brazilian nuclear power plants. The amount of uranium ore is estimated at 100,000 tons and annual production capacity of uranium concentrate (also known as yellow cake) is nearly 400 tons (MME/EPE, 2007).

The uranium is extracted from the ground by open pit mining and removed by heap leaching. First the ore is crushed, heaped, and then irrigated with a sulphuric acid solution to remove the uranium. Next, the uranium concentrate is made by the process of solvents extraction, followed by separation by precipitation and drying. Finally the uranium oxide or uranium concentrate is packaged in drums to be sent to Europe for conversion and enrichment.

INB's major shareholder is the Nuclear Energy National Commission (CNEN), which is the Brazilian regulatory agency for nuclear energy. In Brazil, CNEN is also responsible for regulating and promoting nuclear energy activities.

The city of Caetité has about 47,000 inhabitants and is situated in the southwest part of Bahia, nearly 760 kilometres (472 miles) from its capital Salvador. The mine is located 40 kilometres (25 miles) from downtown Caetité, in Lagoa Real, and surrounded by small farming communities.

The conflict

Since the mine became operational, Caetité's civil society has organised several demonstrations to express concerns about health and environmental risks and impacts related to INB's activities. The main local environmental justice organisations (EJOs) that contest the actions of the mine company in the city are the Environmental Parish Commission (a



Uranium Concentration Unit in Caetité

Photo by INB (www.inb.gov.br)

religious organisation linked to the local Catholic Church) and the Paulo Jackson Movement Association – Ethics, Justice and Citizenship.

In Caetité, the risks and uncertainties related to uranium mining and milling are at the heart of the conflict. The population affected by the Project argues that there is a lack of adequate information regarding human exposure to different levels of radioactivity and possible health effects (e.g. cancer). This lack of information generates distrust and fear among the population, which is justified not only because the subject of radioactivity has negative repercussions in society in general, but also due to factors such as suspicions of environmental contamination (air, soil, water) by radioactive material; administrative and operational irregularities in the mine; workplace accidents and radioactive waste leakage into the environment; absence of a centre for diagnosis, treatment and control of cancer in Caetité, et cetera.

According by Zoraide Vilasboas (2009), the main representative of the Paulo Jackson Movement Association, there are several factors that support the suspicions fostered by local EJOs in relation to the “*scientific and technical competence of the company to deal with extremely complex activities—such as mining, milling and transportation of nuclear material—and high risks to human beings and the environment*”. In addition to the potential contamination of groundwater, Vilasboas mentions problems such as the seven times the





Brazilian uranium reserves
Image by INB (www.inb.gov.br)



Human blockade to prevent an unknown radioactive load from São Paulo from entering Caetité
Photo by ICAETITÉ
(www.icaetite.com.br, 15 May 2011)



Protest against the entrance of an unknown radioactive load from São Paulo to Caetité
Photo by ICAETITÉ
(www.icaetite.com.br, 15 May 2011)

tailings retention basin spilled over in 2004, releasing highly radioactive material, with concentrations of uranium-238 and radium-226 to the environment. Yet, many doubts still remain about the extent and consequences of such events.

In October 2008, a report by Greenpeace Brazil called “Hazard Cycle” (*Ciclo do Perigo*) denounced the radionuclide contamination in two water wells used for human supply in Caetité, linking it to mining activities. This triggered federal prosecutors in Bahia to demand a public hearing for further clarification, and an independent investigation to ascertain the facts. The Bahia Institute of Water Management and Climate (*Instituto de Gestão das Águas e do Clima – Ingá*)—renamed the Institute of Environment and Water Resources (*Instituto do Meio Ambiente e Recursos Hídricos – Inema*) in 2011—also collected and analysed water samples to assess whether the site was contaminated, and found that radioactive material in some samples was above the levels allowed in Brazil (according to Federal Resolution CONAMA 357/05). Although Ingá ordered the closure of several wells that were used for human consumption, it is still necessary to conduct further research to actually prove whether the contamination is related to the activities of the mining company and, if so, to what extent.

The wells suspected of contamination, initially pointed out by Greenpeace Brazil and confirmed by Ingá, corroborate the concerns of local EJOs on the risks and impacts of uranium mining and milling. The INB, in turn, denies that its activities caused contamination, stating that it adheres to existing rules and regulations to prevent and minimise health and environmental impacts in the vicinity of the mine. In relation to possible water contamination, the company asserts that it periodically conducts tests to evaluate water quality, and consistently monitors and logs all the collected information in a specific database. EJOs, however, claim that water quality data has never been made public.

In efforts to deny its responsibility with regards to possible environmental contamination, the INB argues that the local soil has high levels of natural uranium concentration. It also claims that at these levels, the uranium concentration in the groundwater would not harm human health. Naturally, this statement contradicts the views of the local people, who fear for their health and are concerned about a possible increase in the incidence of cancer cases in the region.

According to Vilasboas (2009), besides mine workers, people who live in the vicinity of the mine—mostly small farmer communities and some *Quilombolas* groups—are the most vulnerable to the risks and effects of uranium mining and milling, since they are “*more directly affected by the release of radon into the atmosphere and the dust generated in the process*”. It should also be noted that these communities do not have access to the public water supply; therefore, they rely on groundwater wells or dams to meet their water demands—which might be contaminated by radionuclides, as already mentioned.

Communities near the mine are also facing a process of stigmatisation. Due to the risks of radioactive contamination, they are unable to sell their products (vegetables, fruits, milk etc.) in downtown Caetité. Since no one in the city wants to consume their products, they exchange it among themselves, which may increase their exposure to radioactivity.

2000	Mine operations begin
2000	5,000 cubic metres of uranium oxide leaks from the mine facilities, is reported six months later and demystified only after more than three months (Apr.)
2002	Leakage in Area 170 kept secret, which may have possibly contaminated the groundwater (Apr.)
2004	The retention basin of “thin material” overflows seven times, releasing liquid concentration of uranium-238 and radium-226 to the environment, causing fish mortality in nearby lakes
2006	Disruption in one of the geotextiles in the uranium liquor basin results in a 60-day-stoppage
2008	Reports of leaks at the leaching tanks (June)
2011	Human blockade to prevent an unknown radioactive load from São Paulo from entering Caetité to be stored in the mine’s enrichment facilities (May 15)

Chronology of major events
Adapted from Greenpeace (2008) and Lisboa et al. (2011)

Environmental justice mobilisations

On 15 May 2011, a huge anti-INB demonstration was held in Caetité: some 3,000 people organised a human blockade to prevent 13 trucks full of unknown radioactive material from São Paulo from being stored at the mine’s facilities. Local EJOs demanded an explanation from the authorities, but none could offer a plausible one. On its website, INB stated that the material consisted of a uranium compound, originating from the Navy’s Technological Centre in São Paulo. It was meant to be repackaged in Caetité and sent to Europe for enrichment.

After negotiations, a Provisory Institutional Commission was created to monitor the management of the radioactive material. This commission included representatives of local EJOs, the INB and the authorities. It was agreed that the material would be stored at the mine’s facilities for repackaging. Nevertheless, certain doubts and uncertainties concerning this material still remain unanswered.

During the protests in May 2011, Father Osvaldino Barbosa from the Diocese of Caetité and the Environmental Parish Commission received anonymous death threats by telephone, warning him to stop denouncing problems related to uranium mining in Caetité. Undeterred, he continued his work and presently, the threats seem to have ceased.

After the blockade, some mine workers decided to strengthen their collaboration with local EJOs. They began to condemn INB’s threats to dismiss employees who revealed what went on in the mining facilities and harassment of employees politically active in the regional mine workers’ union. They also complained that the results of the regular

test on workers’ health conditions had not been made public.

INB’s denial of risks

To sustain and legitimise its arguments to deny the risks caused by uranium mining in Caetité, the INB uses advertising mechanisms, as may be seen on its website (www.inb.gov.br). It cites, for instance, the following newsletter article on Caetité, from June 2009: “Scientific research proves uranium mining did not increase cancer cases” (Daqui, 2009). The “scientific research”, called “Epidemiological Study of Morbidity and Mortality Related to Possible Occurrence of Diseases Related to Genetic Damage and Malignant Neoplasm in the Area of Influence of the Uranium Concentrate Unit (URA) of the Nuclear Industries of Brazil (INB)—Caetité, Bahia state”, was funded by the INB and carried out by a group of researchers from the Oswaldo Cruz Foundation (Fiocruz), a prestigious Brazilian research institute in public health. Nonetheless, local EJOs refute the conclusions of the study, since it is based on an analysis of secondary data (Mortality Information System of the Brazilian Ministry of Health) and the

More on this case

- Map of Environmental Injustice and Health in Brazil

www.conflitoambiental.icict.fiocruz.br

This document should be cited as:

Finamore, R. 2012. Uranium mining in Brazil: The conflict in Caetité, Bahia, EJOLT Factsheet



Protest against the expansion of the Brazilian Nuclear Program. Salvador, Bahia
 Photo by Rádio Educadora Santana de Caetité
 (www.educadorasantana.com.br, April 2009)



EJOLT workshop on Environmental Justice, Uranium Mining and Community Monitoring of Radioactivity
 Photo by EJOLT, June 2012

percentage of deaths with ill-defined causes for Caetité is above 30 percent (between 2005 and 2007), which raises doubts concerning the quality the database. In addition, the latency period for some diseases like cancer can be more than 15 years from the time of exposure—and the mine became operational only in 2000.

Local EJOs still demand an epidemiological investigation be conducted in Caetité by some competent institution without ties to the INB, to evaluate a possible association between exposure to ionising radiation and cancer incidence among the population.

This demand has yet to be met; thus for the present, Father Osvaldino Barbosa uses his influence in the local parish and tries to collect as much evidence as possible, about the cases of death by cancer within communities that constitute the local diocese, to undermine the INB's official discourse of denial about the risks to public health. He has begun to compile an alternative health database. In a way, this process may be seen as popular epidemiology. However, although he is aware of the importance of his investigative work, he finds it too limited because it is not “scientifically” based.

Science-led activism in Caetité

Since 2011, local EJOs and another research group from Fiocruz (member of EJOLT) have begun to collaborate in Caetité. Their objective is to provide “counter expertise” and organise the data local communities generate on environmental risks and health problems in a way that may initiate a process of popular epidemiology, to investigate the distribution of disease (esp. cancer) in the areas most affected by uranium mining. To this end, an EJOLT Workshop on Environmental Justice, Uranium Mining and Community Monitoring of Radioactivity was held in Caetité in June 2012. In summary, it aimed to discuss environmental justice, health and grassroots participation in the context of uranium mining. Besides local

communities and Fiocruz, other EJOLT partners also took part in the event, such as CRIIRAD, France; Earthlife Namibia; Focus, Slovenia; Za Zemiata, Bulgaria; and Acción Ecológica, Ecuador. Basically, the workshop included training on community monitoring of radioactivity for local people, and a toxic tour through the areas affected by mine operations. In addition, the author of this factsheet is working towards completing a PhD on public health, with research focusing on the process of understanding the health and environmental risks related to uranium mining in Caetité.

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Ore & building materials extraction

Keywords

- > Cross-border conflict
- > Gold
- > Silver
- > Water contamination
- > Goldcorp
- > Biosphere reserve

Introduction

Situated about 153 kilometres (95 miles) east of Guatemala City, Cerro Blanco is in Asuncion Mita, Jutiapa. Asuncion Mita covers an area of 174 hectares (429 acres) and is 45 minutes from the border with El Salvador and Honduras.

The mining project is located in the Trifinio Biosphere Reserve that covers a 221-kilometre (137-mile) area on the Guatemalan side of the Montecristo Massif. It was created by Government Resolution 939-87 on 19 October 1987 to protect the Montecristo Cloud Forest and its flora and fauna, concurrently with the Montecristo National Park in El Salvador, the Biosphere Reserve La Fraternidad in Guatemala and the Montecristo Trifinio National Park in Honduras (CNPT, 2011).

The Montecristo Protected Area is home to three main watersheds in Central America (Lempa, Ulúa and Motagua) and boasts a unique biodiversity. The mining project poses a threat to this particularly valuable natural area, which is one motive for the conflict; local, national, and international opposition to it has been strong. Civil society organisations in Guatemala, Honduras and El Salvador reject governmental intentions to allow mining projects in Cerro Blanco.

Background

Former Guatemalan President Oscar Berger's administration authorised the project on 22 September 2007, even though there was already an exploitation licence in effect issued in 1997. Originally the exploration and exploitation permit was for 25 years.

The Project is run in Jutiapa by Entre Mares S.A., a subsidiary of Canadian corporation Goldcorp that also owns the controversial Marlin Project also located in Guatemala.

Project

The Project concerns the exploitation of Cerro Blanco to extract gold and silver. Its exploration, construction, operation and technical closure is planned to span a 16-year period. According to preliminary estimations by the company,



Location of the cross-border Cerro Blanco Project

Source: No a la mina, "El Salvador y Guatemala estudiarán impacto minero del Cerro Blanco", 28 October 2009. Available at:

<http://www.noalamina.org/mineria-latinoamerica/mineria-guatemala/el-salvador-y-guatemala-estudiaran-impacto-minero-del-cerro-blanco>

there is a potential of 1,579,959 ounces of gold and 4,486,632 ounces of silver.

The Environmental Impact Assessment (EIA) submitted by the company states that due to the geological conditions of the area, the mineral is distributed in veins. Therefore, its extraction would be underground, not at an open pit mine.

Under construction until 2012, the Project's exploitation phase has not yet begun, but export production is expected to commence by late 2013. Preparatory efforts include the construction of several facilities, among which are an exploration tunnel, an underground mine (to extract the minerals), and a plant to process the mineral (using sodium cyanide leaching techniques and its later absorption with activated carbon). Subcomponents such as access roads, tailing dams, dry stacks, and processing plant facilities will also be built, in addition to support facilities such as administrative and staff offices, storage areas, internal roads, fuel depots, storage for explosives, power supply equipment, radio communication system, landfill and a control guard post.

Impacts

According to studies conducted by the communities, the Project will affect 39 farmer and indigenous communities in Asuncion Mita, Jutiapa (Guatemala) and Metapan (El Salvador). One direct consequence would be the contamination of water sources; in particular, the Ostua and Lempa rivers that flow in the border area between





Landscape of the Trifinio Biosphere Reserve

Source: El Calero, "Bosque el Trifino será nombrado reserva ecológica", 12 November 2011. Available at: <http://www.metapan.com.sv/noticias/2011/11/12/bosque-el-trifinio-sera-nombrado-reserva-ecologica.html>

Guatemala and El Salvador, respectively. Also, the project is located 14 kilometres (8 miles) from Lake Güija, a large freshwater source in the area.

Depletion of water sources is also a matter of concern for the communities. The company plans to drill wells close to the Ostua River, which is used for agriculture and livestock in the area. Moreover, the Ostua River flows into Lake Güija, and the studies argue that if the mining project continues for 12 to 15 years (its estimated lifespan), the depression cone formed by the mine over the years will cause pressure variations in the aquifers. As a result, the water levels in the wells for domestic use and agriculture would be affected.

The communities state that the EIA lacks a plan to mitigate the contamination of water used in the leaching process, and the depletion of water sources. Because the Ostua River (that feeds Lake Güija) may be directly or indirectly contaminated, the EIA should include an international agreement with El Salvador, where over two-thirds of the lake is located.

From a cultural heritage point of view, the affected communities in Guatemala state that there are archaeological

remains in the area that will be affected by Cerro Blanco. The submitted EIA lacks a plan to mitigate or prevent the damage that could occur.

Conflict and consequences

Representatives of the Centro de Investigaciones sobre la Inversión y Comercio (CEICOM Centre for the Investigation of Investments and Trade) analysed the waters discharged by the mine in the ravine El Pedregal del Río Ostua and found high concentrations of cyanide, mercury, arsenic, and lead among other heavy metals that are directly related to illness such as cancer, kidney failure, central nervous system diseases and genetic alterations (ASANOVA, 2012).

The company Entre Mares S.A. states that since exploitation activities have not yet begun, water sources should not already be contaminated (the main claim of the communities), and claim that they plan to comply with the local regulations.

In response, the governments of El Salvador and Guatemala created a Binational Commission to study the impact of the metal extraction process that would take place close to Lake Güija.

This document should be cited as:

Carbonell, M. H., 2012. Cerro Blanco: Guatemala, on the border with El Salvador and Honduras EJOLT Factsheet

Meanwhile, citizens have organised several demonstrations. In 2009, there were three pacifist marches to protest the presence of the company. Colectivo Madre Selva de Guatemala (Madre Selva Association of Guatemala); Comunidades en Resistencia Contra la Minería de Cerro Blanco, de Guatemala (Communities in Resistance against Mining in Cerro Blanco Guatemala); Centro de Investigación sobre Inversión y Comercio (CEICOM Centre for Investigation of Investments and Trade) and Centro Hondureño de Promoción para el Desarrollo Comunitario (CEHPRODEC Honduran Centre for the Promotion of Communitarian Development) were among the main protestors.

The communities claim that the company is employing intimidation tactics against people who are opposed to the Project. In November 2010, five people were arrested by agents who identified themselves as police officers and taken to a farm where they were abandoned without their belongings. Demonstrations against the Project are still ongoing in 2012.

More on this case

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Ore & building materials extraction

Keywords

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- > Water march
- > EIA
- > Assassinated activists
- > Marco Arana

Introduction

This is an ongoing conflict, although there is some evidence that the project has been suspended since August 2012. The project is situated in northern Peru, in the Cajamarca and Celendin provinces (Sorochuco and Huasmin districts) Cajamarca, 48 km north of the provincial capital Cajamarca City. An extension of the Yanacocha mining project, it the second largest gold mine in the world in terms of its production volume and field size, and exports five times more than all the gold mines in Peru combined.

The Conga mine is situated between 3,400 and 4,120 metres (11,154 and 13,517 feet) above sea level in the Andes, 24 kilometres (14 miles) northeast of the Yanacocha gold mine. Both Conga and Yanacocha are a joint project by Newmont and Buenaventura, with International Finance Corporation/World Bank involvement.

Background

On 9 February 2010, the Yanacocha Mining Company submitted an Environmental Impact Assessment (EIA) for the mining exploration of Conga. The Ministry of Energy and Mines approved the study on 27 October 2010, and issued Resolution No. 351-2010 MEM/AAM to that effect.

Project

Material that contains gold is crushed and transported to a leaching pad, while the rest is transferred to a deposit and stored for subsequent discharge. A 50 mg/L cyanide solution is applied to the material that contains gold by a sprinkler irrigation system that dissolves the rock. This cyanide-gold mixture, called “rich solution”, is sent to the leaching pool through a piping system, and pumped to the processing plant.

