

PARTICIPATORY ENVIRONMENTAL MONITORING COMMITTEES IN MINING CONTEXTS

LESSONS FROM NINE CASE STUDIES IN FOUR LATIN AMERICAN COUNTRIES





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Programme undertaken with the financial support of the Government of Canada provided through Global Affairs Canada.

The views presented in this report do not represent the Government of Canada or Global Affairs Canada.

The authors are grateful for the comments and revisions of the Advisory Committee and the Project Working Group.

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Quoting and reproducing portions of this work are permitted if the following citation is used: Pareja, C., Xavier, A., Daitch, S. (2019). Participatory Environmental Monitoring Committees in Mining Contexts: Lessons from Nine Case Studies in Four Latin American Countries. United Nations Development Programme: New York.

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Acknowledgements

This report would not have been possible without the help and willingness of the communities to share their successes, and also their difficulties. In the same way, this report was made possible thanks to the mining companies and government representatives that took the time to answer our questions.

We also appreciate the diligent and professional work performed by the consultants in each country, who carried out the field work in Argentina, Bolivia, Panama, and Peru. Respectively, Ana Cabria Mellace and Graciela Tapia, Ángela Lara Delgado and Rene Núñez Mendizábal, Alexis Rodríguez Mojica, and Nancy Bahamonde, thank you very much for your efforts.

We would like to offer a special word of thanks to the UNDP country offices for their unwavering support and ongoing feedback for the project. We also recognize the constant assistance and collaboration from Ainhoa Mingolarra in the earlier stages of the project and from Alexandra Gil Taboas and Javier Muñoz in the later stages, supporting this project from the UNDP Latin America and Caribbean Hub in Panama.

Finally, we wish to thank those who helped review the first draft of this report in Spanish, namely Nancy Bahamonde, Ana Cabria Mellace, Mitzy Canessa, Bernarda Elizalde, Angela Lara Delgado, Javier Muñoz, Rene Núñez Mendizábal, Alexandra Palmquist, Graciela Tapia, and Jessica Young. Our English report reviewers included Jordi Honey Roses, Casper Sonesson, Vesna Markovic Dasovic, and Tove Lundeberg. Special thanks to Maria Cruz Gonazalez for reviewing the Spanish and English reports for coherence. This report was greatly strengthened as a result of the comments and advice of each of our reviewers.



Executive summary

The report entitled “Participatory Environmental Monitoring Committees in Mining Contexts: Lessons from Nine Case Studies in Four Latin American Countries” [Comités de Monitoreo Ambiental Participativo en Contextos Mineros: Lecciones a Partir de Nueve Estudios de Casos en Cuatro Países de Latinoamérica] presents the results of simultaneous investigations conducted in Argentina, Bolivia, Panama and Peru. The report identifies the contexts in which Participatory Environmental Monitoring Committees have been created, their membership, and the relationships to government systems in order to prevent and mitigate environmental degradation. Likewise, the report shows practical examples of leading practices to overcome the challenges, and also action-based policies that can strengthen monitoring committees as an approach contributing to the achievement of the Sustainable Development Goals (SDGs).

Participatory monitoring committees are well positioned to contribute to the attainment of various SDGs. Some of the committees studied have improved the way mining companies, other industries, and the community are carrying out environmental management by identifying possible contamination sources. This directly contributes to meeting SDGs 6 “Clean water and sanitation” and 15 “Life on land”.

In addition, in some of the cases studied, monitoring efforts have identified pollution present in food sources and its impact on health, looking at ways to mitigate these effects. This contributes to achieving SDG 2 “Zero hunger” and 3 “Good health and well-being”. Because mining pollution problems tend to affect certain areas, particularly rural or semi-rural regions, the mitigation of mining pollution risks through monitoring contrib-

utes to achieving SDG 10 “Reduced inequalities”. In addition, through mining companies that work with monitoring committees, SDGs 9 “Industry, innovation and infrastructure” and 12 “Responsible production and consumption” are advanced. Specifically, companies are finding improved ways of doing business, engaging more effectively with communities, and implementing new ways of reducing pollution and other potentially negative effects on communities.

Finally, through their processes and practices, some of the committees have become a new dialogue space where women can effectively voice their concerns and act upon them, contributing to SDG 5 “Gender equality”. Although some monitoring efforts were born from conflict situations, the committees’ existence provides a channel through which communities, governments, and companies can engage in meaningful, systematic dialogue. This contributes directly to SDGs 16 “Peace, justice and strong institutions” and 17 “Partnerships for the goals”.

In each case studied by the monitoring committees, consultants conducted in-depth interviews and focus groups with key stakeholders connected to committee work. Interviewees included individuals who participate in monitoring initiatives, officials and government authorities at the relevant level of government, and employees of mining companies or cooperatives. The research assumed that monitoring committees usually go through four steps in their development: 1. Convene and form, 2. Prioritize and create a vision, 3. Perform monitoring and communicate results, and 4. Follow up. Further, at each step, four fundamental and interrelated dimensions were considered, namely: A. Internal governance, B. Learning, C. Socioeconomic context, and D. En-



vironmental context. Finally, to facilitate the comparison between different cases, committees advised the project team to clearly identify different levels of committee participation, according to its specific context. The different participation scenarios considered were: i. the stage is executed by outsiders, for example, by the government or the mining company, ii. the stage is executed by outsiders, but supervised by the committee, iii. the stage is executed collaboratively, and iv. the stage is executed autonomously by the committee.¹ Note that here we refer to the participation of the committee and not the participation within the committee.

To ensure consistency, the project team prepared ad hoc interview guides for each country's use. Later, and after consolidating each country report

into a regional report, a first draft was presented at the "Regional Workshop on Participatory Environmental Governance for Sustainable Natural Resource Management in Latin America: Focus on Participatory Environmental Monitoring Committees" held in Panama in October 2018. At this workshop, participants of committees and consultants from each of the countries made specific comments on the draft document and discussed the initial findings.