This process makes it possible to gather the gold from the rich solution in the pools. The liquid gold in the rich solution is then recovered by converting it to solid gold through a precipitation procedure.



Local protests lead by Marco Arana (centre)

Source: *Tierra y Libertad Cajamarca.*

Available at:

<http://tylcajamarca.blogspot.com/2012/07/resistencia-pacifica-contra-conga-en.html>

The last phase is the refinery, where various other processes are applied to the precipitated gold to create gold or silver bullion bars.

According to the submitted and approved EIA, the mine has two open cuts, one of them 2 kilometres long and 1 kilometre deep, over the Perol Lagoon. For 17 years, 92,000 tons of rock will be removed daily, and its wastes discharged in the blue lagoon. This lagoon and the surrounding wetlands constitute the lifeline of the Jadibamba River.

In addition, approximately 85,000 tons of toxic wastes will be generated daily throughout the project, and deposited in a 700-hectare area where the Jadibamba River originates. The main river in the Huasmin District, its water is used for agriculture, livestock husbandry and human consumption. According to the EIA, “the tailings produced by the concentrator plant will be compressed to 62 to 65 percent (mass of solid/total mass) and transported to the tailings deposit located in the basins of the Toromacho Ravine and the Alto Jadibamba River” (Yanacocha mining company, 2010:30).

The company expects to produce 11,800,000 ounces of gold, at a cost of \$250 per ounce. While investment costs might exceed \$4,500 million, the project plans to generate employment for 5,000 to 7,000 people.





"National Water March demands to end the Conga Mining Project and recognise water as a human right".
En Marcha. Available at: http://www.pcmle.org/EM/article.php3?id_article=5006

Impacts

The natural landscape of area exploited by the Yanacocha mine has been totally altered. The Conga area to the east and northeast has not yet been affected. Mining exploitation, especially open pit mines, cause severe changes.

The high-Andean "jalcas cajamarquinas" ecosystems not only possess spectacular landscapes, but are home to great biodiversity and significant populations of local endemic species. Among them are the medicinal plants that grow nowhere else on Earth but here. These grassland ecosystems provide valuable environmental services such as air purification, nutrient cycling, water supply and water regulation.

Among all environmental services that populations rely on, water supply is the one most vital. The "jalcas" influence the quantity of water generated in the basins and regulate the water, which implies continuity of the water flow.

Close to the Conga project, there are 40 lagoons and more than 100 hectares of

watersheds that would be lost forever should the project continue.

Conflict and consequences

The controversy generated by the Conga Mining Project stems from many years of conflict caused by the Yanacocha Mining Company. Communities not only made democratic demands to be consulted in mining activities, but also to exercise their right to stop them and to benefit from mining investments. Opposition groups had different visions and claims; while some locals petitioned the loss of water resources and lands, and mistreatment by Yanacocha throughout the region, other local environmental organisations such as GRUFIDES, lead by Marco Arana, enjoyed strong international support (and a prior victory, where they stopped Yanacocha from exploiting Cerro Quilish, close to Cajamarca City).

In terms of the public administration, a leftist local government was elected to power in 2011, and promises current Peruvian President Ollanta Humala made to oppose the Conga project in his presidential campaign were influential to

this end. In addition, the new Minister of the Environment has been reviewing the previously approved EIA, Vice Minister of the Environment Jose de Echave has resigned, and Robert Moran's expert report against the EIA was published in February 2011.

In November 2011, there was a widespread strike across Cajamarca to protest the Conga Project. The Peruvian Police intervened violently, wounding 19 people. Army presence in Cajamarca and the declared State of Emergency were intended to intimidate those opposed to the mining company in the area. Several leaders were arrested (Presenza, 2012).

In March 2012, Marco Arana led a Pacific Water March from Cajamarca to Lima. The march set off from Cortada Lagoon, situated at an altitude of approximately 4,000 metres, where local farmers and residents performed an Andean ritual to defend the "pachamama" (mother earth in Quechua).

The EIA approved in 2010 generated many complaints and demonstrations, and in 2012 the central government decided to respond to them with several actions, including De Echave's resignation, Robert Moran's intervention and efforts to recruit other international experts to evaluate the 2010 EIA. The expert report (contrary to Moran's report) validated the EIA (with some observations and recommendations); therefore President Humala decided to support the project's execution.

It is important to note that in 2012, research company GFK ran a survey to determine the extent to which the general population approved the mining project. According to El Comercio (2 May 2012), survey results showed that 54 percent of the nation's urban population supported the project while 36 percent opposed it. At the regional level the results were even more

stunning. A survey by the company Ipsos showed that 78 percent of respondents in the Cajamarca province were opposed to the mine (Mineweb, 24 August 2012).

In early July 2012, the central government decreed a State of Emergency in three provinces in the Cajamarca Department to confront the protests that left five civilians dead and 20 injured by police bullets in Celendin and Bambamarca (El Comercio, 5 July 2012). The State of Emergency brought restrictions to the inviolability of the home (police could enter homes), as well as the freedom of assembly and mobility.

Marco Arana, a former priest and leader of the Tierra y Libertad (Land and Freedom) movement was violently arrested in Cajamarca City on 4 July 2012, as he was peacefully seated on a bench of the plaza, holding a poster that read "Life yes, Gold no". The video of his detention spread worldwide, and some journalists have called him the "Peruvian Gandhi". He has been accused of not respecting the State of Emergency. The government and the people against Conga agreed in July 2012 that Monsignor Cabrejos and Father Gastón Garatea would act as arbiters to reach an agreement. The "Conga Won't Go" movement is still strong. It is possible that Yanacocha might accept to postpone the project.

This case, together with the opposition to copper mining in Xstrata, Tintaya, Espinar, Cuzco, could be a deciding

More on this case

- Newmont's South America website: <http://www.newmont.com/south-america>

factor in defining Peruvian politics. Humala has made two cabinet changes in a year due to the mining conflicts.

The main organisations that work on this issue in the area are GRUFIDES, Frente de Defensa Ambiental de Cajamarca (Environmental Defence Front of Cajamarca); Frente de Defensa de Bambamarca (Defence Front of Bambamarca). The organisation Rondas Campesinas is also active.

Due to the constant social resistance and adverse public opinion, in August 2012 Newmont announced the suspension of its mining activities. Financial analysts speculate it will be cancelled, while the Peruvian Prime Minister declared “We have entered a different scenario, the project has entered a new phase of suspension that the company already decided on and the government of course asked for” (Mineweb, 24 August 2012).

Mining opponents have cautioned that the company will look for a political solution in the next regional elections (in 2014), and try to influence citizens through water management measures. They also continue to demand legal action against those responsible for the death of five demonstrators, and an end to the State of Emergency and militarisation in Cajamarca.

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Ore & building
materials extraction

Keywords

- > Gold mining
- > Costa Rica;
- > Open pit mining;
- > Environmentalists' success

Introduction

The Crucitas Project is located in the Cutris District, Canton of San Carlos, Alajuela, along the border between Costa Rica and Nicaragua.

The southern area of the district is a mountainous region from where large rivers flow towards the north of the country, creating the vast San Carlos Plains. The San Carlos River is the main waterway in the region; together with its tributaries, the Arenal and Tres Amigos Rivers, it crosses the district from south to north. The San Carlos River is in turn the main tributary of the transboundary San Juan River.

This is an environmentally sensitive area, and potential Project effects have been the key argument underlying the judicial decision to suspend the mining concession and company operations to date.

Background

The Crucitas Project changed hands several times. In 1994 it was bought by Canadian company Placer Dome, which announced the sale of the Curitas Project in 1998, following an opposition campaign by different groups and communities from the north, and a period of low gold prices. According to the Frente Nacional de Oposición a la Minería (National Front against Mining), on 4 February 1999, Placer Dome sold its shares transferred the Project to another Canadian company, Lyon Lake Mines Ltd.

Placer Dome changed its trade name on 3 March 1999 to Industrias Infinito S.A. The Geology and Mines Agency passed Resolution 698 of 7 May 1999, accepting the new company as the holder of the permits previously owned by Placer Dome. Currently, the project (now suspended) is still owned by Infinito Gold S.A. (previously Vaness Ventures Ltd.) through its' subsidiary Infinito S.A.

Project

The Project is an open pit gold mine located less than 10 kilometres (6 miles)



Demonstrations against the Crucitas Project

Source: Revista Amauta, 8 December 2009

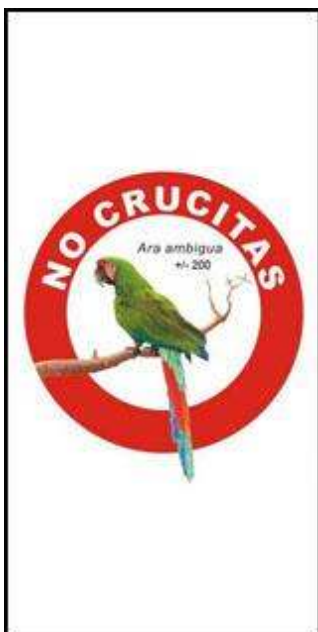
from the San Juan River and the border with Nicaragua. Crucitas includes several exploration concessions in San Carlos. Gold has been found in two areas: next to the Crucitas community and in Conchudita.

It was the intention of Infinito Gold, S.A. to exploit nearly 800,000 ounces of gold from an open pit mine of 85 metres (278 feet) deep. A 55-hectare (135 acre) area would be affected, and close to 33 million cubic metres of materials would be removed.

The overall area occupied by the Crucitas Project is 2 square kilometres (0.8 square miles); 73 percent lies on the Infiernito River Basin, and 27 percent on the Crucita Basin. The mining project will directly or indirectly impact a drainage area that includes surface waters of the ravines and rivers that cross the Crucita area. The micro watersheds of the Descubrimiento Ravine, their confluence with Crucitas up to the San Juan River, the microbasins of the Zabayos and La Mina Ravines, their confluence with the Infiernito River and the San Juan River will all be affected.

Impacts

The affected communities state that project authorisation did not take strict measures to protect the environment. Consequently, had it been realised, the Project would have severely impacted the San Juan River area, known for its rich rainforest biodiversity. The company planned to develop the Project in a forested area where there are 130 tree species per hectare (2.5 acres) on





Aerial photo of Crucitas.
Source: http://www.elpais.cr/frontend/noticia_detalle/1/67787



Location of the Crucitas Project
Source: Pioneros Magazine, "La realidad de Crucitas (Costa Rica), 21 July 2010. Available at: <http://pionerosmagazine.blogspot.com/2010/07/la-realidad-de-crucitas-costa-rica.html>



The Decree 34801-MINAET allowed logging in the forest where dozens of yellow almond trees grew. Cutting down this species is forbidden.
Source: La Nación – El País, 7 March 2012

record, which would have threatened the area's great biodiversity.

During this process, there was an important moment in November 2008 when the company cleared 60 hectares (148 acres) in an area they considered already concessioned. A study assigned to Fundación Neotrópica and Earth Economics by the Attorney General showed that the total cost of environmental damages and recovery in an 85-hectare (210 acre) would be at least US\$ 674,000 dollars per hectare (Aguilar, 2012).

Similarly, there were concerns that mining activities would have a possible direct impact on water sources. It was feared that the amount of water would decrease significantly due to being used for mineral extraction, and that the wastes generated by the extraction process would contaminate the water.

The environmental impact of this project (finally suspended) was not limited to the mentioned microbasins, but to the dredging of material from both rivers to the binational basin of the San Juan River (between Costa Rica and Nicaragua).

The people and organisations opposed to the exploitation of the mine have denounced not only environmental impacts, but direct consequences

related to the right to health for the populations that live in the affected watersheds. The situation observed in the Descubrimiento Ravine, where a family was affected due to arsenic levels—70 times higher than permitted standards—is a case in point.

Conflict and consequences

The main conflict issues in the Crucitas case have been judicial, backed by strong social pressure due to the environmental impacts of the Project.

The main activist organisations on this case have been the Unión Norte por la Vida (Northern Union for Life), the Frente Nacional de Oposición a la Minería (Mining Opposition National Front) and the Asociación Preservacionista de Flora y Fauna Silvestre (Aprefflofas Association to Preserve Wild Flora and Fauna). The role that former President Oscar Arias played throughout the process must be emphasised, since he was for mining operations to begin in the country.

In 2008, the Oscar Arias administration abrogated a moratorium in force since 2002 that impeded the development of mining projects in the country. The government issued Presidential Decree 34801-MINAET that declared public interest in the Las Crucitas Mining Project in Cutris de San Carlos, and

1994	Canadian enterprise Placer Dome Incorporated acquires a permit to explore the area
1999	Placer Dome transfers the Project to Lyon Lake Mines, then changes its trade name to Industrias Infinito S.A.
2008	Annulment of the moratorium on mining activities
2008	Executive Decree 34801-MINAET: Project Crucitas of public interest.
2008	The company immediately begins to clear the concession area.
2008	The Nicaraguan request to cancel the mining concession along the transboundary San Juan River is rejected
2008	The Supreme Court of Justice stops mine construction due to environmental damage to forested areas
2010	April, Project execution authorised
2010	July-September, Citizen protests
2011	November, Approval of ruling that suspended the concession

Chronology of Major Events

issued a permit for its execution. According to local organisations, the company proceeded immediately to cut down approximately 60 hectares (148 acres) of forest. Currently (2012), some organisations have asked to visit the area to verify the damage caused and determine its extent.

That same year, in 2008, the President hypocritically presented its “Peace with Nature” initiative. Concurrently, the Costa Rican government “categorically” rejected Nicaragua’s request to suspend the concession contract for open pit mine exploitation a few kilometres from the San Juan River that would cause contamination and irreversible ecological damages, calling it “inappropriate”. Nicaragua had made this request on the basis that the San Juan River was transboundary in nature, and its contamination would have affected communities on the Nicaraguan side of the basin.

The Costa Rican Supreme Court of Justice ordered the suspension of the construction of the open pit mine, based on environmental groups’ claims that the project was destroying native forests.

However, in April 2010, the Fourth Tribunal of the Supreme Court of Justice authorised the company to execute the project, arguing it would not affect the environment.

Mining opponents were quick to respond. In July, they organised a 170-kilometre (105 mile) march. In October, activists from Frente Norte Contra la Minería (Northern Front against Mining) and Coordinadora Ni Una Sola Mina (Not a Single Mine Coordination Board) initiated a 14-day hunger strike, demanding Decree 34801-MINAET be annulled.

On 30 November 2011, the National Dispute Tribunal approved the prior

More on this case

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ruling and suspended the mining company's concession to exploit gold through an open pit mine in Crucitas. The concession was deemed invalid because it failed to comply with basic requirements of the Environmental Impact Assessment (EIA) necessary for any concession's approval. The High Court upheld the decision to annul the illegally conferred permits, and former President Oscar Arias' decree that declared the Project as being public/national interest. This cleared the path for the Court to request from the Public Prosecutor to open an investigation against the former president for having signed the Executive Decree stating that the project was of public interest, and rescinding the moratorium against open pit mine operations many years later. It also ordered that affected families be paid compensation.

This ruling followed hundreds of demonstrations and protests from social and environmental organisations, and with 90 percent of Costa Ricans repudiating the earlier decision, according to the polls.

The company Infinito (that also has projects in Nicaragua) has challenged the constitutionality of the High Court decision and continues to appeal to the judicial system in 2012.

The organisation Union Norte Por la Vida (UNOVIDA Northern Union for Life) is on alert, to prevent the Project from ever commencing.

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Ore & building materials extraction

Keywords

- > Gold,
- > Pacific Rim
- > International arbitration under CAFTA
- > Activist assassinations
- > Project suspension

Introduction

Located in San Isidro, Cabañas, the El Dorado mine is about 65 kilometres east of San Salvador, and 420 metres (1377 feet) above sea level. The area enjoys tropical weather and is characterised by humid subtropical forests. The Project is situated in the Rio Lempa Basin, Copinolapa, San Francisco and Titihauapa.

There were 11,000 inhabitants in the area when exploration activities began in 2005. Cabañas has one of the highest poverty rates in the country.

The project—currently suspended—has generated great controversy because the activists opposing it have been assassinated. In addition, the company filed a polemic lawsuit against the Salvadoran State.

Background

There were small scale and underground mining activities in the region around the 1950s. The El Dorado Project is now fully owned by and the main project of the Canadian company Pacific Rim Mining Corporation, through its subsidiaries Pac Rim Cayman LLC and its Salvadoran companies Pacific Rim El Salvador S.A. and Dorado Explorations S.A.

The exploration of El Dorado began in 2002. The company applied for the necessary concessions to exploit the founded gold sites. In 2008, an exploration took place to determine the estimated reserves.

Project

The Project has three concession licences that cover 144 square kilometres (55.5 square miles); two of the licences will expire in 2013. The gold and silver veins in El Dorado are part of several formations that span a large area of approximately 50 square kilometres (19.30 square miles). It is an epithermal formation in terms of its mineralisation characteristics, meaning mineralisation occurred between 1 and 2 kilometres from the surface and was



Protests against water contamination by mining activities

Source: Mines and communities, "El Salvador: Communities oppose Pacific Rim Mining Project", 10 November 2005. Available at: <http://www.minesandcommunities.org/article.php?a=1422>

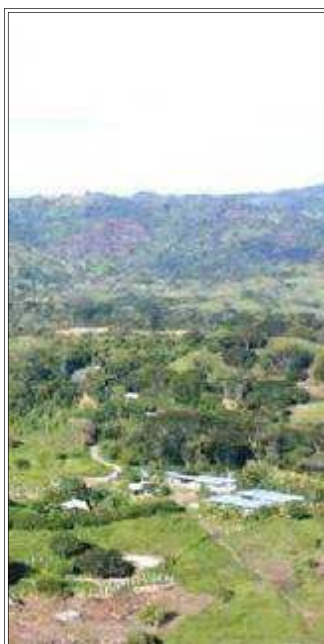
deposited there by hydrothermal fluids that are inherent to active volcanic areas.

According to company data, the reserves are close to 1.4 million ounces equivalent to gold in combined materials. The Project has a lifespan of 10 years and a projected 6.2 years of mine life (Pacific Rim, 2012).

A total of 670 holes have been drilled in El Dorado. Gold and silver concentrations were found in most El Dorado veins, and three extra deposits discovered. The gold and silver resources are located in five different veins: Zancudo, Minita, Minita 3, Nueva Esperanza and Coyotera.

According to the official company website, the Project is expected to have an operational cost of 163 dollars per ounce of gold (Pacific Rim, 2012). However, explorations in the area have been mostly undertaken without any support to communitarian or environmental initiatives.

While the company submitted an Environmental Impact Assessment (EIA) for approval in September 2004, the national environmental authority has yet to respond to it. The Pacific Rim's activities were suspended in July 2008, until the necessary permits and concessions are issued under Salvadoran law.