The following graphic summarizes the main findings, considering each of the steps:

¹ It is important to point out that this model is one simplified version of the broad range of possible monitoring options and, consequently, it should not be taken as a normative framework.



COMMITTEES HAVE SEVERAL TYPES OF DIFFICULTIES TO OVERCOME DURING STEP 1, CONVENE AND ORGANIZE

Before commencing work, a committee must navigate some challenges, such as long and difficult travel in rural areas and the need to coordinate multiple communities. Turnover of committee members is also high, which makes formalization and capacity-building difficult.

Committees must sometimes manage conflict, such as that between companies and communities. Committees that formed before instances of conflict were the result of early company engagement or were a response of the companies to the communities' request for direct dialogue. Either way, monitoring committees usually build on existing organizations within the community. Monitoring is usually part of a broader strategy of the company to build community relationships.

A key part of the organization of the committees is financing. This is usually delivered by the company to cover committees' direct expenses, but can generate suspicion in the communities. Indirect expenses, such as the time invested by participants, are covered individually by the people themselves.

Although legislation can assist the creation of committees, committees tend to work without state institutions.



COMMITTEES FORM CONSENSUS DURING STEP 2, PRIORITIZE AND CREATE A VISION

Monitoring priorities and the high-level strategy are generally decided collaboratively (such as at roundtables) between the mining companies and the committees. Supervising mining operations and preventing possible environmental pollution are the main objectives of the committees.

Some committees foresee enhancing citizen participation, building trust, and maintaining a constructive relationship with the company and the government. Others may seek to raise awareness about environmental and community issues.



STEP 3. MONITORING AND COMMUNICATION ARE COMPLEX ENDEAVOURS

Members of the committee typically do not participate in the detailed design of monitoring activities, although communities, through the committees, sometimes give input about the design. Design involves choosing the specific parameters to monitor, the sampling sites and the timing for taking the samples.

In all initiatives, the committee participates or supervises while samples are taken, which can include accompanying the sample from the analysis site to the laboratory.

Most committees have a “technical secretariat” – NGOs, universities and consultants – that supports their work. Capacity-building for the participants also can overcome the technical challenges.

An important part of the monitoring process is the constant communication with communities, the monitored company, and the government about the process and the results. Communication with communities and the company is assisted by the technical secretariat. Committee-government coordination depends on the personal availability of the officers, which complicates long-term planning.



INCREASINGLY DURING STEP 4. FOLLOW-UP, COMMITTEES HAVE POSITIVE EFFECTS

Committees’ most important contribution is the implementation of relevant mitigation measures, which can even improve operation of the mining company. Furthermore, committees allow communities to express their concerns. Thus, the committees provide early warnings to companies and governments.

The monitoring activities also provide information about sources of problems unrelated to mining, such as pollution from non-mining productive operations or from activities carried out by the communities themselves.

Monitoring efforts do not always have a baseline for comparison, so it can be impossible to know whether there is an improvement vis-à-vis “undisturbed” conditions.

Finally, mutual trust among committees, companies and government is a prerequisite for and an outcome of the monitoring process: Trust enables stakeholders to listen to one another, while stakeholders’ transparent, consistent action gradually builds trust.



The learning dimension was critical at all stages of operation for three reasons. First, learning to decide and lead: without basic knowledge about what to do and the context, the committees cannot decide among the various options that are presented, let alone lead the process. Second, it is important to learn how to trust and communicate: it is difficult to trust someone else who uses another language and operates differently. Specifically, companies, governments and communities must learn a common language that

recognizes the others and must create a way of working that makes sense to all parties. Third, it is crucial to learn how to monitor: studying the environment is the operational goal of the committees and, therefore, the training they receive is vitally important.

In order for committees to continue making their contributions to the SDGs, we recommend specific short-term and medium-term actions for each stakeholder.

	GOVERNANCE	SOCIAL + ENVIRONMENTAL	LEARNING
Suggestions for the committees	<p>Deepen inclusion Monitoring committees must not reproduce the usual patterns of exclusion. It is important to include youth, indigenous peoples, and women. Some cases have shown the importance and effectiveness of working towards gender equity in committee participation to enable oversight by the whole community. This means seeking gender equality in terms of participation, leadership composition, and the decision-making process.</p> <p>Formalize management The committees have room to standardize and formalize their management and communications.</p>	<p>Networking Once the committees are known in their territories, they become involved in other opportunities for participation with different stakeholders. Cases show that coordination between committees and other stakeholders and organizations through networks should be pursued.</p>	<p>Identify and address context-specific needs for training Governments, mining companies, the international community, universities and other stakeholders can provide training to committees. However, committees can assess their particular training needs and opportunities.</p>
Recommendations for Governments	<p>Use and expand existing mechanisms to promote committees Governments should use existing processes, such as the Environmental Impact Assessments, to promote the creation and operation of the monitoring committees. Governments could also allocate some tax revenue or mining royalties to participatory monitoring initiatives, thereby institutionalizing the committees.</p> <p>Listen actively especially regarding monitoring results Governments can also empower committees by listening to them closely. This can build greater trust and help communities work towards developing institutional status with governments. . In the Regional Workshop, a key challenge identified was how to increase the use of the monitoring data generated by the committees.</p>	<p>Provide guidance Governments could create protocols and methodological guides that community organizations can use in their monitoring, which can improve the standardization and validation of the results. These guides could consider environmental aspects, but also leadership, results conveying and constructive communication.</p>	<p>Provide training Training for government officials and for committee members in topics such as leadership and constructive communication can be promoted.</p>
Recommendations for mining companies	<p>Respond in a timely manner Companies can deliver a timely, clear, and transparent response to the committees' monitoring results.</p> <p>Share decision-making regarding monitoring Committees should participate in the selection of the laboratory and the professionals that they will work with.</p>		



	GOVERNANCE	SOCIAL + ENVIRONMENTAL	LEARNING
	<p>Make funding more transparent</p> <p>Typically, mining companies will finance the committees. Although other sources of financing may be available, company funds should be delivered to the committees stably and transparently, without strings attached. This will enable the committees to plan and to build the trust of their communities. Financial trusts could also finance committees.</p>		
Recommendations for the international community including UN agencies	<p>Foster trust</p> <p>To support monitoring committees, UN agencies, including UNDP, can promote multi-stakeholder dialogue processes to build consensus. UNDP's experience in conducting dialogue and helping governments build institutional frameworks to convene and lead multi-stakeholder dialogue can also foster dialogue with monitoring committees.</p>	<p>Include participatory monitoring in the global SDGs effort</p> <p>Monitoring committees contribute to advancing the SDGs. Here, committees can learn from other initiatives that work towards the SDGs. International organizations can use participatory environmental monitoring as part of the global SDG effort, enabling on-the-ground actors to learn from and improve their effectiveness.</p>	<p>Support network-building and knowledge exchange</p> <p>Committees, mining companies and governments will need to learn new skills to strengthen participatory environmental monitoring. International organizations that provide forums, communication networks, knowledge products and training specific for each actor can support this.</p>

Further, two more complex and long-term recommendations are made:

COMMITTEES, MINING COMPANIES AND GOVERNMENTS MUST WORK TOWARDS AN ECOSYSTEM APPROACH	An ecosystem approach will better reflect the complexity of the environment and the concerns of the communities. Such an approach includes closer attention to communities' perceptions of pollution and accounting for them. This approach could also take into account possible cumulative effects of mining processes.
COMMITTEES, MINING COMPANIES AND GOVERNMENTS MUST START PROFESSIONALIZING THE MONITORING	This requires moving from training volunteers to more structured and ongoing instruction. This requires generating a stable group to participate in monitoring – which raises the question of whether to compensate those involved.

Participatory environmental monitoring initiatives will not remedy all potential social, cultural or spiritual impacts of mining. Although the committee becomes a forum for coordination and communication, this type of organization will not directly resolve possible negative aspects caused by relocation or by a clash between worldviews.

Monitoring occurs amidst broader environmental governance. If legislation fails to explicitly recognize the possibility that communities may make complaints based on their own environmental measurements or that the state could investigate and impose penalties, the committees are left with few formal tools to handle a potential dispute with a mining company. Further, committees and mining companies interact locally, so it is difficult to influence environmental governance for mining at the regional or national level.

For example, the possible cumulative effects of different mines in a region may go unnoticed for one particular committee. Similarly, an improved environmental management in one mining company may not easily be known by others. To address this, the state can generate the required institutional framework – e.g., by granting a formal role to the committees in regional and national mining-related planning processes or by preparing for regional and national networks of monitoring committees.

Recognizing community members who care for the environment as a collective responsibility, and the companies and government agencies who lend their support to this work, we invite communities, companies and decision makers to implement the modest conclusions of this report through sincere and honest dialogue.





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1. Introduction

Before starting, it is important to recognize the effort that many people make on a daily basis to reach agreements between viewpoints that initially seem irreconcilable. We recognize those who, from within their own communities, embrace caring for the environment as a collective responsibility, as well as those who, from their jobs in mining companies or the government, lend their support to this undertaking: participatory environmental monitoring. Bear in mind that identifying the promising recommendations and practices presented in this report is just a first step, and perhaps the simplest. At the onset, we invite communities, companies and decision makers to begin the far more complex task of implementing the modest conclusions of this report through sincere and honest dialogue.

This report on case studies in Participatory Environmental Monitoring Committees in Latin America focuses on the experiences of these committees as a first step toward promoting and strengthening their work. The report is part of the Environmental Governance Programme for the Sustainable Management of Natural Resources (EGP) and the ongoing efforts of the Canadian International Resources and Development Institute (CIRDI) to promote best practices in natural resource governance. EGP is a joint initiative of the Swedish Environmental Protection Agency (SEPA) and the United Nations Development Programme (UNDP) to help countries mainstream environment and human rights into the governance of the mining sector.

Specifically, the cases reviewed seek to better understand the conditions and characteristics that allow participatory environmental monitoring committees to influence decision-making in the mining sector. For this purpose, the report will:

- **Identify the parameters and context** in which participatory environmental committees can be created and linked to government systems, as a mechanism to empower communities located in areas that host mining activities, in such a way as to empower committees to prevent and mitigate environmental degradation and social conflicts;
- **Provide examples of good practices** and approaches to overcoming the challenges faced by participatory environmental committees;
- **Share policies** based on actions and recommendations for programmes that strengthen committees as an approach that contributes to achieving the Sustainable Development Goals (SDGs).

The report focuses primarily on the social aspects of the work of the committees, given that their environmental dimension has already been investigated (see, for example, CAO, 2008). Although the scope of the report was environmental, the cases are mainly focused around water management.



This report is organized as follows:

- **Section 2** explains the methodology and how this report was created, while also discussing the different meanings given to the term “participatory”.
- **Section 3** summarizes the type of monitoring that is carried out in each case studied and the social context in which it is encountered.
- **Section 4** is devoted to the main findings developed by using the proposed methodology
- A discussion of the findings in the form of recommendations on promising practices and pending challenges is the focus of **sections 5 and 6**, respectively.