Location of the El Dorado Project



Francisco Durán Ayala was the fourth anti-mining activist murdered in Cabañas.
Source: CDHAL, 2011



El Dorado Project"
Source: official website of Pacific Rim Mining Corp: http://www.pacrim-mining.com/s/ES_Eldorado.asp

Impacts

According to the EIA submitted by the mining company, there were no major negative effects foreseen in terms of the people or the environment.

Understandably, this document drew criticism from several civil society organisations.

One of the impacts of the Project concerns water use. Estimates show that over 36,000 litres of water per hour (over 10.4 l/sec) is needed for metal extraction. The Ministry of Natural Resources has confirmed that water used to explore and perforate tunnels in the mine have already depleted water sources. Community members also state that the company began to bring water trucks to the mine daily because natural sources have been exhausted.

Meanwhile, chemical waste from the sodium cyanide, lead salts, zinc and caustic soda used in the exploitation process has contaminated remaining water sources. It is important to note that the Project's processing plant uses cyanide, and thus its waste has traces of this component.

Conflict and consequences

Conflict erupted in 2002, when the company began to explore the mine and filed the Project to obtain the necessary concessions. A main theme in the struggle against the mining company is the lack of information and transparency with the local population when it first entered the area.

The chief organisations against the mine are Comité Ambiental de Cabañas para la Defensa del Agua y los Recursos Naturales (Environmental Committee to Defend Water and Natural Resources); la Asociación de Amigos de San Isidro-Cabañas (Friends of San Isidro-Cabañas Association) and Mesa nacional frente a la minería metálica en El Salvador (National Table against Metal Mining in El Salvador).

To secure the concessions, the company is engaged in intense lobbying efforts with the authorities. It also promotes the Project during local soccer matches or regular community meetings. Locals claim that the company has divided the community. The schism grew wider when the company decided to

This document should be cited as:

Carbonell, M. H., 2012. Pacific Rim: El Dorado mine in El Salvador, EJOLT Factsheet

2002	Pacific Rim enters the Cabañas area to explore El Dorado
2002-2004	Exploration begins, the first protests of the community
2004	EIA submission
2008	Pacific Rim suspends exploitation activities, site maintenance and exploration activities continue
2009	Arbital lawsuit under ICSID
2009	Human rights defenders and environmental activists assassinated, irregularities in trials denounced
2012	First resolution of ICSID on competition—against Pacific Rim
2002-2012	Continuous community demonstrations
2002	Pacific Rim enters the Cabañas area to explore El Dorado
2002-2004	Exploration begins, the first protests of the community

Chronology of Major Events

suspend its activities in 2008, which affected the group that had benefited from it.

In April 2009, the company filed an arbitration lawsuit before the International Centre for Settlement of Investment Disputes (ICSID), under the Central American Free Trade Agreement (CAFTA) between the United States and Central America. It argued that the rules of international law and Salvadoran legislation under chapter 10 of CAFTA had been violated. The mining company hopes to receive \$77 million for delays caused by the Salvadoran State in the execution of the Project.

Since then, tensions have increased due to several instances where the human rights of anti-mining activists in Cabañas were violated. Marcelo Rivera was kidnapped and found several days later, bearing signs of torture. The priest Luis Quintanilla suffered a kidnapping attempt but escaped unharmed. The lawsuits filed have been plagued by claims of irregularities.

Sadly, four activists opposed to the Project have been killed: Dora “Alicia” Recintos Sorto and Ramiro Rivera Gómez (together with Felicita Echeverría). In 2011, the Inter-American Court of Human Rights (IACHR) condemned the assassination of Juan Francisco Durán Ayala (CIDH, 2011), a human rights defender and activist with the Comité Ambiental de Cabañas para la Defensa del Agua y los Recursos Naturales (CAC Cabañas Environmental Committee to Defend Water and Natural Resources). On 2 June 2011, Durán Ayala had placed posters and banners asking for the approval of a law against mining activities and demanding the company leave the Cabañas area. He was seen alive for the last time the following day, when he left his home to go to Universidad Tecnológica de El Salvador (El Salvador Technical University). According to information received by the IACHR, his body was found with two shots in the head in the municipality of Soyapango, on 4 June 2011. The IACHR urged the Salvadoran government to investigate the case and denounced threats against human rights defenders.

In June 2012, ICSID determined that the mining company did not have substantial activities in the United States in the past or present, and decreed that the case be tried under Salvadoran law.

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Ore & building materials extraction

Keywords

- > Illegal sand mining
- > Sand mafia
- > Court case
- > CRZ (Coastal Regulation Zone)

Introduction

Sand mining refers to the extraction of sand from riverbeds and seashores for construction activities and for minerals such as gold, silver, silicates et cetera. It is legal when authorised or permitted by relevant governments, with assurances that existing rules and regulation will be followed. Illegal sand mining (hereafter ISM) on the other hand—the focus of this article—includes all other unauthorised extraction activities. In India, the Ministry of Forests and the Environment (MoEF) has formulated guidelines on sand mining for both riverbeds and coastal areas (Coastal Regulation Zone, 2010; MoEF Notification, 2010). The Ministry of Mines is also mandated to govern sand mining.

The increasing demand for sand (for booming real estate and infrastructure projects, for instance), together with weak governance and rampant corruption are facilitating uncontrolled and illegal mining of sand and gravel in the rivers and seas of India. ISM has been thriving in various Indian states including Madhya Pradesh, Bihar, Haryana, Karnataka, Goa, Andhra Pradesh, Rajasthan, Chattisgarh, Orissa and West Bengal (12 March 2012, Express News Service). It is also illegally practiced in other states like Kerala, Tamil Nadu, Maharashtra, Gujarat, Uttar Pradesh, Uttarkhand, and etcetera.

Impacts of Illegal Sand Mining (ISM)

ISM adversely affects the environment including rivers, sea and forests. Its impacts vary from place to place. In Eastern Uttar-Pradesh, for instance, mechanised sand mining has resulted in soil erosion and turned thousands of acres of land infertile. In this same state, there are reports that the sand mafia controls rivers such as the Chhoti Gandak, Gurra, Rapti and Ghaghara (Centre for Science and Environment, 2011).

In Kerala, major rivers such as the Pampa, Manimala and Achankovil have



Fig.1 Bharathapuzha riverbed turned into grazing land

(Source: India Together, 14 June 2005)

been subjected to non-discretionary dredging that causes changes in channel bed and habitat type, together with a sharp fall in groundwater table levels, leading to water scarcity and aggravating agriculture and local livelihoods.

The Bharathapuzha River, once the lifeline of many villages in the Palakkad, Thrissur and Malappuram districts of Kerala, has become a grazing ground covered with shrubs and weeds (Fig.1).

In Andhra Pradesh, river sand mining has developed in a haphazard, irregular and unscientific manner. Quarrying has created water stagnation in the riverbed and impaired the natural water flow, which has had grave consequences on agricultural production due to an inadequate water supply for irrigation. The use of heavy machinery such as excavators to remove sand has caused riverbeds to erode, banks to collapse, damaged infrastructure like bridges and transmission lines, caused trees to grow on the bed and the banks, and problems in drinking water systems. Uncontrolled, illegal sand mining has caused depletion of groundwater tables and degradation of groundwater quality (Rao, 2006).

Along the Konkan coast of Maharashtra, ISM is taking a toll, causing landslides, destroying large tracts of mangroves and the natural habitats of turtles and crocodiles. According to Abdulali, from the Awaaz Foundation, “many creeks of the Konkan coast are turning into shallow pits, leading to an extinction of





Fig.2: Sand Mining near Narangi Village. Source: <http://www.awaaz.org>



Fig. 3: Sand Mining at Vaitarna
Source: <http://www.awaaz.org>

their marine ecosystems” (15 June 2011, Times of India).

Actors/Conflicts in sand mining

As various reports indicate, ISM flourishes in India because it generates huge revenues that are shared among different stakeholders. The actors involved in conflicts related to both legal and illegal sand mining in India are usually the local people, non-governmental organisations (NGOs), contractors, private companies, bureaucrats and politicians; but others, such as religious priests (locally called Swami) are also involved.

The term sand mafia, as used by the Indian media, refers to groups composed of local politicians, contractors and bureaucrats, who pursue illegal extraction and resort to physical violence to do so. This may also be seen as a case of Eco-Mafia, a term coined by Italian NGO Legambiente.

Case Studies

Four ISM-related environmental conflicts are presented to show how different people complain about such activities, including an environmentalist, a religious priest, a high-ranking police officer and the public.

I. Awaaz Foundation vs. the Sand Mafia

Awaaz Foundation is an environmental NGO based in Mumbai working extensively on raising awareness about the vulnerability of the environment through educational projects in different states of India. Ms. Sumaira Abdulali, Founder of Awaaz Foundation, was physically assaulted on 17 March 2010 by the son and employees of a local politician, who are part of an extensive politically-controlled sand mafia in Maharashtra (17 March 2010, Times of India). Awaaz Foundation filed a case at the Bombay High Court through Public Interest Litigation, demanding a ban on sand mining activities along the Konkan coast of Maharashtra. The Bombay High Court banned mining in the Coastal Regulation Zone (CRZ). Moreover, the court ordered the state government to implement the alternative measures mentioned in the report prepared by the prestigious IIT Mumbai (Indian Institute of Technology), which includes reusing sand from building debris and using of environmentally sound techniques for sand extraction.



Fig. 4 Sand mining in Uttarakhand
(Source: Down to Earth, 15 July 2011)



Fig. 5 Illegally-mined stones loaded in Madhya Pradesh
(Source: Times of India, 13 March 2012)



Fig. 6 Association for Rural Education and Development (AREDS), women's organizations and activists protesting ISM
(Source: Renganathapuram, 31 October 2010)

II. Swami vs. the Uttarakhand State

In June 2011, Hindu priest Swami Nigamananda Saraswati died after a four-month fast in protest of reckless state-sponsored sand mining and stone crushing on the banks of the world-renowned Holy River Ganges, near Haridwar (a pilgrimage site) in the State of Uttarakhand. Millions of pilgrims visit this holy place to dip in the Ganges during Kumbh Mela to wash away their sins. A few days before Swami Nigamanand died, the Uttarakhand government ordered a ban on mining activities in the region considered sacred. The ban also followed a directive of the Uttarakhand High Court on 26 May 2011 that expressed concerns over the degradation of the river's ecology and in general the area used for Kumbh celebrations (15 July 2011 Down to Earth).

III. Narendra Kumar (IPS Officer) vs. the Mining Mafia

In Madhya Pradesh, Narendra Kumar (Indian Police Service, a high-ranking officer) was brutally crushed to death by a tractor loaded with illegally-mined stones, allegedly by the 'mining mafia' in Morena on 8 March 2012. The Chhatarpur district administration ordered the cancellation of all sand mining contracts in the district after the media outrage over IPS officer Narendra Kumar's killing, and a second attack on a sub-divisional magistrate and police officials in Panna. Later, Madhya Pradesh Chief Minister Shivraj Singh Chouhan announced they were handing the murder case of the IPS officer over to the Central Bureau of Investigation (13 March 2012, Times of India).

IV. The Sand Mafia vs. the Public

The Cauvery River in Tamil Nadu has been seriously impacted by indiscriminate sand mining. The groundwater table has been depleted, rendering the availability of water scarce and unsuitable for drinking. Decrease in soil fertility has led to a sharp decline in agricultural productivity, forcing farmers to sell off their lands and allowing miners to dredge the precious sand lying beneath their fields. People who realised their very livelihood was at stake due to mining, took to the streets at the call of AREDS (Association for Rural Education and Development) on several occasions. Since 1991, AREDS, together with the local people, women's organisations and activists, has organized several road blockades. AREDS also filed a case through Public Interest Litigation (5762/90) to the Madras High Court in 1990. As a result, mining was banned in Cauvery banned by the High Court on 25 January 1999 (see Fig.6).

Rapid economic growth, coupled with the drive to industrialise, has significantly increased the demand for energy and materials, including sand (Singh et al., 2012). Legal sand mining, in line with existing regulations, was not enough to meet the demand generated by booming

More on this case

- Awaaz Foundation Website: <http://www.awaaz.org>

This document should be cited as:

Singh A.A., Mahongnao M., Demaria F., Krishna V.V., 2012. Illegal sand mining conflicts in India, EJOLT Factsheet

real estate and infrastructure projects. This has led to the emergence of powerful vested interests in different states. Riverbed and seashore ecosystems have been severely impacted due to ISM. The case studies presented show how different stakeholders have drawn attention to the issue, for very different reasons. In Maharashtra, an environmentalist defended the ecosystems. In Uttarakhand, a religious priest attempted to protect a holy place. In Madhya Pradesh, a high-ranking police officer tried to enforce the law; and in Tamil Nadu local people mobilised to defend their livelihoods. The growing number of conflicts and court cases against sand mining should be an eye opener for the government. It must take concrete steps with 'effective teeth' to implement relevant norms and laws to reduce negative impacts on the environment, and also enable people to legally earn a living.

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Ore & building materials extraction

Keywords

- > Copper
- > Molybdenum
- > Environmentalists' success
- > Local alternatives

Introduction

Situated in Cotacachi, Imbabura in north-eastern Ecuador (0° 30' and 0° 20' N, 79° 0' and 78° 20' W), Intag covers approximately 1462 square kilometres (564 square miles) and has a population of 13,700 inhabitants in 76 rural communities.

The area is characterized by a variety of ecosystems that range from 575 to 3,500 metres (1886 to 11,482 feet) above sea level; 25 percent consists of protected forests. From a demographic point of view, it is characterised by scattered human settlements, with a population of settlers. Access to basic social services and communications is limited, and until recently, the economic and social activities of Imbabura have often gone unmentioned.

The population of Intag has been committed to not allowing mining activities to proceed on their lands for two decades now.

Background

Attempts to mine copper in Intag date to the 1990s. Bishimetals, of the Mitsubishi Corporation, began exploring the region in the Junin-Cuellaje concession in the Toisan Mountain Range. The initial explorations were supported by the Japanese Agency for International Cooperation.

The company has been exploiting the mine since 1991, without the necessary legal permits. In 1996, an Environmental Impact Assessment (EIA) was submitted. In this study the company admitted to the impacts mining activities could cause in the area.

Meanwhile, the Project for Mining Development and Environmental Control mapped Ecuador's national mineral resources (with World Bank funds) and developed a new mining law that would attract foreign investments. Some of the main incentives were access to water, weak environmental regulations and the elimination of export taxes.



Welcome to Junin Community. Number of inhabitants 260. Agriculture. Livestock activities. Tourism. Mining is not allowed here.

The Project

In the early stages of exploration, Bishimetals discovered close to 2.26 million tons of pure copper and some molybdenum, gold and silver in the Toisan Mountain Range.

The concession areas granted to Bishimetals in Intag—called Golden 1, Golden 2 and Magdalena 1—covered 7,000 hectares, and were sold to Ascendant, a Canadian mining company, in 1997. This raised Ascendant's holdings to 22,500 hectares of concession lands; the company (which later changed its name to Copper Mesa) affirmed that Intag's reserves were three times larger than previously estimated (close to 9 million tons).

In April 2008, the National Assembly issued a mining mandate that suspended 88 percent of the mining concessions in the country, including the one in Intag.

State-owned Chilean mining company Codelco entered the area on 12 January 2012. Three trucks with perforation equipment arrived at the Paraiso community in Garcia Moreno parish. The people of Intag, the parish's president, the mayor of Cotacachi and the political chief of the district all opposed to having the mining company in the area. In August 2012, Codelco announced that it was leaving Intag, arguing that the project was not profitable.





Protests against the mining activities in Intag.

Source: *Coordinadora Zonal de Intag, "Codelco se va de Intag, ¿por ahora?", mayo de 2012*

Impacts

The mining exploitation by Bishimetals affected the communities of Cerro Pelado, Junin, El Triunfo and Barcelona the most.

The Cotacachi-Cayapas Ecological Reserve, established in 1968 (Official Register 17-A1468), covers an area of 2,044 square kilometres (789 square miles) and borders the mining areas. It is an area rich in biodiversity (fauna and flora) and especially water sources. The mining areas are also close to two protected forests, a municipal natural reserve and a community-protected area.

The preliminary EIA by Bishimetals was based on 20 percent of the actual identified field, and noted that the forests and water sources would suffer greatly from mining activities. It also predicted that the water sources would mainly be contaminated by lead, arsenic, cadmium and chrome.

The exploration efforts have in fact caused an increase in illnesses related to the ingestion of toxics in the contaminated water. The presence of arsenic and lead in the Junin River has been confirmed. In 1996, several skin problems were detected and some people claimed that their animals died.

In regard to the social impacts, the EIA anticipated that the project would result in the displacement of at least 100 families from four communities.

Conflict and consequences

The conflict had three phases: first, against the Japanese company Bishimetals in the mid-1990s; next, against the Canadian company Ascendant (and its successor Copper Mesa) a decade later; and in 2012, against the Chilean company Codelco.

Since the mid-1990s, the inhabitants of the region have successfully opposed the mining companies. In May 1997, protests included the occupation of the Bishimetals camp. During this conflict,

the guards were driven out; the belongings of the company were given to the mayor; the mining camp was dismantled and everything that remained was burned. In response, the State filed lawsuits against the leaders but the cases were dismissed due to a lack of evidence. In 1999 the final dismissal was issued.

The Ministry of Energy and Mines filed demands against the farmers for terrorism offences, sabotage, property destruction and robbery. This is the first case in Ecuador against terrorism based on protests against mining activities.

Local residents claimed that Bishimetals never informed them about the project, stating that their acceptance had not been sought. The communities argued that the company expropriated their lands illegally. Additionally, they noted that exploration wastes as well as the domestic wastes and sewage waters of the camp were discharged directly into the Junin River.

Consequently, the people of Intag promoted the creation of an environmental ordinance to limit or prohibit mining activities. After this initiative, the whole Cotacachi District was declared the first Ecological District in Ecuador.

In 2002, the Ministry of Energy and Mines awarded a mining concession in Intag to Roque Bustamante for \$180,005 for the right to exploit 7,000 hectares in 30 years.

In 2003, the Cotacachi municipality, with the support of several organizations, filed a lawsuit against the Ministry of Energy and Mines for awarding the project and violating the right to prior and informed consent (this right appears in the 1998 Constitution). The case went to the Constitutional Court, where it was decided to overrule the appeal stating that the claimants failed comply with the motivational requirements of the Constitution in place.

To date, Ascendant Exploration S.A. owned the largest concession. In 2004, the company changed its name to Ascendant Copper Corporation and in



View from the Intag area Source: <http://www.decoin.org/2012/01/codelco-is-exploring-in-intag/>



Mining has generated conflicts in numerous areas, including Intag, Imbabura.