2. A proposal to study participatory environmental monitoring committees

Participatory monitoring committees emerge in particular contexts, in response to a specific environmental, cultural, economic and social situation, which makes comparisons difficult. Indeed, recent history has shown several examples where a successful idea in one context is replicated and implemented in other situations with limited, and sometimes negative, results.

Against this backdrop, this report seeks to find similarities and differences between different experiences, as a way to present the various forms that these committees can take. Thus, based on the principle that each experience is unique, this section proposes a framework for carrying out such comparisons.

2.1 Model used to carry out the data-gathering in the case studies

To carry out the case studies, a model that defines a committee as a dynamic group with four main operational stages was used, in each of which four basic dimensions interact.

The model should be understood as a guide for data collection and is not intended to become a normative framework for the committees. Specifically, during the fieldwork, we endeavoured to treat the history of each committee respectfully and sought to avoid making value judgments regarding any gaps in the knowledge or experience that the committee or one particular individual might have.

The stages

Based on the literature for participatory monitoring (for example, Guijt & Gaventa, 1998), for citizen science (Conrad & Hilchey, 2011, Daniels-

en et al., 2008, among other publications) and for strategic planning (Ecoplan-International & UN-Habitat, 2005), four stages in the operation of the PEMCs were identified:

- **Convene and organize.** Usually, the committees do not start spontaneously; someone must convene them. Then, the committee prepares itself, understanding the context, the legal framework and the environmental situation. In addition, the committee is organized, creating an agreement on how it will work and discussing the scope and financing for its work.
- **Prioritize and create a vision.** The committee creates a common vision of what it wants to achieve and prioritizes which situations will be monitored in the short and long terms.
- **Monitor and communicate.** Now, the committee begins its main task: design and



execute a monitoring programme. As a parallel and key activity, the committee usually designs and implements a communications plan to report on the processes it uses and the results it discovers to the communities in which it operates. The communications plan could also include how to engage constructively with the monitored companies.

- **Follow up.** With the results of the monitoring, the committee follows up on the problems identified and the suggestions for resolving them. These problems can be socio-environmental aspects that the monitoring identified. Additionally, problems and solutions may be related to process rather than to outcome – for example, a lack of trust from the community.

Dimensions to be studied

The methodology studies in depth each one of the described stages by examining four dimensions identified in the literature, as well as by professionals working in this area (Xavier, Leon, Carlier, Bernales & Klein, 2017), and by the members of the committees during training sessions and seminars prior to this study (Carlier, Leon & Xavier, 2017). The four dimensions are:

- **Internal governance dimension.** This encompasses the process for decision-making, leadership, budget, the form of election of the members, the composition of the committee in terms of gender and age, and the roles of its members. Relations with other institutions including companies, govern-

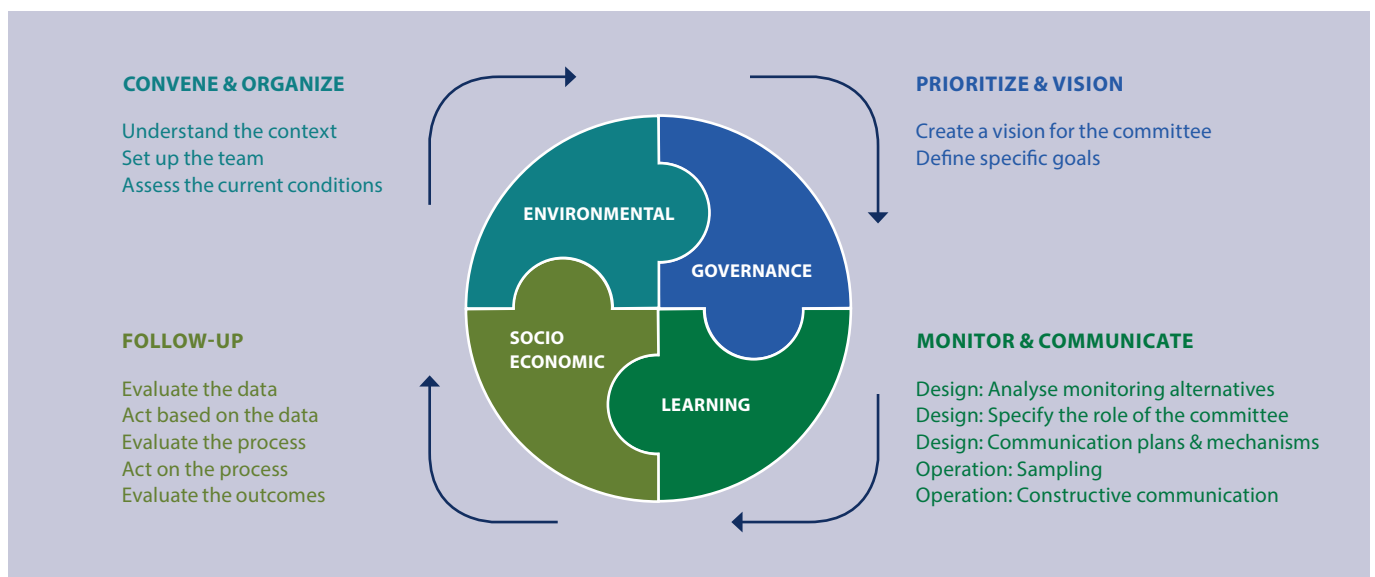
ment and universities are also considered. Finally, this dimension also includes transparency and inclusiveness of the process, emphasizing the role of women.

- **Learning dimension.** This refers to the important role that knowledge plays in monitoring. Learning includes not only technical skills, but also communication and leadership skills, as well as the traditional knowledge that participants may have. In addition, the committees generate knowledge through their monitoring activities and the results obtained. Specifically, the learning dimension also includes the reflective practices of a committee that learns from its own experience, its successes and failures.
- **Socioeconomic dimension.** This dimension reflects the history of the community and the region, the culture, the perceptions that people have about the situation, their relationship with nature, the local economic context, way of life, and the legal framework.
- **Environmental dimension.** This dimension includes aspects such as regional geography, climate, water quality and availability, flora and fauna, and soil, air and water chemistry. Here, we also consider the environmental monitoring protocols that are used by the committees.

Model summary

Figure 1 illustrates the model graphically, showing the stages and dimensions described.

Figure 1. Graphic representation of the methodology



2.2 Different types of participation for the committees

The model presented does not indicate a particular degree of participation. The model only points out different stages and dimensions within which citizens may or may not participate. For example, there could be a committee where people only take samples during monitoring, but do not participate in the design or evaluation.

Defining what is sufficiently participatory has been a wide-ranging discussion for decades. From the seminal work on the “ladder of citizen participation” (Arnstein, 1969), the discussion continues to this day. In contexts of participatory environmental monitoring, various classifications have been carried out using models similar to the one presented here (Conrad & Hilchey, 2011, Danielsen et al., 2008, Turreira-García et al., 2018). From these models and specifically for Latin American mining contexts, recent research has found that there are a wide variety of roles that committees perform in participatory water monitoring (Pareja, Honey-Rosés, Kunz, Fraser & Xavier, 2018).

In this report, a decision was made to refrain from passing judgment on what the appropriate level of participation should be, given that this depends upon each context. On the other hand, a “participatory” experience could be defined as one in which the participants viewed the experience as such. With this definition, in each of the experiences that are reviewed here, the committees participate in different ways. To facilitate comparison in this report, we will use different scenarios based on the existing framework for participatory water monitoring in Latin American mining contexts. Note that these scenarios refer to the participation that the committee has in the monitoring and not to the participation that the overall community has within the committee.

Possible participation scenarios

For each of the stages mentioned in the model of the previous subsection, we will consider the following four scenarios²:

- 

→ **Executed by external parties** - This scenario occurs when the activity is carried out by people outside the community. For example, monitoring is designed and conducted by experts in environmental science, whether from the government or the mining company.
- 

→ **Supervised by the committee** - In this scenario, the stage is carried out by outsiders, but the committee is present as a supervisor of the results achieved. For example, in some committees, samples are taken by experts, but people from the committee keep track of the process and keep the samples in their custody.
- 

→ **Executed in partnership** - This scenario includes all possible institutional arrangements where a particular stage or activity is discussed and executed through collaboration between an external entity, such as a mining company, and the committee.
- 

→ **Executed by the committee** - This happens when the committee itself carries out the activity. For example, participants from the committee take the environmental samples that will then be sent to a laboratory.

The scenarios presented clearly do not exhaust the wealth of possible combinations; accordingly, they are used only to provide an overview of each of the cases studied.

2 We refer here to Pareja et al., (2018), specifically with regard to the classification presented on page 4.



2.3 Roadmap towards the creation of this report

Data collection and production of country reports

Multiple stakeholders are involved in participatory environmental monitoring activities including community members, mining companies, local, regional and national governments, academics, non-governmental organizations (NGOs), international organizations and research institutes. The case studies included, as a minimum, the perspectives of those who participate in the monitoring initiatives, the government (at the relevant level) and the companies, as well as the cooperative members in the case of Bolivia.

The main data collection method consists of semi-structured interviews with key respondents in the territories where the committee works. The key respondents included: participants and leaders of the committees, authorities and officials of the local, regional and/or national governments, members of NGOs and universities. Women participants were included in an effort to incorporate feminine perspectives. To ensure consistency on the analysis, the project team prepared interview guides to be applied in each country. These guides were adapted by the consultants to make them pertinent and to focus on the most relevant information regarding each case.

After the first draft of each report, consultants conducted focus groups with the people interviewed to validate the results. The information gathering was carried out between February and November 2018. A detailed list of all the interviewees can be found in **Annex 1**.

The set of these country reports forms the backbone of the report presented here.

Feedback in a regional workshop

In Panama on 3, 4 and 5 October 2018, the “Regional Workshop on Participatory Environmental Governance in the Management of Natural Resources in Latin America, with emphasis on Participatory Environmental Monitoring Committees” was held, at which the results of each country and a first draft of this report were presented.

At a session devoted to discussing this report, participating committees and consultants from each country, as well as NGOs with experience in the subject, presented those areas where they agreed and disagreed with the preliminary version. The discussion centred around the need to explicitly reflect the fact that the functioning of the monitoring committees depends on context. The context would influence how to perform the monitoring and what role is to be given to the committee. This version of the report seeks to incorporate these comments and other more-specific feedback from participants.

Additionally, the Regional Workshop focused on critical issues identified from the first draft and from the comments made by the participants themselves during the event. These topics included: the most effective strategies to build relationships between the committees and the state and the companies, as well as the critical challenges facing the work of the committees.

In order to build more effective relationships between the committees and the state, it was recommended to formalize the committees, establish sustainable and transparent financing models, develop training programmes, and build trust in the information generated by the committees. Accordingly, the critical challenges identified were how to generate sustainable forms of financing and to promote the independence of the committees, to improve the legal frameworks for fostering institutionalization, and to learn to convey results effectively to all stakeholders. A press release about the workshop is available at <http://www.latinamerica.undp.org/content/rblac/en/home/presscenter/pressreleases/2018/mining-and-socio-environmental-issues-in-latin-america--communit.html>



3. The Cases



















The following subsection presents a summary table on the type of monitoring performed in each of the cases.

The subsequent subsection includes more detailed information on the socio-environmental context of each of the cases, organized by country. Each of these summaries indicates the com-


























pany and project being monitored, the observed or expected impacts on the environment, some relevant episodes in the committee's formation, the environmental aspects monitored, some positive results achieved by the initiative, the level of participation for each stage, and the relationship of the committee with the government.