Source: Teresa Herrera, *Minería: el vehículo todavía no logra dar su arranque en el Ecuador*, *El Hoy*, 2007.

2008, to Copper Mesa Mining Corporation. The Intag community stated its opposition to the mining company in the area. Some of the demonstrations included, in December 2005, the burning of the company's camp. Three hundred inhabitants from 15 communities publicly assumed responsibility for these acts.

Other actions included the expulsion of people from the company's camp, roadblocks, and the march in July 2006 towards Quito, the capital. There were direct threats and attacks, defamation campaigns and criminal trials. Violent confrontations took place prior to the 2006 presidential elections. Some claim that there were armed people involved in these confrontations, probably ex-military, who tried to enter the area by using violence. The situation changed with the new government in 2007, but the threat of copper exploration and extraction is still ongoing.

In October 2006, 19 members of the National Police entered Carlos Zorrilla's home, the local leader. The police asserted that they found a gun and

drugs in his house, and a case was filed. In 2008, a judge ruled against his detention and the evidence found. Some other leaders were also victims of a criminalisation process. In 2008, the National Assembly issued a Decree of Amnesty in their favour.

More on this case

- <http://www.minesandcommunities.org/article.php?a=337>
- <http://www.hoy.com.ec/temas/temas2007/ecuadorsi/minas.htm>
- <http://cordinadorazonalintag.blogspot.com/>

This document should be cited as:

Carbonell, M. H., 2012. Mining exploitation attempts in Intag (Ecuador), EJOLT Factsheet

Some of the organisations in the area filed a demand against the Canadian company for supposed violations to their human rights, which the company won. In 2010, the concessions of Copper Mesa were revoked. In consequence, the company filed a lawsuit against the State for 120 million dollars in damages and loss of profit due to suspension of the concessions.

In July 2012, Codelco announced its intentions to buy the concessions of Copper Mesa. Local organisations speculated that the mining operation could be carried out together with the state-owned Ecuadorian mining company.

The organisations that work in the area include the Coordinadora Zonal Intag (Intag Regional Coordination); Comité Zonal Gestión Ambiental (Regional Environmental Management Committee); Comité Zonal de Educación (Regional Educational Committee); Coordinadora de Mujeres Intag (Women's Organization of Intag); Consorcio Toisán (Toisan Consortium); Coordinadora de Jóvenes de Intag (Youth Organization of Intag); and the environmental organisation Defensa Ecológica y Conservación de Intag, DECOIN (Environmental Defence and Conservation of Intag).

Some alternatives emerged from the resistance. The Asociación Agroartesanal de Caficultores Río Intag (Agro-artisanal Association of Intag River Coffee Growers) was born as an alternative to mining activities and the relationship established with Japanese supporters through the resistance process against Bishimetals.

Another important alternative activity is tourism. Communication between the region and the coast has been improved lately, so other productive activities could be developed, apart from mining. There are some plans for small hydroelectric plants.

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Nuclear Energy / Uranium Mining

Keywords

- > Uranium extraction
- > Nuclear waste storage
- > Tailings

Location and site description

The Kremikovci region (which includes the villages Seslavci, Buhovo, Kremkovci, and Yana) is located at the base of Stara Planina Mountain in Bulgaria. The uranium mines and extraction facilities closed down after 1992, but serious environmental, social and health problems persist. Buhovo is one of the sites in the Kremikovci region, about 22 kilometres (14 miles) from the capital city Sofia.

Buhovo is known as the first uranium extraction site in Bulgaria, established right after WWII. While locals were initially involved in agriculture, the gradual integration to the bigger city of Sofia, uranium ore extraction, and creation of the largest steel factory in the country transformed the town into a symbol of pollution among industry workers. Men were employed in extraction work until the 1970s, when ore was exhausted, after which most people began working at the “Kremikovtzi” Industrial Complex. Employment opportunities attracted thousands of workers from all over the country, creating population flow and temporary migration for several decades.

Brief history of uranium mining in Bulgaria

Uranium extraction in Bulgaria dates to 1946 and was developed in 48 locations. In the period between 1958 and 1975, in Buhovo and Eleshnitsa, two plants were built for uranium processing and production of uranium concentrate (U3O8). In 1992, the Bulgarian government decided to terminate uranium mining, stating it was uncompetitive and harmful to the environment. In most post-mining areas, where mine closure and site re-cultivation has been finalised, environmental conditions have actually worsened. The Kremikovci region is one area where this is easily observable.



Waste rock pile located right behind a fourteenth-century monastery promoted as a tourist site.

Photo-Credit: CRIIRAD/Za Zemiata

The uranium industry liquidation process: Environmental, social and health problems

Initially, the government aimed to finalise the liquidation of the uranium industry within three years, in 1995. A legitimate plan on closing the mine and producing uranium derivatives and concentrates was elaborated.

Buhovo is where the uranium processing plant was situated, and one of the two sites in Bulgaria where a tailings pond was built. After several rehabilitation projects—two of which were financed by EU Phare funding—the ponds are still uncovered. Moreover, in March 2006, the reinforced wall of the pond collapsed, placing the waters in the entire region under the threat of radioactive pollution.

According to documentation provided by the Ministry of Economy and Energy, one of the mine closure activities is maintaining the tailings pond in pre-liquidation state in the period 1998-2006. While this is a highly inefficient and suspicious strategic decision, there are also no plans for the final closure of the pond to eliminate its negative environmental and human health impacts.

The history of the pond dates to 1956, when there was no pond and the highly radioactive wastewaters from the uranium enrichment process were discharged directly into the environment. As a result, the heavy fraction settled into the soil while the liquid fraction was





*The Kremikovci region is known as one of the most polluted places in Bulgaria.
Photo-Credit: CRIRAD/Za Zemiata*

carried away to the local Buhovska River, which is an indirect tributary of the longest river in Bulgaria—Iskar—thereby spreading the pollution over a very large area.

Two ponds were built to meet the needs of the processing plant. The waste stored in the ponds has a complex composition of an inert mass, uranium and thorium radionuclide, plumb, zinc, arsenic, copper and other heavy metals, sulphates, carbonates, nitrates and metal salts. At the time of their construction, the bottoms of the ponds were not sealed with a hydro isolation layer; consequently, all radioactive and polluting substances seeped into the groundwater. While there used to be warning signs around the ponds, these have been long removed or stolen. Fences that once prevented people and livestock from entering the pond have also been removed. One of the ponds is dry and there are no aquifers or surface waters in its vicinity. The second pond seems practically eternal. It stores wastes from radioactive ore processing, including uranium isotopes 238 and 235 that have a very long half-life. There are two aquifers at the bottom of the pond, and it is fed by incoming surface waters. As a result, polluted water accumulates in the pond, while its capacity to hold water is limited. If measures to drain and close the pond are not taken, sooner or later it will overflow and runoff will rush to the downstream villages, leaving the region radioactively polluted and the

population exposed to high levels of radiation, causing serious environmental and health risks.

Almost all of the 120 adits of the mines are open, although they were once sealed. The adits are easily accessed, and waste metals left behind in the mines were stolen and sold for scrap.

The waste piles in the region have not been re-cultivated, and the accumulated mass is being exposed to atmospheric weathering, which causes radiation to spread in the nearby areas. In addition, the on-site monitoring system no longer functions since parts of it were stolen.

Health studies

The National Centre for Protection from Radiation assessed the risk exposure to carcinogenic diseases of the local population. There are reports available for 2003, 2004 and 2005. The monitoring data are identical for the three consequent years, showing a higher risk of gastrointestinal cancer in settlements exposed to high and relatively high radiation compared to the control village. Mortality in the two locations is higher compared to the control village, although not very different from mortality figures for Bulgaria. The standardised mortality from lung cancer for the two settlements is higher compared to the control village and Bulgaria.



Seslavci waste rock pile. Measurement shows powerful radioactive source reaching the end of the scale of the dosimeter.

Photo-Credit: Za Zemiata



Mine adit near Kremkovci. The entrance has been opened by people looking for scrap metals. For some Romani people, this is dangerous source of income.

Photo-Credit: Za Zemiata

Lifestyle changes

By the 1980s, ore had been depleted and some factories closed down. In compensation, production increased at the steel factory that employed thousands of workers.

In 1989, production went into decline with the collapse of socialism and privatisation of the steel factory. Production inefficiencies led to closing down most of the factories, and as a result of growing unemployment, most of the population emigrated. Currently, although the population is one-third of what it used to be, unemployment rates are still high compared to 0 percent unemployment in the 1970s and 1980s.

The Conflict

From 1982-1986 (before the Chernobyl accident), people protested individually and complained to mass media outlets. Conflicts regarding uranium ore mining also arose, as it impeded agricultural production and linked to deforestation. The landscape changed, which obstructed the movement of livestock. Some gardens were destroyed. The mortality rate increased among miners, who also experienced higher health risks. Although radiation issues were not debated publicly, residents in regions where the geo-technological method was employed witnessed the use of acids and filed a series of related complaints. Because Bulgaria was a socialist state, protest demonstrations were not organised.

After the 1986 Chernobyl accident, problems related to radiation pollution—especially its relation to water and food—began to be discussed more publicly. A new legislation was passed to distribute individual dosimeters, but this was never actually realised. The first rallies and demonstrations were related to uranium mining practices. Public

demands included limiting tailing pond capacity and making uranium transportation safe, unlike it had been previously.

The political changes in 1989 saw the organisation of a large protest march from Buhovo to Yana, that aimed to address the whole ecological situation in the region. It should also be mentioned that the Kremikovci region is polluted by emissions from the Kremikovci steel complex. After 1992, the protest movement mainly demanded the re-cultivation of the mines and polluted zones.

Current situation of the conflict

Measurements taken in 2011 during a fact-finding mission by the EJOLT team showed that there are still non-liquidated sources of pollution in the region—up to ten times over the norm in certain places, while water coming out of the mines is still contaminated as well. These pose a serious health risk for both the local population, and the tourists that visit the region. During one experimental measurement of radiation in the vicinity of the school at Buhovo, ground contamination was found to be five times over normal gamma radiation levels in certain places. This was followed by a media campaign, informing all local and national authorities. The area was quarantined and entering or leaving it was banned. An investigation was started and the Ministry of Environment and Water published a policy note, ordering the Sofia municipality to clean the region with municipality funds. The deadline for the clean-up was September 2012. The Sofia Municipality has not taken any action as ordered in the policy note. Za Zemiata together with the citizen's initiative committee is following up with media pressure and letters of notice to the responsible institutions. Local citizens and the school are frustrated, as the image of the school has become intensely negative. The locals are disillusioned and have

This document should be cited as:

Slavov, T., 2012. Uranium fairytales from Kremikovci, Bulgaria, EJOLT Factsheet

lost faith in the authorities.

In some cases, liquidating the uranium mine and re-cultivating the excavated ore-containing rock is difficult and requires a large amount of funds. The Seslavci waste rock pile, for instance, remains close to Seslavci monastery.

Although long-term funding has been secured for projects to re-cultivate polluted areas (including EU-funded projects), the situation in the region had not changed much. Two water purification plants were built, but failed to remedy the situation. Tests conducted by two independent labs (one organised by EJOLT) in 2011 show that contrary to governmental expectations, the radioactivity in the water is not decreasing at predicted rates.

In conclusion, it may be argued that although Bulgaria has reported to the EU that uranium mining has ended, the current situation in the region indicates that the contaminated areas have not yet been fully re-cultivated. The local population still suffers from a lack of solutions to the pollution problems.

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Ore & building materials extraction

Keywords

- > Gold mining
- > Colombia
- > Greystar (Eco Oro Corp.)
- > Paramo
- > Water
- > Large-scale mining
- > Artisanal mining

Introduction

The Angostura Project is located 67 kilometres (41 miles) northeast of Bucaramanga, the capital of Santander. Santander boasts several areas with gold resources, thus there are different kinds of mining operations in the region, mostly small-scale. However, there are also foreign companies involved. Companies such as CVS Explorations, Galway Resources and Barracuda have recently initiated exploration projects in the Vetás-California mining district.

In addition to the traditional water versus mining conflict, the Angostura Project stands to impact a fragile ecosystem. The 80,000-hectare (19,768-acre) Paramo of Santurban is a biological corridor characterised by herbaceous vegetation that ranges from 3,000 to 3,800 metres (9,842 to 12,467 feet) above sea level. It provides water to over 2.2 million people that inhabit the metropolitan areas of Bucaramanga and Cucuta, and 21 other municipalities in Santander and Norte de Santander.

The Surata River Basin is one of Santander's main sources of water (representing 55 percent of the volume needed by Bucaramanga City). The Oro and Surata Rivers feed the city, while Flora, Tona, La Iglesia, Quebrada Seca, Cacique, El Horno, San Isidro, Las Navas, La Rosita and Bucaramanga constitute the main ravines.

The uniqueness of this case is the continued and successful local resistance that commenced concurrently with the exploitation phase and lasted until today.

Background

Eco Oro Corp. is a Canadian company for the exploration and development of precious metals. It was established in August 2011, after the previous company Greystar underwent a restructuring phase and its stakeholders changed.

The company has been working on developing this project for the past 15 years. Greystar entered the area in 1995 to explore the gold fields in Angostura.



Aerial view of the area where the mine will operate

Source: <http://www.lingoro.info/inversion/el-proyecto-de-oro-angostura-%E2%80%93-colombia-%E2%80%93-parte-ii/1135/>

After conducting mining surveys, it bought some land and began exploration activities. In 1999-2000, the company experienced problems with the FARC-EP guerrilla group and some employees of a contractor company were kidnapped, after which Greystar stopped its activities and left.

In 2003, Greystar rebooted its operations in the region, widening its exploration program and ensuring its land consolidation in the Vetás-California district. The exploration phase cost US\$ 3.5 million and ended in 2004. Exploitation work was planned to begin in 2008, but opposition to the project through judicial, administrative, parliamentary and citizen activism slowed it down. Currently, the funding granted by the World Bank is being re-evaluated due to complaints made by various social organisations.

The Angostura Project

The Angostura Project is located in an alpine tundra ecosystem called paramos that has numerous lakes, and is supposedly to be a "low cost" open pit mine. The mining company plans to extract 11.5 million ounces of gold and at least 40 million ounces of silver in Santander, for about 15 years. According to information from Greystar, Angostura has proven reserves of 331 metric tons with 1.09 grams/ton of gold





Details of the Greystar Project.

Source: "Ecosistemas de Santurbán". Available at: <http://ecosistemastropicalesucn.blogspot.com/2011/03/paramo-de-santurban.html>



Some of the lakes that are in danger

Source: Jairo Alfonso Quijano La Rotta, "El proyecto minero de angostura de la Greystar destruye el páramo de santurban", Nortedesantander.com, 2010. Available at: <http://nortedesantander.com/?p=2069>



Miners at the project site

Source: <http://www.gentedecabecera.com/2010/10/10/ni-por-accidente-afectaremos-el-agua/>

and inferred reserves of 90.8 metric tons with 1.11 grams/ton of gold.

There are plans to expand the Angostura Project towards neighbouring traditional farming areas, such as the Surata, Charta, Tona, Mutiscua and Cucutilla municipalities. To this end, the company has bought concession titles in Santander and Norte de Santander. According to Ingeominas data (www.ingeominas.gov.co), it had purchased 25,212 hectares (62,300 acres) in mining titles and invested US\$ 150 million in exploration by February 2011.

The company has provided logistical support to establish a security base in the area. One of the purposes of the troops is to ensure the viability of the company's mining activities. There are two military camps within the Angostura Project area: 35 soldier in the Los Laches region, and 20 soldiers in the Escuela region.

Impact

According to local residents, the presence of the mining company affects them in four ways:

- Causes armed conflict and military control of the area; because the company is an accomplice in displacing the population and expropriating land,
- Fails to recognise their right to participation and self-determination by establishing a development model based on large-scale mining,
- Threatens the right to a healthy environment by appropriating ecosystems and water sources, and
- Infringes on people's right to work, their living conditions, the indigenous development of local communities, by using inappropriate practices.

Similarly, the locals also argue that the presence of the mining company affects the viability of small-scale mining practices and the right to work. Gold mining in this area has mostly been at subsistence levels, although the region has been exploited intermittently by small family and foreign-owned mining companies. According to estimates, some 500 to 600 direct mining jobs have been generated in this district, chiefly in the artisan mining industry, which consists of independent miners or small

1995-1999	Greystar Resources Ltd. buys land and initiates exploration activities
1999-2000	Greystar leaves the area due to security issues
2003	Greystar reinstitutes its activities
2008	Plans to begin exploitation work are abandoned
2010	Submission of the EIA
2011	March, The Andean Parliament discusses Greystar projects
2011	April-May, The national environmental authority rejects the EIA. The company decides to change the original project and apply for a new one
2012	June, Social organisations present a formal claim to the World Bank. The claim is accepted.

Chronology of Major Events

businesses that do not have licences or titles.

Large mining projects create an economic dependence that hinders the emergence of other socio-economical alternatives for the population. By buying mining concessions, Greystar eliminates the possibility of practicing small-scale mining in the region.

In February 2011, the Ombudsman's Office of Colombia presented certain indicators of the pressures this project would exert on the environment and the people: "This project will use 1,200 tons of cyanide each month, 7,000 tons of ANFO (a powerful explosive material based in ammonium nitrate and a fuel derived from oil) and 4,680 tons of emulsion (...) The concession will affect 12.1 percent of the Vetas River's flow and 2.5 percent of the Surata River's flow, which is the main source of Bucaramanga's metropolitan aqueduct. The river could also be affected by industrial discharge such as cyanide, fuels and sludge, among others." The Ombudsman's Office is also concerned about disposing huge amounts of materials from the excavation in leach dumps (330 million tons) and tailings placements (744 million tons) (Notiagen, 24 February 2011).

Conflict and consequences

In 2009, the company submitted an Environmental Impact Assessment (EIA), which established that the Project would protect the paramo, subparamo and Andean forest ecosystems. The EIA was rejected. The Ministry of Mines and Energy urged the company to make comprehensive changes to the project for its approval. In 2011, the company presented a new assessment different to the original project.

From 2003 to 2010, local organisations

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mobilised against mining activities in the area. One of the organisations that works on this issue is the Comité para la Defensa del Agua y el Páramo de Santurbán (Committee to Defend the Water and the Paramo of Santurban). Due to the protests in 2010, the National Environmental Authority ordered the revision of the study.

Canadian company Greystar's plans to exploit gold and silver were discussed as part of the agenda at the Andean Parliament's last session (23 and 25 February 2011). Fourteen parliamentarians from Peru, Bolivia, Chile, Ecuador and Colombia issued a joint statement asking Greystar to drop the Angostura Project.

More recently, several local social organizations submitted a claim to the World Bank stating that the International Finance Corporation had ignored its credit policies by investing US\$ 11.79 million in Eco Oro Minerals in 2009. The World Bank accepted the claim in July 2012, and its investments in the Angostura Project will be re-evaluated.

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Ore & building materials extraction

Keywords

- > Gold mining
- > Colombia
- > AngloGold Ashanti
- > Food
- > Large-scale mining
- > Open pit mining

Introduction

Once declared by former Colombian President Alvaro Uribe as being “the greatest gold mine in the world”, the open pit mining project is located in Cajamarca, Tolima in Colombia. It is situated in the Andean region in the north-central part of the country. In 2007, Tolima had a population of 19,789.

Due to its importance for national markets, Tolima is known as the “agricultural belt of Colombia”. Some of the major tributaries of the Magdalena River flow through it. The area adjacent to the Central Magdalena River is characterised by its gold, wood, oil, carbon and uranium (PASM, 2009), and consequently disputes arise between various multinational companies who run exploitation projects, and farmers who cultivate and trade many agricultural products. Tolima is also home to three national parks: Los Nevados, Las Hermosas and Nevado del Huila.

The municipality of Cajamarca covers an area of 51,528 hectares (127,328 acres) in Tolima, and 79 percent of it belongs to the Central Forest Reserve, created by Law 2/1959. South African company AngloGold Ashanti has a mining concession of 515.75 hectares (1274 acres) in Cajamarca, that comprises La Luisa, Paloma, Bolivar and Diamante, where the La Colosa Project is being developed.

Background

AngloGold Ashanti (AGA) is the third largest gold exploitation multinational company in the world. In Colombia, it is present in 20 departments of the country. It holds rights to 9,920 square kilometres (3,830 square miles) in mining titles in Colombia; a territory that is seven times the size of Ibagué, capital of Tolima.

Project

The exploration phase at La Colosa revealed the presence of a gold vein system at a grade of 0.3 grams/tonne stretching 1,500 metres (4,921 feet). The inferred reserves are 381.4 million tons with an average of 1.00 grams/tonne (or



In Cajamarca, Tolima, 1,300 people march against large-scale mining

Source: Territorio Centro, 4 August 2012

12.3 million ounces). Currently, the company has limited exploration permits.

The exploration phase of the mine will end in 2015 and the first gram of gold from La Colosa will be extracted, at best, in 2019 and not in 2016 as originally planned. If things go as intended, it is estimated that the mine could reach an annual production between 600 and 800 thousand ounces, and have a life span of 15 years.

The gold discovered in the area is relatively close to the surface and disseminated all over, which means that it would be necessary to extract the gold by an open pit mine. In 2012, the company presented new results of the exploration phase showing that the mine holds 24 million ounces in reserves, doubling the original estimate.

Impacts

The communities in the region claim that with the expansion of the mine, 161 water sources would be threatened as a result of contamination by the leaching process and the use of water for extraction.

According to calculations, over 4 million kilograms of cyanide would be used every year in the process of leaching. The toxic waste generated would contaminate the Bermellon, Cuello and even the Magdalena Rivers. In addition, the ground would be affected by heavy metals such as arsenic, cobalt, mercury, et cetera that will continue to contaminate the water for over a century.





Colombian landscape in the La Colosa area . Source: Soto Hoyos, 28 February 2011. Available at: <http://stopsecrets.ning.com/group/colombia/forum/topics/colombia-se-planean-mega-eco-genocidios-mineros-y-petroleros-mina>

Carl Brechtel, director of the La Colosa study stated that “(the company) considers that it would need approximately one cubic metre of water every second to process each ton of mineral, or between 631 to 946 million cubic metres of water annually. If the lifespan of the mine is between 15 and 25 years, then the total use of water would be around 9.5 billion and 23.6 billion cubic metres”. (Observatorio Nacional de Paz, 2010). It is important to note that the Corporación Autónoma Regional del Tolima, Cortolima (Autonomous Regional Corporation of Tolima, Cortolima) is clear on this issue: water resources in the area have been exhausted for these types of industrial activities.

In this area, water plays a fundamental role for human and agricultural use. In 2009, the Comité de Arroceros de Ibagué (Committee of Rice Producers of Ibagué) spoke out against these projects, citing damage caused to 11,000 hectares (27,181 acres) of rice fields that supply the Riego de Coello District. The Committee also argued that such harmful effects would spread by 4,000 hectares (9,884 acres) annually and impact arracacha (*Arracacia xanthorrhiza*, an Andean tuber popular in Colombia) in Anaimé and Cajamarca, as well as other crops such as fruits, coffee, plantain, yucca and beans. The production of these crops would be affected by water scarcity and

environmental changes induced by the removal of the vegetation cover in the concession areas (FEDEARROZ, 2009).

In the social sphere, the communities mentioned two direct impacts. First, people stand to lose their livelihoods due to being displaced, environmental damage and the destruction of other income-generating alternatives. Second, increased militarisation in the area and other social problems are likely, as a result of the security companies, paramilitary forces and regular members of the army (Rivillas, 2009).

Conflict and consequences

Several international organisations such as Human Rights Watch, and Mines and Communities, have documented the arrangement between AGA and armed groups, and the crimes executed in different countries where AGA works to guarantee it enters a nation and develops large-scale operations. AGA has been denounced for violating human rights and damaging the environment in several countries (Mines and Communities, 2005).

Furthermore, national organisations have established that the areas where AGA asks for concession contracts are the same areas where paramilitary forces and members of the National Army, acting together, have been violating human rights since 1995.



Location of the La Colosa Project

Source: *La colosa: la búsqueda de el dorado en Cajamarca, Colombia, Versión 1* Fecha: 4 June 2011, *Colombia Solidarity Campaign*, p. 17. Available at: http://www.colombiasolidarity.org.uk/attachments/article/552/LA_COLOSA-La-Busqueda-de-El-Dorado-en-Cajamarca-v1.pdf

As stated on the website of the Observatory of Mining Conflicts of Latin America, from 1988 to 2006, 5,438 people have been victims of human rights violations and 610,110 people were displaced by paramilitary organisations where the mining company has or is planning to run projects.

In addition, activist organisations, including Amigos de la Tierra Colombia (Friends of Earth Colombia) and CENSAT have confirmed that social, political and community leaders continue to be arrested as a strategy to weaken and break the organisational process. Leaders of groups opposed to mining activities in the area have been subject to intimidation tactics, while the region suffers from blockages and displacements.

Additionally, the State uses violent repression, assassination and litigation against organisations and leaders who are opposed to being displaced or attempt to acquire titles for the mines they have worked for generations. In some cases, requests to legalise titles are rejected because there are previous requests by the multinational company (Red Colombia, 2007).

Similarly, leaders of groups opposed to large-scale mining activities or people who run small-scale mining operations have been targeted with charges of illegal mine exploitation. By July 2012, 57 people had been arrested (El Nuevo Día, 8 July 2012).

In 2010, the Environmental, Housing and Development Ministry imposed a US\$ 140 million fine on the company for violating environmental laws while exploiting a natural reserve. It is important to note that this penalty is pecuniary and does not influence in the project's execution (OCMAL, 2010).

The report titled "*La Colosa, in search for the El Dorado in Cajamarca, Colombia*" revealed important findings and irregularities at the legislative, politic, environmental and moral levels in the awarding process of the project and the exploration phase that is currently ongoing.

One of the main organisations that work on this issue in the area is the Minga de Resistencia Social y Comunitaria del Tolima (Minga Social and Communal Resistance of Tolima). Opposition groups organise pacifist citizen protests, among other activities. In June 2011, 1,200 demonstrators gathered for the third Defence of Life Carnival March against the La Colosa Project (Comité ambiental en defensa de la vida, 2011). In August 2012, 1,300 protestors from different organisations denounced the threats that mega-mining poses to Cajamarca (Territorio Centro, 2012).

More on this case

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At the national level, CENSAT Agua viva – Amigos de la Tierra Colombia (CENSAT Water Alive – Friends of the Earth Colombia www.censat.org) and the Red Colombiana Frente a la Gran Minería Transnacional (RECLAME Colombian Network Against Transnational Large-Scale Mining www.reclamecolombia.org) supported the consolidation of a network of communities that, similar to Cajamarca, are affected and threatened by large-scale mining.

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Ore & building materials extraction

Keywords

- > Copper
- > Molybdenum
- > Chile
- > Large-scale mining
- > Open pit mining

Introduction

Los Pelambres is an open pit copper mine located in the Andes, 3,600 metres (11,811 feet) above sea level. It is situated close to Los Caimanes community, 45 kilometres (28 miles) east of Salamanca, in Choapa, IV Coquimbo. The residents of Los Caimanes—threatened by the largest tailings dam in Latin America—have been defending their community relentlessly.

Project

The main shareholder of the mine is Antofagasta Holdings (60%), property of the Luksic group. The rest of the investments are Japanese: Nippon Mining and Metals Co. Ltd (15%), Marubeni Corp. (8.75%), Mitsui & Co. Ltd (1.25%), Mitsubishi Materials Corp. (10%), and Mitsubishi Corp. (5%) (Mining Technology, 2012). This large-scale copper and molybdenum operation began in 1999, with the expansion of a small-scale enterprise that existed for several years, producing less than 5,000 tons of material. Basic data of the Project is shown in Table 1.

Exploration efforts undertaken in 2008 to determine if it was possible to expand based on estimated reserves revealed that the mine had 1,900 million tons in additional reserves. In 2010, following an investment of US\$ 760 million, daily capacity increased from 132,000 tons to 159,000 tons. This investment included the installation of an infrastructure for transportation, milling and flotation of the material (Bechtel, 2012). Based on production and estimated reserves, Los Pelambres is considered the fifth largest copper mine in the world.

Since the Project began, all production has been exported as bulk concentrated copper, while the molybdenum is sold in Chile. The bulk concentrated copper is transported from the plant, located 45 kilometres (28 miles) east of Salamanca, through a 120-kilometre (74-mile) underground duct to Port Punta Chungo, Los Vilos, where the Los Pelambres-

Reserves	3,000 metric tons of copper reserves at 0.65 percent and molybdenum at 0.014 percent
Production	322,800 tons of copper and 8,700 tons of molybdenum (2005)
Type of mining	Large scale open pit mining

Table 1. Basic data of the mine.

Source: Mining Technology, 2012.

owned mechanized wharf is located. The mine earned a record income in 2006, thanks to the high price of the materials; operational benefits rose to US\$2,223.7 million.

The mine covers a 2.5 by 2.2 kilometre (1.4 by 1.6 mile) area, and obtains its water from three sources in three nearby mountains. Los Pelambres owns the El Mauro Reservoir that holds 1,700 million tons of tailings. After a controversial process of planning and authorisation, the construction of El Mauro concluded at the end of 2009, and it is currently operational.

Impacts

The dispute over water use rights and the risk of contamination of crops in the area linked to the tailings reservoir formed the basis of the protests against the mine (Technomine, 2007). The tailings reservoir likely contains arsenic, calcite, fluorspar, radioactive materials, cadmium, lead, mercury, hydrocarbon wastes, sulphuric acid or calcium, most of them toxic to human health and the environment.

The use of water sources for copper extraction is another problem brought on by the company. Regional residents confirm that the company has redirected the main water sources for its own use. The reservoir is located above the groundwater table that is the Caimanes community's only resource of potable water. Wastes generated by the company would contaminate the groundwater, and make it useless for





Los Pelambres Mine, panoramic view of the concentrated copper process
Source: Bechtel Corporation (www.bechtel.com/los-pelambres-mine.html)



On 27 September 2010 a group of 11 people initiated an 81-day hunger strike to demand that the El Mauro Dam be closed
Source: El Ciudadano. 2010a



El Mauro Dam
Source: <http://www.portalchoapa.cl/detalle.php?seccion=noticias&id=191>

human consumption, agriculture and livestock. The Pupio River Basin would be particularly affected.

In selecting a site to construct the tank and the El Mauro Reservoir, the company could have chosen other locations that would have caused less damage for the community; but those options cost more (La Nacion, 2006). If the reservoir overflowed, it would flood the nearby fields, affecting the Caimanes community.

Conflict and consequences

There are many social and judicial problems in the copper extraction process, and several instances of contamination have been already proven. The men and women of Los Caimanes have continually protested the mine throughout the duration of the Project.

The Los Caimanes community has been opposed to the presence of the mining company in the region since 1997. From

1999 onwards, when operations began, various negative impacts have been reported, such as environmental damage, decrease in the quality and quantity of water that the community receives, and crop damage, among others.

In December 2000, Los Pelambres was subpoenaed by the Comisión Regional del Medio Ambiente—COREMA (Regional Commission of Environment—COREMA) from the Coquimbo Region, due to noncompliance with the EIA of the Punta Chungo Wharf, in which the company agreed to plant 70 hectares (170 acres) of eucalyptus.

Thereafter, the company had to pay a fine of 100 UTM (approximately US\$ 4,300) for violating regulations related to discharging the water used to transport concentrated copper to the Punta Chungo Wharf. The water was discharged in the Conchali Lagoon area, at the Los Vilos resort.

In 2004, local water authorities approved

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1999	Large scale exploitation and demonstrations against the company begin
2000	Company is summoned to appear in court because of supposed noncompliance with the EIA. A fine is imposed
2006	Company generates record income
2008	Exploration for possible expansion is undertaken
2009	The El Mauro dam is built
2009	Wastes spill from the mine
2010	Project expansion (investment and production)

Chronology of Major Events

the mining company's use of water sources. However, the community won the later appeal where their rights over water resources were recognised.

Various community organisations from the Pupio Valley—specifically from the Los Caimanes community in the Fourth Region—appealed to a tribunal to overturn the verdict issued by the Dirección General de Aguas (General Water Authority) on 30 November 2005 that authorised the company to start constructing the tailings dam. The tribunal established that the dam “affects the claimants’ right to water use”. The community chose the judicial channel and won, and the company had to pay compensation to the people; the redress reached US\$ 500,000.

In 2007, the judicial system passed a sentence against six claimants that required the suspension of the dam construction. Since its approval in 2004, the dam construction has been plagued with irregularities and problems. In 2009, there was a toxic spill from the mine, which was sanctioned by the administrative authority (COREMA).

In 2010, the struggle to oppose the construction and operation of the dam included an 81-day hunger strike (El Ciudadano, 2010) and roadblocks on the highways and roads that lead to the dam. The motive for the protests is that the company has yet to present a new EIA that would determine the amount of damages and related compensations. These protests resulted in the detention of 30 people (El Ciudadano, 2010b).

There were other protests in late 2011 that included the blockage of highways. Recently, the Los Pelambres Mining Company filed criminal charges for unlawful association and breach of trust against the lawyers of the Caimanes community and President of the Comité de Defensa del Poblado los Caimanes (Committee to Defend the Los Caimanes Community). The court hearing took place on 7 June 2012 but was sentencing was suspended until the end of June (El Ciudadano, 2012).

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Ore & building materials extraction

Keywords

- > Gold
- > Silver
- > Goldcorp
- > Communitarian consultations
- > Convention 169
- > Public health

Introduction

Marlin is an open pit mine in northern Guatemala, in the municipalities of San Miguel de Ixtahuacan and Sipacapa that have a joint population of approximately 70,000. Previously owned by Montana Exploradora de Guatemala S.A., it is now the property of Canadian company Goldcorp.

After years of resistance, and despite the fact that the closure of the mine was already announced, production increased in 2011 and 2012 (over 350,000 ounces of gold annually) and the company is expanding to nearby areas.

Background

The mining fields were discovered in 1998 by Montana Exploradora S.A. In 2000, the project was bought by the Francisco Gold Corporation. In July 2002, the Canadian company Glamis Gold merged with Goldcorp and bought the whole project.

In October 2004, the World Bank loaned \$45 million to support the project, without taking the International Work Organisation's mine-related allegations into account. That same year, communities began to oppose the mining concessions due to their environmental risks. Operations commenced in October 2005.

Project

A medium-sized project, it is located in a high-altitude region where several water sources are threatened by mining activities. It is important to note that the main activity of the area has always been agriculture; traditionally mining activities did not exist.

In the original feasibility studies by Glamis Gold, estimated gold reserves were at 1.4 million ounces. Marlin is a combined open pit and underground mine. Through cyanide leaching, a solution that has gold and silver is obtained; then it is processed in an *in situ* refinery and melted to form gold bars.



A source of concern due to their impact on human health, the installation of high voltage power lines close to homes raised controversy.

Source: De Guate, 2008.

Since 2006, the company has extracted 250,000 ounces of gold and more than 3.5 million ounces of silver annually. The open pit mine is 800 metres (2,624 feet) in diameter and 250 metres (820 feet) deep.

The project is located in an area that covers 2.5 square kilometres (0.96 square miles). Daily, trucks transport 4,000 tons of rock to be crushed in the processing plant. The Marlin mine operated as both an open pit and an underground mine.

Impacts

The primary impact of the Marlin mine is water and health problems. In May 2010, a University of Michigan study showed that people who lived close to the mine had higher levels of lead, mercury, arsenic, zinc and copper in their urine. In October 2010, Wauw, Evens and Machiels from Ghent University in Belgium found concentrations of arsenic above potable water standards in several layers of underground waters close to the mine. These facts were recognised in 2010 by the Inter-American Court of Human Rights (IACHR) (Comisión Pastoral Paz y Ecología, 2012).

Over the years, the project has had certain indirect consequences in addition to the direct damage caused by contamination, water consumption and tons of suspended dust particles—such as the trucks that caused walls to crack, affecting the homes of some 14,000 people in the vicinity. Although this has been ongoing since the mining





Marlin Mine in Guatemala.

Source: *The Dominion – News from the grassroots, Goldcorp: Occupation and resistance in Guatemala (and beyond)*, 21 June 2008. Available at: <http://www.dominionpaper.ca/weblogs/dawn/1887>

operations began, such facts are discarded by the company.

Finally, since the mine was built, an increase in crimes, drug addiction, alcoholism, prostitution and offensive behaviours have been identified in the smaller communities and San Miguel Ixtahuacán (Comisión Pastoral Paz y Ecología, 2012).

Conflict

The opposition has been firm since 2004. In 2005, there were demonstrations and roadblocks in San Miguel Ixtahuacán.

The first communitarian consultation was organised in Sipacapa, where the people confirmed their total opposition to mining activities. Since then, 58 communitarian consultations have been held regarding exploration and exploitation licences, and the decision in all cases has been a resounding “no” to mining operations. Due to their effectiveness, other communitarian consultations have been organised in municipalities where Marlin plans to expand its activities (Comisión Pastoral Paz y Ecología, 2012).