Table 1. Summary of the type of monitoring performed in each of the cases studied.

	COMMUNITY SYSTEM FOR TRANSPARENCY IN ALUMBRERA	ENVIRONMENTAL MONITORS IN SALAR DE OLAROS (OLAROS SALTERN)	MINING AND ENVIRONMENT SECRETARIAT OF DISTRICT III OF THE TUPIZA MUNICIPALITY	COMMITTEE FOR THE DEFENSE OF THE ENVIRONMENT IN COLQUECHACA, MACHA AND POCOATA
COUNTRY	Argentina	Argentina	Bolivia	Bolivia
Type of metal / mineral and monitored mining operation	Copper, gold, molybdenum using an open pit	Lithium extracted from salt waters	Complexes of silver-zinc, and gold, extracted in low intensity (semi industrial)	Complexes of lead-silver and silver-zinc, extracted in low intensity (semi industrial)
Company and project monitored	Alumbrera Mining Company, Bajo de la Alumbrera Mine	Sales de Jujuy Mining Company, Olaroz Mine	Multiple small enterprises	Multiple small enterprises and Colquechaca Mining Cooperative
Year and context of formation	2012. The committee formed after a dialogue table between environmental organizations and the company in a context of conflict, facilitated by two environmental leaders	2014. The initiative is convened by the company as a result of its EIA process	2016. Formally this year the Secretariat is created as part of the Agrarian Union. First monitoring efforts started in 2000 lead by an NGO	2011. First signs of pollution awareness are found in the 70s, but the committee is formed in 2011 after a report published by a university showed pollution in crops
Committee members	Environmental organizations and citizens of the cities of Tucumán and Catamarca. NGO Ecoconciencia	10 communities are invited	Agricultural, irrigators', civic, mining and women's associations. Representatives from local and regional governments	Civic Committees, Neighborhood Boards, local and provincial governments, and the mining cooperative. Pio XII Radio station (organization associated with the Catholic Church)
Technical support	NGO Ecoconciencia	BC Construcción Consultancy	Not in place	NGO Center for Ecology and Andean Peoples (support on legal issues)
Aspects being monitored	Surface water and air	Physical and chemical aspects of surface water, Air, Ground, Flora and Fauna, Noise	Surface water acidity	Not applicable
Frequency of monitoring	Episodic, based on emerging situations	Every 3 months	After each storm in the rainy season, each week in the dry season	Not applicable
Incorporates indigenous communities/nations	No	Yes	Yes	Yes
FORM OF PARTICIPATION				
Convene	 Partnership	 External	 Committee	 Committee
Prioritization	 Partnership	 External	 Committee	 Committee
Monitoring: design	 Supervised	 External	 Committee	Not applicable
Monitoring: implementation	 Supervised	 Supervised	 Committee	Not applicable
Follow-up	 Supervised	 External	 Partnership	 Partnership



PARTICIPATORY ENVIRONMENTAL MONITORING IN CHILIBRE	DEFENDERS OF WATER RESOURCES IN DONOSO	PARTICIPATORY ENVIRONMENTAL MONITORING COMMITTEE OF ORCOPAMPA	PARTICIPATORY ENVIRONMENTAL MONITORING COMMITTEE OF MALLAY	UNIFIED COMMITTEE OF THE CASERÍO DE JUPROG, CHIPTA AND CINCO TRONCOS
Panama	Panama	Peru	Peru	Peru
Limestone, clay	Copper, gold, molybdenum using an open pit	Gold, silver using underground operations	Lead, zinc, silver using underground operations	Copper, zinc, molybdenum using an open pit
CEMEX Mining Company, Operations at Chilibre	Minera Panama Mining Company, Cobre Panama Mine	Buenaventura Mining Company, Orcopampa mining unit	Buenaventura Mining Company, Mallay Mine	Antamina Mining Company, Antamina Project
2015. The program was created by the company after environmental damage accusations from the community	2013. The initiative is a result of the EIA of the company	2010. The committee is a result of a three-way dialogue between government, company and the community	2011. The committee is a result of a three-way dialogue started by initiative of the community during exploration	2015. The committee is a result of a three-way dialogue started after the community accused the company of pollution
Consultative Sub-basin Council, Community Association for the Participative Management of the Chagres National Park, Socio-Environmental Development Committee of the East Area	Representatives of the communities and of the Management Board of Rural Aqueducts	Representatives of the communities, the irrigation commission and the local governments of the area	Inhabitants of the communities and the mayor of the area	Members of the community
Not in place	Avanzar Consultancy Universidad Autónoma Chiriquí	NGO Labor	Instituto de Diálogo	Universidad Nacional Santiago Antúnez de Mayolo de Ancash
Air (Dust), Vibrations, Noise, Vehicle Speed	Surface water	Surface water (e.g. Ph, dissolved oxygen, conductivity, temperature)	Surface water (e.g. Ph, dissolved oxygen, conductivity, temperature)	Surface water (e.g. Ph, dissolved oxygen, conductivity, temperature), and air
Non-systematic frequency, based on emerging situations	Every 4 months. There is additional monitoring based on emerging situations	Every 6 months	Every 6 months	Every 6 months
No	Yes	No	No	No
 Partnership	 External	 Partnership	 Partnership	 Partnership
 Partnership	 Partnership	 Partnership	 External	 Partnership
 Partnership	 Partnership	 Partnership	 External	 Supervised
 Supervised	 Supervised	 Supervised	 Partnership	 Partnership
 Partnership	 Partnership	 Supervised	 Supervised	 Supervised



Argentina



Community System for Transparency, Bajo Alumbreira Mine

MINING CONTEXT

The mine associated with this case study is a copper, gold and molybdenum open-pit mine. It came into operation in 1997 and is currently being closed down. This makes it the first open-pit mining mega-enterprise in Argentina, and one of the first to enter the closing phase. The rights for exploration and development belong to a firm formed by the Government of the Province of Catamarca, the National University of Tucumán and the National Government of Argentina. However, it is operated by Minera Alumbreira Limited, whose shareholding structure is accounted for by Glencore (50%), Goldcorp (37.5%) and Yamana Gold (12.5%).



MINING IMPACTS

Over the years, some negative impact events have occurred, such as breakage or filtration pollution, leading to situations of conflict between the company and the community. Due to the size of the project, the mine has been extensively analysed, and litigation is in progress. However, to date, the studies available generate controversy among the various stakeholders. It is worth mentioning that, in 2010, the operation was briefly stopped during the processing of an appeal filed against the company by a group of residents due to an alleged pollution episode³. The case was finally dismissed⁴.

ORIGIN OF THE COMMITTEE

The origins of the monitoring committee “Sistema de Transparencia Comunitaria” can be traced back to May 2012 with the “Dialogue Tucumán”. Its first monitoring activities were carried out in October 2013 and focused on the mining pipeline associated with mining operation. As of 2017, the monitoring group was being reconfigured to focus its actions on monitoring the closure of the mine. In this report, we will refer mainly to the work done before the mine's closure. During this time, the committee was made up of individuals and environmental organizations from the region, some of which were initially organized in the Federation of Environmental Organizations of Tucumán.

MONITORING ACTIVITIES

The monitoring activities are episodic and are designed to respond to observed pollution or perceived risk. Throughout this period, the following tasks have been performed: analysis of water quality in the nearby city, supervision of the operation, and visits after specific events, such as excessive rains and sabotage attempts by third parties outside the committee.



3 Judgement declaring the precautionary measure <https://sjconsulta.csjn.gov.ar/sjconsulta/documentos/verDocumentoByIdLinksJSP.html?idDocumento=7283852>

4 Judgement lifting the precautionary measure <http://oncediario.com.ar/wp-content/uploads/2017/07/levanta-cautelar-1ra-instancia-document-14.pdf>

MONITORING OUTCOMES

Over time, this initiative has become a meaningful stakeholder in the eyes of the company, participating actively in the supervision of the project. Moreover, the company acknowledges having followed some of the suggestions that emerged from the monitoring activities.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

Considering the origin of the committee, it can be concluded that the call for the organization and establishment of the committee's priorities is carried out collaboratively. For its part, monitoring, in its sub-stages of design and execution, and follow-up are led from outside the community, but with supervision by the committee. Although the committee has managed to interest some specific regional authorities in its work, government involvement is limited. The state monitors the company as well.

Environmental Monitors in the Salar de Olaroz, Olaroz project

MINING CONTEXT

The mining project monitored in this case extracts lithium by draining salt water present in the subsoil of the salt mines. The commercial operation began in January 2015. The operation of the Salar de Olaroz [Olaroz Saltern] project, in the area called Puna, is carried out by the company known as Sales de Jujuy. Company ownership includes Orocobre Limited, Toyota Tsusho Corporation, and Jujuy Energy and Mining State Partnership. The latter is a company of the Provincial Government of Jujuy, which has an 8-percent share in the project.

MINING IMPACTS

Due to the way lithium is extracted, the risks perceived by the general public are not related to leaching, as in the mining of silver, gold or copper. Instead, they focus on the large amount of water used in an area of water scarcity and the possible contamination of the water supply through the evaporation process that is used. Ten indigenous communities involved in consultations prior to installation, within the framework of Convention 169 of the International Labour Organization (ILO), did not explicitly raise the issue of water. This does not mean that there are no possible impacts: for example, action should be taken to ensure that the salt water present in the salterns is not allowed to mix with the fresh water, which is also present at that location. Some members of the community perceive that their livelihoods have been impacted, including the production of salt, which has been carried out since time immemorial, as well as their cultural activities and festivities, due to the fact that they have to request prior authorization from the company.



ORIGIN OF THE COMMITTEE

Although Sales de Jujuy conducted an open monitoring for the population and public and private organizations in May 2013, the first environmental monitoring with the participation of the community as “veedores” (overseers) was in February 2014. On this occasion, government personnel participated. These participatory monitoring activities are part of a commitment resulting from the Environmental Impact Assessment process. The company has hired consulting firms to support the process.

MONITORING ACTIVITIES

At three-month intervals, air quality, water, salt water, soil, and noise levels are monitored. Information about flora and fauna is also collected.

MONITORING OUTCOMES

The group of monitors has learned about the mining operation and monitoring. Specifically, they have recently submitted a practical request to the company on how to carry out the monitoring in a more systematic and rigorous manner which would allow for tracking changes over time, a request that was welcomed by the company.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

The community team of monitors supervises the implementation of the monitoring process. In this context, the call to organize the committee, the establishment of priorities, the design of the monitoring and the follow-up are the responsibility of the mining company. Technicians from the governmental mining and environmental agencies participate in the monitoring activities, although not regularly. During 2018, the Ministry of Environmental Quality issued a resolution to obtain the necessary resources to perform countersamples to verify the company’s own monitoring.



Bolivia

★ La Paz

Pocoata

Tupiza

Mining and Environmental Secretariat of District III, Tupiza Municipality, Mines with Impact on Basins of the Rivers San Juan del Oro and Tupiza

MINING CONTEXT

In this case study, a specific mine is not analysed; rather, the approach is region-wide. In particular, the Secretariat seeks to mitigate the impact of mining activity on two rivers important to the communities in the Tupiza municipality: The San Juan del Oro and Tupiza rivers. This is due to the fact that the current impacts are the result of mining operations that date back to the Incas and the colonial era. Moreover, industrialized mining in the area from the beginning of the last century is discernible. Although there have been recent problems, this is a scenario where most of the responsibilities for environmental situations cannot be laid at the door of any one particular entity at a given moment in time. Private companies and mining cooperatives currently operate in the area.