One of the most important claims is that the rights of communities to prior, free and informed consent have been violated. This right is protected by the International Labour Organization (ILO).

The ILO Convention 169, ratified by Guatemala, demands that indigenous people be consulted in relation to mining issues that affect them, and enjoy the opportunity to participate in development projects and policy formulation processes that affect them with free and prior knowledge.

In 2009, the ILO stated, “the Guatemalan State is in violation of Convention 169 in terms of respecting protected areas and the communitarian consultations organised by the affected communities related to mining explorations and exploitations” (Verhaert, 2010). In addition, it demanded that the government suspend the activities at Marlin.

Goldcorp has tried to drive a wedge between the people in the area who are opposed to exploitation. It has offered money to the communities it needs, causing an increase in clashes, divisions and conflicts. In addition, ever since the arrival of the mining company, militarisation and repression have become a daily reality in the lives of the locals; this has created tensions and strong mistrust in the area (Mining Watch Canada, 2006).



Location of the Marlin Mining Project
 Source:
<http://www.proel.org/index.php?page=munido/amerindia/mayense/quicheanop/sipacaperse>

People from the opposition and their families have registered acts of violence from State officials and the company’s private security.

Furthermore, two assassinations—a member of the indigenous community and a schoolteacher—have gone on record in relation to the Marlin mine: “Raúl Castro Bocel was killed by the police in Sololá and Alvaro Benigno Sánchez by a private security agent from the Golan Group, contracted by Glamis Gold in San Marcos” (Mining Watch Canada, 2006). Similarly, Antonia Hernández Diodora Cinto, member of the resistance against the human rights violations by Montana, was shot in her house on 8 July 2010 (Observatorio Petrolero Sur, 2010). According to the community, there have been also several cases of rape by mine workers; however, they have not been reported because of the climate of fear.

On top of everything else, the population is being harassed. There are arrest warrants against eight women who opposed the installation of high voltage power lines on their property in 2005, and interrupted power supply to the mine (De Guate, 2008).

Wendy Mendez, member of Hijos e Hijas por la Identidad y la Justicia, contra el Olvido y el Silencio (HIJOS Children for Identity and Justice against Silence and Oblivion) states, “The criminalization of the social struggles is felt again in several organised communities, in the same way as during the internal armed conflict” (De Guate, 2008).

Consequences of the Conflict

As mentioned above, the conflict promoted the organisation of communitarian consultations regarding the mining operations. Several consultations in other areas of

Guatemala have also been organised: six in San Marcos and 14 in Huehuetenango—mining activities were rejected by popular vote at all of them (Comisión Pastoral Paz y Ecología, 2012).

On 20 May 2010, the IACHR of the Organisation of American States issued protection measures that demanded the Guatemalan State to suspend mining activities in Marlin to prevent possible health impacts, and protect the communities’ access to water. In addition, the government was asked to take immediate measures to protect the lives of community members in the municipalities of San Miguel Ixtahuacán and Sipacapa.

The government’s response was rather ambiguous. On 23 June 2010, the government of Alvaro Colom announced its commitment to comply with the protection measures and suspend mining operations in Marlin until the IACHR expressed its opinion on the basis of the petition filed by the communities. However, Vice President Rafael Espada stated that government studies had found no evidence to support the allegations: “We won’t allow our people to be harmed, but at the same time we will respect industries and investments”.

On 9 December 2011, the IACHR modified the protection measures and rescinded its requests concerning the suspension of operations at the Marlin mine, decontamination of water sources, and addressing health issues. Instead, it requested the Guatemalan State to adopt measures to ensure that communities had access to adequate and quality water sources for domestic use and irrigation. However, the IACHR’s modifications did not affect the main petition that is now being reviewed by this Court, which states that the government did not obtain free, prior and

This document should be cited as:

Carbonell, M. H., 2012. Popular resistance to the Marlin Mine (Guatemala), EJOLT Factsheet

informed consent from the communities before authorising the operations at Marlin (Central American Data, 2010).

In July 2012, an international opinion tribunal was held with the support of world-renowned experts such as Robert Goodland (formerly employed by the World Bank) where Goldcorp was condemned for the damage caused to people's health in Marlin (and in other mines in Central America).

Technical closure and environmental recovery would include rehabilitation of the sites where minerals were extracted and processed, and well-structured planning to recover the sites so they may be used in agricultural, livestock, forestry, tourism, conservation or recreational activities (Comisión Pastoral Paz y Ecología, 2012). In spite of recent events, the Marlin mine continues to contaminate the area (2012) and Goldcorp is planning to extend its activities to the Sipacapa region.

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Ore & building materials extraction

Keywords

- > Gold exploration
- > Cyanide-leaching
- > Mount Ida, Biga District, Turkey
- > Distribution of environmental costs and benefits
- > Middle-class environmentalism

Introduction

This conflict concerns the development of gold mining at Mount Ida in the Biga District of western Turkey. Prospecting for gold has been expanding in the region since 2007, leading to the development of an opposition that aims to halt several cyanide-leaching open pit gold mining projects in an area valued for its environment, agricultural production and cultural heritage.

Gold mining projects

Since the early 1990s, there have been intermittent exploration activities for gold and other minerals at several locations around Mount Ida. Mount Ida is situated in Biga, in north-western Anatolia, and part of it was declared a National Park in 1993. Because an Environmental Impact Assessment (EIA) is not required at the exploration stage in Turkey, a permit from the Ministry of Energy and Natural Resources is enough to get started.

Companies began to increase their exploration efforts in 2004, following the changes in the mining law and the rise in international gold prices. Since then, two projects, *Ağı Dağı* and *Kirazlı*, previously jointly owned by Canadian junior companies Teck Cominco and Fronteer, and acquired by Canadian Alamos Gold in 2010, have advanced to the mine development stage. The mining concessions for the two projects cover 1,540 hectares (3,805 acres) and 12,703 hectares (31,390 acres) respectively and are located at elevations ranging from 300 metres (985 feet) to 900 metres (2,950 feet). The initial and sustaining capital costs of the two projects are estimated at US\$ 234.6 million. The area is well-served with roads, electricity and transmission lines, which reduces the need for significant investments in infrastructure. According to its newsletter dated 28 June 2012, Alamos Gold expects to produce 1,001,800 ounces of gold and 1,896,700 ounces of silver over seven years with the *Ağı Dağı* Project; and 495,300 ounces of gold and 3,006,100 ounces of silver over five years at *Kirazlı*.

The company completed EIA reports for the mine pits of the two Projects (not the



Protest in the village of Kızılelma against the meeting to publicise the EIA report.
Photo credit: Evrensel, 23 February 2012.
"Altın'cı filoyu tenekeyle kovaladılar".
<http://www.evrensel.net/news.php?id=23695>

processing plants), which were approved by the Ministry of the Environment and Urbanisation, and announced on the website of the ministry's Çanakkale Provincial Directorate on 13 July 2012. However, there was one condition demanded both by the communities and the Ministry that the company had to meet before commencing with the *Ağı Dağı* Project. Because the mine site sits on top of the catchment area of water resources for over 20 villages, the company had to find another water source and build the infrastructure to deliver it to the villages. The company is also exploring in the *Çamyurt* and *Kayalık Mevki* areas close to the *Ağı Dağı* and *Kirazlı*, respectively.

Other projects in Biga include the *TV Tower* and *Halilağa* owned by Teck Cominco and Pilot Gold (formerly Fronteer) and the *Kestanelik* Project owned by Australian Chesser Resources. All three projects are currently in the exploration stage and the companies are reporting "exciting" initial drilling results.

The conflict

Exploration activities for these projects, located north of Mount Ida, had not created much discontent until 2007, despite few sporadic confrontations between villagers and company workers. It was the arrival of another company, Global Mining from Turkey, to the village of *Bahçedere* to the south in the summer of 2007 that triggered the region-wide conflict, which quickly became a prominent topic on the public agenda at the national level. By October 2007, the





Locations of TV Tower and Halilaga Projects operated by Pilot Gold ([www. http://pilotgold.com/our-projects/turkey/tv-tower](http://pilotgold.com/our-projects/turkey/tv-tower))



Villagers and activists meet in the village of Bahcedere, 28 October 2007.

Photo credit: Author



Protest in downtown Çanakkale on 5 April 2008.

Photo credit: Author

issue was making headlines in the national media, drawing public attention to what was happening in the region.

The particular social make-up of the region to the south, along the coast of Edremit Bay was the underlying reason for the strong and immediate response. In Biga, almost half of the population lives in rural areas, and the local economy relies primarily on agriculture and animal husbandry, related food production industries, and forestry. In the favourable conditions of the Mediterranean climate with mild, wet winters and hot, dry summers, the production of high value-added fruits and vegetables on the irrigated plains has provided many of the villages with a relatively good and stable income. However, the southern part of the region that overlooks the Edremit Bay (in the Aegean Sea) has a different social structure. The coast has been witness to rapid urbanisation associated with the permanent and seasonal migration of middle and upper-middle class residents, especially retirees from the large urban centres nearby (Istanbul, Izmir, Bursa, Balıkesir) who wish to enjoy the environmental amenities the region provides (Hurley & Arı, 2011). Moreover, olive oil production occupies a significant place in the economy in this area, and makes an important and growing contribution to Turkey's exports. There are also a number of ecotourism facilities that were established to offer opportunities to enjoy the region's environment (ibid.).

It was these homeowners, olive and olive oil producers, and business owners in the tourism industry—many of them members and founders of local environmental organisations—who led the development of a broad-based opposition to gold mining in the region. They quickly earned the support of local governments, villagers, and national environmental organisations (e.g. Turkish Foundation for Combating Soil Erosion, Reforestation & the Protection of Natural Habitats, BirdLife International's partner in Turkey, *Doğa Derneği*, and *Buğday* Association for Supporting Ecological Living). Their connections to influential networks in urban centres—in the media, universities, with intellectuals and the elite—enabled them to place the issue on the public agenda and put pressure on the government and mining companies.

After the initial spark set in the summer of 2007, opposition groups intensified their struggle through various means. They organised panels and seminars in several towns that were attended by academics from regional universities; local and regional EJOs such as the Çanakkale Environmental Platform, Mount Ida Conservation Initiative and GÜMÇED (The Keepers of the Beautiful Edremit Bay); professional organisations (e.g. Union of Chamber of Turkish Engineers, local Chambers of Agriculture); and representatives from local tourism businesses, to talk about the ecological, economic and cultural

1990-2007	Sporadic exploration activities at several locations in the region.
2007-2008	Exploration expands to the south of the region, initiating conflict. Protests ensue.
2009-2011	Work in the south is dropped, explorations continue in the north. Two projects advance to development phase. The opposition partly loses vigour.
2012	The meetings to publicise the EIAs meet with protest. The Ministry approves the EIAs for the Ağı Dağı and Kirazlı Projects, allowing them to start production.

Chronology of Major Events

values of the region, and the threats posed by gold mining. To support the opposition groups, 34 municipalities in the region formed the Union of Municipalities of Mount Ida and Madra Mountain. A petition was addressed to the then Ministry of Energy and Natural Resources to annul the exploration permits. Numerous demonstrations were held in several towns, the largest at downtown Çanakkale in April 2008, attended by close to ten thousand people. Some members of parliament from the opposition also carried the issue to parliament, voicing their concerns and demanding explanations from the government as to why gold mining was being promoted in such an ecologically and culturally valuable region.

Faced with such active opposition, the companies backed off from the southern part of the region, and reduced the intensity of their activities in the north for a while. The projects were not abandoned, however, and when Alamos Gold acquired the two most developed projects in January 2010, the pace of exploration and development work gained pace once more. By this time, the opposition has faded considerably. Although the issue has remained on the agenda of local EJOs, still discussed in email groups and meetings, the opposition seems to have lost its initial fervour due to the weakness of efforts to organise at the grassroots level. The EJOs' middle-class environmentalism was not effectively linked to the concerns of villagers living in the vicinity of mining sites; hence their active opposition was not sustained over the long term. In fact, many people from the villages close to the mining sites now work for the companies, and many who are still against mining think there is nothing they can do to stop the projects.

Nonetheless, although weakened, the opposition has not died out. In February

2012, for instance, in the village of *Kızılelma*, a group of villagers from this and other surrounding villages came together with people from local EJOs and protested the meeting held by the company to publicise the EIA report, and did not allow the meeting to proceed despite the deployment of security forces to prevent protesters from entering the village. Later, on 3 June, another protest was organised in the village of Etili to voice opposition to gold mining. The majority of the approximately two thousand protesters were people the EJOs had transported from urban centres. Currently, the EJOs are preparing to initiate a legal process to annul of the EIA report, and plan other activities to reboot the opposition.

Opposition discourses

The discontents over the development of gold mining around Mount Ida are based on the potential impacts of open pit, cyanide-leaching gold production in an environment valued for its agricultural production, landscape, and historical and cultural importance. Such concerns gave rise to slogans such as “Mount Ida is a world heritage”, and “What is on top of Mount Ida is worth more than what is beneath it”. The cyanide-leaching method in particular is considered a major threat in this geographical setting of rich agricultural lands, fruit and olive orchards, pastures and forests. Opposition actors claim that one way or another, cyanide will leak into the environment, contaminate the water and soil, and endanger both public health and agricultural production.

Debates on probable impacts centre on the distribution of the environmental costs and benefits of gold mining. First, leading actors—mainly local EJOs and local governments—maintain that potential economic gains from gold production will be much less than the overall costs due to income losses in

This document should be cited as:

Avcı, D., 2012. Opposition to gold mining at Mount Ida, Turkey, EJOLT Factsheet

agriculture and tourism, public health problems and environmental degradation. Second, they argue that the local population will have to shoulder most of the costs while mining companies will reap the benefits. In relation to the latter, a nationalistic discourse that underlines foreign ownership of the projects has gained prominence, couching the opposition more in terms of national interest than in environmental justice (Avcı et al. 2010).

There are two other important issues that have developed along with the conflict up to the present. The first is that local communities have become divided as some people work for the companies, while others consider job offers and other benefits as “bribes” to win hearts. Those in the first group accuse the others of not thinking about the future development of their communities, and playing into the hands of civil society groups allegedly motivated by their own political ideologies rather than the protection of the environment or the people. The second group, on the other hand, claims that those who work for the companies are sacrificing the common good of the community to pursue their own personal interests.

A second issue that stands out is the extensive use of scientific/technical language in the arguments against mining. In the numerous panels, seminars and meetings organised by opposition groups, experts from various fields and organisations—especially from Chambers of Engineers and universities—have taken central stage, and expressed their opposition to gold mining mainly by using the scientific jargon of their respective fields; for instance, presenting data, maps, climate figures, and information on land cover and biodiversity in the region. Although this seems to have appealed to some to a certain extent, for others it appears to have remained alien and confusing; even more so because mining companies also use technical arguments to convince people that the impacts are not as grave as claimed, and that they can be easily controlled by proper use of technology. In this context, the scientific information has proven perhaps not

totally irrelevant, but inconsequential in shaping people’s positions on the issue.

The valuation discourses used at Mount Ida primarily demonstrate the multi-dimensionality of such conflicts. These discourses include sustaining peasant livelihood and ways of life, protecting ecological integrity and public health, and defending national interests versus those of foreign companies. The articulation of multiple discourses is particularly important since the government and the companies try to depict the issue of environmental impacts solely as a technical problem that will be handled with the proper use of technology. The only important thing then is the contributions of gold mining to local and national economic development—considered a must for a developing country like Turkey.

It is worth reemphasising that more than one gold mine is planned in the region. Depending on feasibility and rentability assessments, the companies may choose not to move ahead with some of them. What is certain is that they will continue with exploration and development work in the upcoming years. Therefore, even if the opposition fails to stop the first projects and they indeed start production—which currently seems the most likely outcome—the conflicts will most probably continue.

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Nuclear Energy / Uranium Mining

Keywords

- > Uranium mines
- > Uranium mills
- > AREVA
- > COMINAK
- > SOMAÏR
- > Arlit
- > Niger

The Project

The companies Societe des Mines de l'air (SOMAÏR) and Compagnie Minière d'Akouta (COMINAK) are mining uranium deposits in northern Niger, in a desert area close to the Air Mountains, near the towns of Arlit and Akokan.

The two mining companies are AREVA subsidiaries. In 2001, 63.4 percent of AREVA shares were SOMAÏR capital, and 34 percent was owned by COMINAK. The remaining shares were divided among the Niger National Office of Mining Resources (ONAREM), and in the case of COMINAK, Japanese company Overseas Uranium Resources Development (OURD) and Spanish company Enusa.

Established in 1968, SOMAÏR continues to extract uranium from open pits, which are typically 70 metres (230 feet) in depth, and operates a uranium mill with an annual (maximum) capacity of 2,300 tons.

COMINAK was created in 1974. It still operates an underground mine for uranium extraction at a depth of about 250 metres (820 feet), and a uranium mill with an annual (maximum) capacity of 2,500 tons.

By 2008, both companies had produced more than 100,000 tons of uranium.

The Conflict

In 2002, local non-governmental organisation (NGO) Aghir in'Man ("Shield of the Soul" in the Tamashek language) decided to gather independent scientific information about the impact of the mines. Members of the NGO reside in the towns where the uranium mines operate (COMINAK mines in Akokan, and SOMAÏR mines in Arlit), and many of them are mine workers, including Aghir in'Man's President Mr Almoustapha Alcahen. Among the objectives of the NGO are to promote education, women rights, and the protection of health and the environment.

Anxious about the adverse effects of uranium extraction on humans and



CRIIRAD discovered that radioactive scrap metal from the uranium mines was sold on the market in Arlit streets

Photo by CRIIRAD, December 2003

animals, Aghir in'Man's President M. Almoustapha Alcahen contacted the Commission for Independent Research and Information about Radiation (CRIIRAD) in 2002. CRIIRAD is a French NGO whose goal is to improve people access to information on and protection from ionising radiation from all sources (natural, medical, nuclear). CRIIRAD has been studying the impact of uranium mines in France since 1992.

In cooperation with Aghir in'Man, CRIIRAD conducted a scientific mission to Arlit in December 2003. This mission was organized with Sherpa, a French NGO of lawyers willing to protect the rights of people confronted with powerful international companies.

CRIIRAD continues to cooperate with Aghir in'Man to gather independent information on the impact of mining activities. Other groups, such as Greenpeace also conducted an independent study in Arlit in 2009.





Radioactive tailings (from COMINAK uranium mills) stored out in the open
Photo by CRIIRAD, December 2003



A computer and radon monitoring devices offered by CRIIRAD Laboratory Manager Bruno Chareyron to Aghir in'Man President M.

Almoustapha Alcahen
Photo by CRIIRAD, December 2003



People in Arlit using recycled metal for their homes

Photo by CRIIRAD, December 2003

Impacts of the project

Studies by CRIIRAD have shown that the radiological impact of mining activities was observable in many areas of the environment:

- The amount of radioactive substances in the water distributed to the workers and local residents by the companies exceeded World Health Organization (WHO) standards.
- Radioactive ore from the mines and radioactive waste from the mills were stored out in the open air (over 35 million tons of tailings). The emitted radioactive gas (radon) and dust from these materials can easily be dispersed by the wind.
- Due to high concentrations of radioactive gas (radon) in the open air, people in some parts of Akokan were receiving an annual dose in excess of the maximal annual dose limit of 1 millisievert per year.
- The level of radiation in some streets was abnormally high due to the re-use of radioactive waste rocks from the mines. The level of gamma radiation on the street in front of the COMINAK private hospital in Akokan, for instance,

was about 100 times above natural levels.

- Radioactive scrap from the mines and mills was sold on the markets. CRIIRAD discovered, for instance, a pipe with a radioactive crust that had radium-226 activity of more than 200,000 Bq/kg and a dose rate 10 times above natural levels.

These facts all show that the workers and the local population are exposed to radiation through different pathways (external irradiation, internal irradiation through contaminated air and water, etc.). The “very low doses” of radiation people receive continuously have negative consequences on their health.

Outcome of the conflict

AREVA has always claimed that it was extracting uranium in Niger in compliance with all national and international standards and regulations. However, when faced with facts and scientific evidence that confirmed the radiological impact of the uranium mines on the environment, and the subsequent exposure of the population to radiation, AREVA had to make certain improvements.

For example, the contaminated cloths

This document should be cited as:

Chareyron, B., 2012. The radiological impact of uranium extraction near Arlit and Akokan in Niger, EJOLT Factsheet



CRIIRAD Laboratory Manager Bruno Chareyron is showing Aghir in'Man President M. Almoustapha Alcahen how to use a small Geiger Muller counter to check the level of ground radiation.

Photo by CRIIRAD, December 2003



Children in the suburbs of Arlit stepping on waste
Photo by CRIIRAD, December 2003

that the workers used at the uranium mine and mill are now washed at the mining facilities and not at home.

The most contaminated wells used for supplying drinking water have been closed so that less radioactive water is used for drinking. Nonetheless, independent studies conducted in November 2009 showed that the uranium content in tap water was still above WHO standards.

Waste rocks on some streets in Arlit and Akokan have been removed by the companies. A house built with radioactive material has been destroyed and a new one built. Still, all radioactive places have not yet been investigated and decontaminated.

Some radioactive scrap available in the public domain has been returned to the mine, but all of the radioactive material reused by the locals has yet to be checked.

Presently, a lot remains to be done still; but the existence of a local NGO such as Aghir in'Man that is supported by an independent scientific institution like CRIIRAD empowers the population in the struggle to secure improved environmental protection. However, the fight for more environmental justice will no doubt be a long-term endeavour.

More on this case

- Website: www.criirad.org
- Video: *Uranium, Poisoned Heritage* by Dominique Hennequin

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Ore & building materials extraction

Keywords

- > Gold,
- > Barrick Gold
- > Glaciers
- > Irrigated agriculture



Introduction

The Pascua-Lama Project is located between 4,200 and 5,200 meters (13,779 and 17,060 ft) above sea level, at the Chile-Argentina border. It is situated in the Huasco province in the Atacama Region in Chile, and in the San Juan province in Argentina, where other large multinational companies already have running mining projects. These two provinces also have an extensive agricultural and wine production.

The open pit gold mining extraction project has generated conflicts on both sides of the border, involving concerns related to how glaciers will be impacted.

Background

The project is owned by the Mining Company Barrick Chile Ltd. and Minera Nevada S.A., subsidiaries of Canadian company Barrick Gold.

In 2001, Chilean authorities approved the Environmental Impact Assessment (EIA) submitted by the company, but actual work was postponed until 2004. The company presented a new EIA that was approved in mid-February 2006, as declared in Resolution 039. The EIA was approved in Argentina on 5 December 2006.

In May 2009, Barrick announced it would begin the project, already approved by both governments.

Project

In describing the main characteristics of the project, Barrick (2012) states that it aims to obtain 17.4 million ounces of gold from the open pit mine at Pascua-Lama; a task that will necessitate a huge amount of materials and energy (see Table 1).

This means that every gram of gold extracted from Pascua-Lama will require the removal of 4 tons of rocks, and consume 380 litres of water, 43.6 KWh of electricity (equivalent to weekly consumption in a middle class Argentinean household), 2 litres of diesel, 1.1 kilograms of explosives and 850 grams of sodium cyanide.

The company established that the Project has a lifespan of 25 years and is



Area of the Pascua-Lama Project

Source: Acción Verde, "Fracasan gestiones de Barrick Gold para financiamiento de Pascua Lama", 22 March 2012. Available at: <http://www.accionverde.com/2012/03/22/fracasan-gestiones-de-barrick-gold-para-financiamiento-de-pascua-lama/>

planning to invest between \$4,700 and \$5 million.

According to the official demands for project approval, the company is required to maintain Chilean drinking water standards by preserving the established baseline water quality—determined prior to the beginning of the project—at a test point located about 45 kilometres upstream of the closest community.

The mineral produced by the Pascua field on the Chilean side is to be transported or exported to the Argentinean side, where the gold processing plants are located.

Impacts

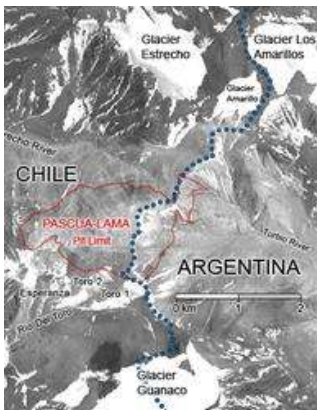
One impact that the affected communities as well as many international organizations, such as Greenpeace expect is the displacement of the glaciers that cover most of the fields. For farmers of Huasco Valley, destruction of the glaciers that feed the valley during the dry season and guarantee agricultural production is a major concern. There is also apprehension that other conventional glaciers, rocks and permafrost may be affected by the project as well (Emol, 2012).

In contrast, the EIA studies in Chile and Argentina state that Barrick would not remove the ice or the glaciers. The mining company admits that this would be in violation of the permits granted by the authorities, and guarantees that the mineral would be accessed in ways that will not involve the removal, relocation,



Landscape of Huasco province

Source: <http://www.visitingchile.com/regiones/region-norte/region-atacama/provincia-huasco/provincia-huasco.php>



Location of the cross-border Pascua-Lama Project

Source: http://es.wikipedia.org/wiki/Pascua_Lama



Location of the Pascua-Lama Project

Source: Acción Verde, "Available at: <http://www.accionverde.com/2012/03/22/fracasan-gestiones-de-barrick-gold-para-financiamiento-de-pascua-lama/>

destruction or physical intervention of any of the Toro 1, Toro 2 and Esperanza glaciers. The requirement to protect the ice masses is one of the 400 conditions included for the approval of the Project in Chile.

Finally, the communities are concerned of both water contamination due to mineral exploitation and the excessive use of water sources by the company.

Conflicts and consequences

The main concerns of the communities involve the lack of transparency of the mining projects in San Juan province, the threat of contamination of potable water sources and the allegations of corruption against San Juan's authorities.

A strong resistance movement has mobilised to defend the glaciers and oppose the cross-border project. This movement includes local organisations, community residents and international organisations. The main organisations working on this issue include the Red Ambiental del Norte (Environmental Network of the North), the Agricultural Community of Huascoaltinos, Comité de Defensa del Valle del Huasco

(Committee to Defend Huasco Valley) and the Observatorio Latinoamericano de Conflictos Ambientales OLCA (Latin-American Observatory of Environmental Conflicts).

A second EIA submitted by the company was approved in 2006, on condition that mining work would not impact the glaciers. However, according to the communities, these would be affected if the Project was carried out.

Originally, irrigation farmers in Alto del Carmen, Huasco, were opposed to the mining company but promises of money made them change their mind. A few years later, in 2012, councillors, irrigation farmers and indigenous community representatives declared that Barrick had caused damage to river flow

More on this case

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This document should be cited as:

Carbonell, M. H., 2012. Pascua-Lama, mining and glaciers at the Argentina-Chile border, EJOLT Factsheet

Requirements	Amount
Rocks removed with explosives	1.806 million tons
Water	170 million cubic metres
Sodium cyanide	379.428 tons
Explosives	493.500 tons
Diesel	943 million litres
Gas	22 million litres
Lubricants	57 million litres
Electricity	110 MW

Materials and energy involved in the exploitation of Pascua-Lama

conditions and the glaciers that feed them. Osciél Cubillos, an Alto del Carmen irrigation farmer claims that regional farmers are affected by the Project and its consequences: “Barrick has reduced the river’s flow, because it does not have any natural tanks and its work is maintained by the glaciers that are now being destroyed. We don’t want to go through what the Copiapó Valley went through, they don’t have water anymore” (Emol, 2012).

The communities claim that people who sold lands adjacent to the Project have been affected.

It is important to note that difficulties adjusting the mining treaty—especially on tax matters—had delayed the start of the project. In this regard, one legal claim made by local organisations is that the company demands the creation of an *in situ* customs area in order to export materials. Against the opposition, the company manager flew to meet first with the Argentinean President, followed by the Chilean President. Within a few days, all tax impediments that lasted for years had been resolved.

In August 2010 the company was already in the process of building the Project, despite the various legal demands put forth by the communities and having failed to resolve systemic irregularities discovered in relation to its activities.

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Ore & building materials extraction

Keywords

- > Silver
- > Zinc
- > Lead
- > Bolivia
- > Cultural impacts
- > Water
- > Open pit mining



Introduction

San Cristobal is located in south-western Bolivia, in the Colcha “K” Municipality of Nor Lipez, Potosi, with altitudes ranging from 3,800 to 4,000 metres (12,467 to 13,123 feet) above sea level. A dry region with decreasing precipitation, it receives an average annual rainfall of 150 to 200 millimetres (6 to 8 inches).

One of the largest zinc, lead and silver deposits in the world was discovered in this area. Plans to exploit the open pit mine included the relocation of a village dating to colonial times. This, in addition to the company’s water management practices has generated constant protests by the local community.

Background

The mining operation was originally designed and planned by U.S. company Mineral Reserves Associates (MRA); the San Cristobal mining company, owned by Apex Silver Ltd. took its place in 2007 (its tax domicile is now in the Caiman Islands).

In 2008, the Japanese company Sumitomo took over the project. According to Sumitomo, “From Japan’s perspective, the San Cristobal Mine is source of stable imports of silver, zinc and lead, and is making an indirect contribution to a wide range of Japanese industries, notably automobiles, construction, shipbuilding, and consumer electronics” (Sumitomo, 2012a, b).

The governments of Bolivian presidents Hugo Banzer, Jorge Quiroga, and Gonzalo Sanchez de Lozada relinquished the deposits at San Cristobal. Its exploitation was set to begin in 2006, and exportation of its minerals in 2007.

Project

San Cristobal is a silver, zinc and lead open pit mine. According to company data, on 30 June 2011, estimated reserves based on the last perforation were a total of 285,303,000 tons; 1.41 percent zinc, 0.48 percent lead and 53.0



Demonstrations in San Cristóbal, 2010.

Source: El Diario, 2010.

grams/ton of silver (MSC, 2012a). The lifespan of the project is estimated at 17 years.

The two areas in the main deposit are called Jayula and Tesorera, located in the central part of the sedimentary volcanic basin, which is 4 kilometres in diameter. Anima, another field, is located three kilometres away from Tesorera. Sphalerite, galena and argentite are the main minerals found in these fields, which correspond to zinc sulphide, lead and silver, respectively.

The San Cristobal field is characterised by mineralisation in the form of thin veins, veinlets and disseminations. Together these form a very large deposit that does not lend itself to efficient exploitation through conventional underground mining methods. Consequently, the Project has to be run as an open pit mine.

The exploitation work requires a concentrator plant that processes 40,000 tons of ore per day. About 150,000 tons of rock have to be transported daily to meet demands. The extracted ore is taken to the crushing plant by 200-ton capacity trucks, then transferred to designed storage areas and deposited. The crushed ore is transported to the concentration plant by a 1.6 kilometre-long (1 mile) conveyor belt (MSC, 2012b).

Up to the present, the company has declared a total investment of \$1.400 million. This is the largest foreign mining investment in Bolivia by far. The infrastructure included 200 kilometres



Landscape of the mining project in San Cristobal

Source: Latino Minería, "San Cristóbal tributó al estado boliviano US\$100 millones en 2010", 27 December 2010. Available at: http://www.latinomineria.com/noticias/imprimir_noticia_neo.php?id=603



Location of the San Cristobal Project

Source: <http://www.minerasancristobal.com/es/donde-estamos>



One of the containers in San Cristobal turned upside down by the locals, on the border with Chile (16 April 2010)

Source: Los Tiempos, 2010.

(125 miles) of roads, two bridges, 172 kilometres (106 miles) of 230-kilovolt power lines, and 65 kilometres (40 miles) of railways. Additionally, phone, Internet and other telecommunication facilities were installed; access to potable water was improved, and a runway was constructed (MSC, 2012c). The company states that these investments not only improve its operations, but also add to the quality of life of the local people. However, local residents claim that only a small part of the population has benefited from them.

Impacts

Exploitation of the mine meant the displacement and relocation of the San Cristobal community—a village of colonial origin—which led to serious social conflicts. A difficult agreement with the company was reached when it offered development projects, financial compensation and jobs to the local people.

Effort was spent to preserve certain architectural elements during the relocation, such as an old seventeenth-century church. However, residents claim their cultural heritage was directly impacted; for instance, three mountains that had previously surrounded them and were believed to be protective deities are now exploited by the company.

Additionally, mineral extraction requires huge amounts of surface and groundwater. An estimated 50,000 cubic metres of water are drawn per day from company wells. Aquifer recharge by rainfall or snow is almost non-existent in the region. Surface waters connect to groundwater through filtration (Moran, 2009). The community states that if the water continues to be pumped, the surface waters, used for agricultural purposes, could dry out.

Village residents claim that water sources have disappeared due to extensive use by the mining company. In addition, the megaproject in the region generates a huge amount of dust, which not only affects the health of people in San Cristobal and neighbouring communities, but also the camelid livestock, due to loss of grazing pastures and water sources (Ribera Arismendi, 2010).

Finally, according to the local population, the Jaukiwa River has been contaminated by the disposal of general waste that was not treated.

1970s	The San Cristobal Mining Company initiated activities. Communities began to protest.
1995-1998	Negotiations began with the company. Some agreements were reached, including the relocation of a Catholic church and cemetery; identification of the cadastral boundaries; identification of land property; et cetera. The San Cristobal Foundation, a private initiative supported by the mining company was established.
2000	The EIA was submitted, and approved despite certain reservations on the water issue. It was updated twice, in 2004 and 2007. Communities complained about of the lack of information and consultation on the study.
2008	July, The mining company in San Cristobal was bought by the Japanese company Sumitomo Corporation (buying 65 percent of Apex Silver's shares). Communities continued to protest.
2008	December, First exportation of minerals (close to 52,000 tons of lead and zinc).
2009	The Water Ministry asked for a comprehensive study that includes a model for water depletion.
2010	April, Community protests continued. Company property was destroyed.
2010	August, Local population continued protests. Law enforcers were sent to re-establish order.
2011	March and April, Local residents continued to demonstrate against company activities.

Chronology of Major Events

Conflict and consequences

The social conflict and mobilisation by the affected local communities and the mine workers have been constant in San Cristobal. Two of the main organisations working on this issue in the area are the Federacion Regional Unica de Trabajadores y Campesinos del Altiplano Sur FRUTCAS (Regional Federation of Workers and Farmers of the Southern Altiplano) and the Federación Sindical de Trabajadores Mineros de Bolivia (Federal Union of Mine Workers of Bolivia).

Mine employees affirm that the working and security conditions are inadequate, and claim that their health is now given due attention; they feel mistreated by the subcontracted staff. In 2009, 2010 and 2011, workers and locals protested and paralysed the activities of the company. They blocked the roads and border posts and burned the company's installations (El Diario, 2010, Los Tiempos, 7 April 2010).

The Observatorio Bolivariano de Conflictos Mineros (Bolivian Observatory of Mining Conflicts) has asserted that as a result of these acts, the company began to employ intimidation tactics toward people who participated in the protests (OSBOM, 2009), and even turned to the criminal justice system against the demonstrators.

Meanwhile, the local population has reported that water sources in the area are being used indiscriminately. The company declares that the water it consumes is not suitable for human consumption, agriculture or livestock (La Prensa, 2012). However, the communities state that the availability of surface waters suitable for human consumption and farming activities has been affected.

It is important to note that people in San Cristobal and other nearby communities are divided between those who have benefited from the mining company, and those who oppose it. This division is clear in times of protest. People claim that the company has promoted this schism by providing jobs and transportation to communities that have been less critical of their activities. The system of job rotation in the area creates rivalries among the people who apply to for them. The communities posit that the social fabric has been ruptured, and foreign values are being introduced.

A major issue that drives the protests is the economic benefits acquired by exploiting non-renewable resources. Local people are aware of the huge financial gains to be had from mineral exploitation, and thus demand more investments in their communities. They want the company to adhere to the Mining Code and pay for consuming natural water sources as stated in the law.

More on this case

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This document should be cited as:

Carbonell, M. H., 2012. Zinc, lead and silver mega-deposits in San Cristobal (Bolivia), EJOLT Factsheet

Additionally, the Supreme Court of Bolivia stated in 2006 that the Mining Code of 1997 was unconstitutional and that natural resources belong to Bolivians, despite concessions made to foreign corporations. Coinciding with the protests in April 2010, the Ministry of Mining and Metallurgy, referring to the San Cristobal's case, declared "Mining concessions must change their contracts, acknowledge State participation in revenues and a regional right to exploit natural resources (must be put in place)" (La Razón, 2010).

Although the Supreme Court decision came into force in 2008, demands to nationalise natural resources have not been yet been met.

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Ore & building materials extraction

Keywords

- > Gold
- > Illegal mining
- > Assassinated activists

Introduction

Cerro de San Pedro is a municipality in San Luis Potosi province, situated 12 kilometres (7 miles) from the provincial capital in central-northern Mexico. It is located in the foothills of Sierra de Álvarez at 2,040 metres (6,692 feet) above sea level, where the recharge area of the San Luis Valley aquifer is also found.

The San Xavier mine operates illegally in this area, and the intense social protests that have risen in response have come to epitomise the opposition to mining in Mexico.

Background

Historically, there have only been artisanal mining operations in the San Luis Potosí region and Cerro de San Pedro.

San Xavier is a subsidiary of the Canadian corporations Metallica Resources and Peak Gold, which merged in 2008 to form New Gold that is now in charge of the operations in Cerro de San Pedro. The company began prospecting in certain areas and lobbying the government in 1995. Its Environmental Impact Assessment (EIA) and operating licence were authorised in 1999. Exploitation began in 2005 and the first gold was produced in 2007.

Project

The area holds an estimated 3.5 million ounces of gold in probable reserves and 140 million ounces of silver. The Project is expected to continue for nine years with an annual production between 80,000 and 100,000 ounces of gold and 2.25 million ounces of silver.

The Project is an open pit mine that covers 67.7 hectares (167 acres), formed by the blasting of 77 million tons of minerals from the mountains and underneath the villages La Zapatilla and Cerro de San Pedro.

Gold and silver processing uses a solution of dissolved cyanide. The resulting solution is transported to a processing plant where gold and silver are recovered by a zinc precipitation process. These two materials are refined



The San Xavier Mining Project

Source: <http://www.franco-nevada.com/royalties/our-royalties/gold-royalties/operating/cerro-san-pedro-mexico>

in situ.

The company argues that it generates 300 direct jobs for workers in the vicinity.

Impacts

The environmental impacts of the mining activities at Cerro de San Pedro include the loss of flora and fauna, the generation of toxic wastes and pressure on water resources.

The affected communities state that the company will continue to destroy the local flora and fauna because it is an open pit mine, causing irreversible losses to at least eight protected and endangered species.

Similarly, the accumulation of toxic residues is another source of potential impacts. The construction of two dumps are planned: one will be used for 117 million cubic meters of sulphurous materials and the other one will hold 639.7 million cubic metres of toxic cyanide residues from the leaching process. These chemical substances, especially cyanide, could contaminate the aquifer and have hazardous effects on human health.

In addition, the company will consume a substantial amount of water, which will affect the communities directly. The mine requires that over 5 million cubic metres of water be extracted annually from the aquifer, which is continually depleted. Since the amount of water exploited is greater than the aquifer's natural recharge, an annual decrease of 70 million cubic metres is being predicted.





Protests against mining activities by San Xavier

Source: Diversidad Ambiental, "Incorporar criterios de sustentabilidad ambiental a la minería en México puede hacerle más rentable". Available at: <http://www.diversidadambiental.org/medios/nota293.html>



San Xavier Mining Company's presence in Cerro de San Pedro

Source: Zapateando, "cómo la minera San Xavier destruyó el cerro de san pedro en slp".

Available at: <http://zapateando.wordpress.com/2012/01/11/como-la-minera-san-xavier-destruyo-el-cerro-de-san-pedro-en-slp/>

Finally, local residents state that the presence of the mining company has divided the community and promoted rivalries among the population (REMA, 2010).

Conflicts and consequences

Laberti (2010) describes the opposition process in San Xavier, based on the company's lack of a legal basis to operate in the area. Several rulings have supported the organised community; however, the company keeps operating the mine despite its illegality.

Several campaigns have been organised in Mexico and Canada—the investing country—against San Xavier's illegal mining activities. Two of the main organisations that work on this issue in Cerro de San Pedro are Frente Amplio Opositor (Ample Opposition Front) and Alianza Ciudadana Opositora (Citizens Opposition Alliance).

Although mining activities had been suspended through 2003 and 2004, the municipality later renewed the exploitation permits.

On 5 October 2005, the Plenum of the

Supreme Court of Fiscal and Administrative Justice revoked the authorisation of the EIA and the land use and operation permit issued in 1999.

Several cases have been filed against the demonstrators. A major related concern has been the detention of several people involved in the protests. It is important to note that in one of these incidents, six people under 21 were arrested. Similarly, there have been allegations of ill-treatment by company workers against the people opposed to the presence of San Xavier in the area.

Finally, the assassination of Cerro de San Pedro Mayor Baltasar Loredo, who opposed the mine, caused great outrage. The activist was openly against the permits issued in favour of the company. In 1997, Loredo filed a complaint arguing a supposed fraudulent acquisition of lands, and requesting a Congressional investigation. On 21 March 1998, Loredo died of two gunshots to the head. The authorities ruled this incident as a suicide, despite the fact that there was evidence related to his activities against the mining company (REMA, 2010).

This document should be cited as:

Carbonell, M. H., 2012. San Xavier mine in Cerro de San Pedro (Mexico), EJOLT Factsheet

1998	Baltasar Loredó assassinated
1999	Land use licence issued
2003	Activities suspended
2004	Activities suspended
2004	Exploitation permits renewed
2005	October, EIA revoked
2009	April, The court decision revoking the permits given by the Environmental authority is confirmed by the High Court of Justice
2010	December, Again the Court of Justice confirms the revocation of the permits.
2011	The plaintiffs are not officially informed of the decision and know about it through the media
2011	March, The regional government modifies the land use zoning in the area from "wildlife conservation" to "mining exploitation"
2011	August, Once more the Environmental authority issues an environmental permit

Chronology of Major Events

In addition, Enrique Rivera was beaten and mistreated as a result of protesting the mining company (he now lives in Canada as a political refugee). This occurred during the 2004 demonstration when close to 2000 people marched to oppose mining activities.

On 1 May 2007, demonstrators at a march were met with acts of violence, and the five university students who were arrested stated that had been held incommunicado for several days.

The company has used judicial processes as a mechanism to place pressure on activists and opponents to the mine. The organisations and its members have suffered several defamation and harassment campaigns (REMA, 2010).

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Fossil Fuels and Climate Justice

Keywords

- > Coal power plant
- > Coal extraction
- > CO₂ emissions
- > Slovenia

Project TES6

Sostanj, in northern Slovenia, is situated 30 kilometres (19 miles) from the Austrian border, and home to Termoelektrarna Sostanj (TES)—a lignite-fired power plant—the property of state-owned Holding Slovenske elektrarne (HSE). The plant is presently comprised of five blocks. Blocks 1 and 2, built in the 1950s have been closed down, 3 is about to be, and 4 and 5 are set to close down in 2016. A sixth new, 600-megawatt block is now being planned, known as TES6. It will mainly be financed with public money, mostly through loans from European banks—the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD).

The plant is located in a region with extensive coal reserves, near the Premogovnik Velenje (PV), the Velenje Coal Mine that produces coal exclusively to meet the power plant's present and future needs.

The TES6 Project was proposed in 2003 and included in the 2007 government development programme. It has so far received all relevant permissions from the Slovenian government. The Engineering, Procurement and Construction Contract for the power island was signed between TES and Alstom in June 2008, following a € 25 million payment in September 2007. The Project was originally expected to cost € 700-900 million. However, project costs have escalated to € 1.3 billion due to the recent overall rise in coal plant capital expenses. The Slovenian government has not yet provided loan guarantees to facilitate the loan from EIB, a large part of which—€ 440 million—has to be backed by a state guarantee.

It is expected that the new Unit 6 and all its necessary auxiliaries and connections will be commissioned by the end of 2014. Despite the fact that state guarantees have not yet been secured, construction work is already underway.

The new unit will be operational from 2027 to 2054, which translates to increased CO₂ emissions during the



*Satellite picture of TES area,
Photo taken from Google Maps, 2012*

lifespan of the power plant. Another problematic aspect is that majority of financial resources in the Slovenian energy industry will be invested in this controversial project instead of renewable energy sources.

Operating TES6 without carbon abatement will result in 3.1 metric tons of CO₂ emissions per year, equivalent to almost all of Slovenia's emissions in 2050 (if emissions are reduced by 80 percent in line with European targets). It will emit 0.85 kilograms of CO₂/kWh and burn approximately 3 million tons of coal per year.

Several NGOs (Focus, Greenpeace Slovenia, Umanotera, Se-F, EBM, Bankwatch and others) are trying to influence the decision-making process (at the national level and European banks) and to strengthen public opinion against the project. However, their arguments are not taken seriously enough and their position is too weak compared to state-owned companies and the government.

Problems with project impact

The cost of mining lignite, purchasing CO₂ certificates, CO₂ sequestration and fluctuations in electricity prices all mean the profitability of the Project is uncertain. If operational costs vary from what was outlined in the investment plan, the rate of return might drop to a non-economical level. Support infrastructure such as carbon capture and storage (CCS) equipment—not yet included in the investment plan—is also a significant risk.





TES6 would continue burning coal in the region until 2054, Photo by Kale, 2011

The Saleska Valley, where Sostanj and Velenje are situated, could benefit from restructuring; shifting from coal mining and burning coal to more sustainable development. If TES6 is built, it will be locked to the carbon emission industry until 2054. By then, it will probably be too late for restructuring and gaining an advantage from early transformation to sustainable development.

The Environmental Impact Assessment (EIA) process was affected by a number of procedural and substantive errors. For one, the EIA limits TES6's environmental impact area to the borders of the TES power plant. Such a definition is inappropriate since it would be impossible for environmental impacts to remain only within the borders of TES. Furthermore, the EIA does not present an alternative to coal. Article 5 of EU Directive 97/11/EC requires that alternative solutions be defined and presented in the EIA. This is also required by the Slovene Nature Conservation Act.

The EIA also does not assess Project impact on climate; impacts on air quality and health are not fully defined, and the cross-border impact assessment is inadequate. By failing to inform Austria about the Project, Slovenia violated European law—and Slovenian law that transposes European law into Slovenian legislation—and the Espoo Convention. In this way it made it impossible for

Austria to participate in the process “when all options were still open”.

There are several risks that are highlighted even in reviews by IMC-Montan Consulting and POYRY. In terms of the coal mine, there might be problems concerning the existence of a network of geological turning points, a steady stream of water in the mine and possible intrusion of water in the mine. Another problem might be high methane content. The uneven subsidence of the terrain is very much visible in the Valley and will continue to be so as long as the mine is active.

The conflict

Public participation in the process was made difficult. It was muddled through, which meant that actors against the Project were unable to react in a timely manner since they had no information on the project phase or the decision-making process. Currently, the cooling tower of the new unit has reached over 100 metres (330 feet), and the decision-making process is at the stage of adopting the law for state guarantee—and since the project has come along this far, it seems it is too late to reverse the decision in favour of state guarantee.

There was and still is visible opposition to the Project. National and international NGOs are trying to influence public opinion and decision-makers in parliament and the government to



*Lignite power plant in Sostanj
– TES, Photo by Kale, 2011*



*Saleska Valley with lakes that
are a direct result of coal
mining, Photo by Kale, 2011*

oppose either the Project or state guarantee for it.

EJO actions included the compiling of alternative reports, development of networks and collective actions, generation of alternative proposals, judicial and media-based activism, objections to the EIA, public campaigns, and street demonstrations.

The public procurement complaint asserts that TES did not follow the procedures prescribed for awarding public procurement as dictated by Directive 2004/17/EC, which coordinates procurement procedures for entities operating in the water, energy, transport and postal services industries. On 2 November 2011, Focus filed the complaint against TES for not following the Directive.

The CCS complaint asserts that the requirements of Article 33 of the CCS Directive 2009/31/EC were not met in the course of project development. It was filed on 3 October 2011 by the Environmental Legal Service and Focus Association for Sustainable Development.

Because in any investment plan calculations essentially depend on the assumptions on which the model is based, the Central and Eastern European (CEE) Bankwatch Network and Focus asked CE Delft to review the investment plan for the Sostanj lignite-fired power plant and evaluate whether crucial variables had been rightly assessed. The report, entitled 'A critical examination of the investment proposal for Unit 6 of the Sostanj power plant', reveals that there are several methodological mistakes in the calculations. Lignite prices are too low, lignite consumption estimates for Unit 6 are too low from 2028 onwards, and CO₂ costs are underestimated because the process emissions from the

desulphurisation unit will be auctioned from 2020 onwards.

The investment programme also claims to increase mine efficiency, but this is not substantiated, resulting in an underestimation of lignite prices. The report also points out that investment programme does not adhere to the principles of cost-benefit analysis, as no realistic alternatives for the investment have been formulated. This means the investment programme proves that neither is investing in Unit 6 is the best alternative for the government to risk by backing it with a state guarantee, nor is TES6 the best alternative for securing Slovenia's energy supply.

The Project has been controversial in Slovenia because of the climate and economic costs. Unions and the government overall have supported it and there is local support in the Sostanj area. The current situation regarding the Project is rather confusing; the controversy surrounding it escalated in 2010, largely due to the non-transparency issues and the political gambles related to it. The cost issue also contributes to the controversy as well as the climate and health impacts of the project, albeit to a lesser extent.

More on this case

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- Focus, association for sustainable development www.focus.si
- Ustavimo TES 6 www.ustavimotes6.si

This document should be cited as:

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Outcome of the process

Currently, project development could be described as delayed. The company is waiting for the law on state guarantees to pass so that they may secure loans from EIB and EBRD, which could happen by autumn. The construction is proceeding rapidly, and the cooling tower is already over 100 metres (330 feet) high. Unfortunately, this means that the controversial project will likely be completed. Although EJOs and other actors emphasise various irregularities and the government agrees there were major problems in project implementation, they will mostly likely support TES6.

Hopefully this process will generate some positive results. NGOs and EJOs will have gained more experience in how to deal with similar projects in the future. However, institutional or legal changes in favour of wider participation by relevant actors, who at present do not have access to the decision-making arena, are very unlikely.

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Ore & building materials extraction

Keywords

- > Copper
- > Water contamination
- > Southern Peru Copper Corporation
- > Communitarian consultation
- > Environmentalist's success
- > Assassinated activists

Introduction

The Tia Maria Project is located in the Islay Province, Arequipa, in southern Peru, within a subtropical and low montane desert ecosystem where there is only one river basin, the Tambo River Basin that spans 2,500 square kilometres (1,553 square miles). It is situated in the Cachuyo Ravine, 90 kilometres (56 miles) from Arequipa City and 9 kilometres (5.6 miles) north of the village of Cocachacra. The ravine stretches for 12 kilometres (7.5 miles), originating in Pampa Cachendo and flowing into Tambo Valley.

The project is owned by the Southern Copper Corporation (part of Grupo Mexico) that also controls, among others, the Cananea field in Mexico. In Islay, the company planned to extract copper through two open pits. The main problem in this case was water use in this dry area, which is also needed for agriculture.

Project

At Tia Maria, the company seeks to exploit a copper porphyritic system (large low grade deposits) with an average of 0.39 percent of copper.

It was projected that the Project would last 21 years; three years to start up, and 18 years, in two phases, for operations. In the first phase, between years three and 15, the company would exploit the La Tapada deposit through an open pit mine, extracting 817.5 million metric tons of materials. In the second phase, between years 15 and 21, the corporation would exploit the Tia Maria deposit, again through an open pit mine, and extract 399.9 million metric tons of materials (Southern Peru Copper Corporation, 2010:RE7).

The transportation of the material was planned in several phases. First, the mineral and the material removed by explosives would be excavated and loaded into dump trucks, then transported to the deposit or the crushing plant located close to the open pit mine. The crushed material would then be transferred to other phases of the process, including the leaching plant,



View from the mine

Source:

<http://www.peruenconflicto.pe/mineria/southern-copper-espera-presnetar-nuevo-eia-y-que-gobierno-apruebe-tia-maria/>

by an overland conveyor system. According to the Environmental Impact Assessment (EIA), the product would be transported to the Matarani port by train.

The company announced it would invest over US\$ 950 million, US\$400 million of which was already invested in 2008 (Andina, 2008).

Impacts

One of the direct impacts of the project is the use of water sources for the exploitation phase. The EIA predicts massive amount of water will be used, to be obtained through wells drilled in the Tambo River Valley. After intense social protests against water use, the company stated that the Project could just use desalinated seawater.

There was also the problem that mining exploration wastes would contaminate water sources. This would not only cause health problems but also impede its use for agriculture and livestock activities.

Conflict and consequences

The regional population has been saying since the first quarter of 2009 that the Project would affect water availability, thereby directly affecting rice, sugarcane and paprika production in the Tambo River Valley.

In July 2009, the company submitted its EIA. The study was to be presented to the people from the Cocachacra District, at a public meeting in late August. However, on the day of the presentation





The Tía María mining protests gathered steam in November. Nine injured, 18 arrested and a bus fire is the balance of the protests against in November 2010 Source: <http://www.actualidadambiental.pe/?p=7941>

2009	Exploration and protests of the affected inhabitants begins
2009	The company submits the EIA
2009	Communitarian consultation. Residents reject company presence
2009	Local government rejects the results of the consultation
2011	February, Strike. Three people are killed and several wounded
2011	April, The central government rejects the EIA and orders the company to leave. The operations of the company are suspended.
2012	The company initiates a new EIA

Chronology of Major Events

there was an opposition demonstration and the meeting was cancelled.

Later, the municipal governments of the Cocachacra, Islay-Matarani, Mollendo, Punta de Bombón, Dean Valdivia and Mejía Districts called for a communitarian consultation to decide on the Project's execution. The authorities issued a Municipal Ordinance that positioned the consultation as a democratic mechanism to gauge the people's opinions on possible mining activities. On 27 September 2009, the residents of Cocachacra exercised their right to citizen participation, took part in the consultation and rejected the mining project by 93.4 percent of the votes.

In declarations to the media, the company said they would seek the

support of the local communities to reschedule the public meeting. However, in early 2010, after tensions climbed between the company and the local authorities, the project was finally postponed until the end of 2011. The company accused the authorities of illegal actions during this process.

In February 2011, a strike was organised, where three people died and several others were wounded. The government authorised the Army to intervene, and maintain and restore order (Resolución suprema N°113-2011/DE). In response, in April 2011 the Ministry of Energy and Mines rejected the first EIA and ordered the machinery to be removed from the area.

This document should be cited as:

Carbonell, M. H., 2012. Tía María in Islay, Arequipa (Peru), EJOLT Factsheet



Confrontations between demonstrators and the police in Dean Valdivia, Islay. The activists interrupted an activity where the Ministry of Agriculture was giving agricultural machinery to the Asociación de Agricultores del Tambo (Tambo Farmers Association), donated by Southern Peru. Source: El Comercio, 15 November 2010



Satellite view of the mine
Source:
<http://armand953.wordpress.com/2010/03/09/proyecto-minero-tia-maria-arequipa-las-dos-versiones/>

Currently, the company is undertaking a new EIA which—supposedly—will include previous remarks; the communities alone have presented 3,000 such comments. The company hopes to restart its activities in 2015, once the EIA is submitted and approved.

Among the main organisations that work on this issue in Tia Maria are Coordinadora provincial contra la agresión minera (Provincial Coordination against Mining Aggression); el Movimiento Nueva Izquierda (The New Left Movement); and Frente de Defensa del Medio Ambiente y Recursos Naturales (Environmental and Natural Resources Defence Front).

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