MINING IMPACTS

The impacts targeted for mitigation affect the quality of water and air. Regarding water pollution, there are mines that, due to the precariousness of their previous operations, naturally generate contaminated water. Also, due to episodes of heavy rain, existing tailings dams suffer from overflowing, thereby releasing acidic waters. The above examples are aggravated by climate change and the use of reagents, such as mercury, xanthate and cyanide, for the beneficiation of minerals since colonial times. Regarding air pollution, in the cooperative mines, the ore is transported for selling in the form of stone, generating fine dust during the loading and passage of trucks. These dust particles are spread by the constant winds encountered in the area, which can contaminate the soil and water. The magnitude of these impacts has been such that during past blood tests conducted by an NGO, people in the area tested positive for lead.

ORIGIN OF THE COMMITTEE

The Secretariat of Mining and Environment analysed in this case was formally installed in 2016 within the agrarian union of District III. However, its origins trace back to the year 2000, when the first coordination activities for drinking water were carried out. These activities involved agricultural, irrigation, civic, mining and women's associations, as well as representatives of local and regional governments. Between 2009 and 2012, there was a fresh impetus from the intervention of the NGO Agua Sustentable, which proposed addressing the problem of acid waters through a "roundtable" and participatory committees. Although the Secretariat does currently exist, some community members feel that the monitoring committees should be resumed.

MONITORING ACTIVITIES

In the monitoring process, it is possible to identify two separate stages: A first period during the intervention of the NGO Agua Sustentable; and a second period after the implementation of the Secretariat of Mining and Environment. In the first period, locations were established to measure the pH of the water, which was performed after each storm in the rainy season, and each week in the dry season. For these purposes, some people in the community were trained in the handling and reading of reactive paper for pH measurement. In the second period, the same people performed the monitoring with the same frequency. However, based on their experiences and the lack of logistical resources, they conduct only visual monitoring. This latter approach of using communities' knowledge instead of more "technical" approaches, is linked to an emerging national process where the State has been legitimizing traditional knowledge by systematizing bioindicators that the community uses for agricultural management.

MONITORING OUTCOMES

Since its inception, the Secretariat can claim the achievement of successfully articulating the requests of the community and processing these requests in interactions with the appropriate authorities. For example, the Secretariat was instrumental in getting a company to upgrade its facilities to reduce the risks of pollution.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

All the stages of the monitoring process were carried out collaboratively in the first period, between the community and the NGO. In contrast, during the second period, all the stages, apart from the follow-up, have been carried out directly by the committee. The monitoring stage is carried out in a collaborative manner, since sometimes the State is included to carry out the pertinent formal inspection. After the creation of the Secretariat, the Secretariat gathers community complaints and presents them, if appropriate, to authorities, both local and/or regional.



Committee for the Defence of the Environment in Colquechaca, Macha and Pocoata Basin, Colquecha and Pocoata Municipalities, Mines of Colquechaca, Macha and Pocoata Basin

MINING CONTEXT

In much the same way as in the case of Tupiza, mining activity in the Colquechaca and Pocoata municipalities dates back to the 16th century. Since this century, mining activity has been carried out through the mita⁵ of Potosí and was deepened in subsequent centuries through development by private mining companies. Currently, the main company in the area is the cooperative known as “Cooperativa Minera Colquechaca Ltda.” This was founded in 1987 and corresponds to a mining cooperative that leases the facilities from the state mining company Comibol. Currently, the cooperative extracts lead-silver and zinc-silver complexes.

MINING IMPACTS

Since the 1970s, communities have been distinguishing the impacts of mining on the environment, starting with the appearance of contaminated sludge in the plots. In the 1990s, the problem continued with the contamination of water by the same type of sludge. In 2011, a study carried out by the National University “Siglo XX” showed the contamination of the waters and the presence of heavy metals in the agricultural products of the surrounding areas⁶.

ORIGIN OF THE COMMITTEE

The Defence Committee was created during 2011 in the context of a first seminar on pollution in the area. In this seminar, the pollution report indicated above was presented. The Defence Committee traces its origins to the 2000s, when the subject of pollution was part of the campaign of a candidate for mayor. However, once elected, the candidate failed to act on the promised mitigation measures. A few years later, in 2003 and 2004, the first road blockades took place in an effort to demand that the state install the necessary infrastructure for the remediation of the environmental impacts resulting from mining activity and occasional natural floods.

COMMITTEE’S ACTIVITIES

In a first stage, the committee considered only civic committees, neighborhood boards, local and provincial governments, and not the mining cooperative; in recognizing itself as an “agrominera” community, though, the mining cooperative was later invited to participate. The university did not continue monitoring after its study in 2011. Since 2015, the committee includes Radio Pío XII, which supports them in ensuring a greater dissemination, articulation, focus and credibility for their initiative. The radio is linked to the Catholic Church and also supports the relationship with the NGO Center for Ecology and Andean Peoples, likewise linked to the Church. This NGO gives the committee support and legal advice, based on its experience in another similar environmental initiative.

5 Forced labour of Indians in the silver mines by order of the viceroy.

6 Part of the study is available at <https://upcommons.upc.edu/handle/2117/20951>



COMMITTEE'S ACHIEVEMENTS

The Defence Committee has been able to discuss and co-design a solution with the central government since 2015. In 2018, it gave a presentation to Parliament on the need to declare this solution a national priority. As of the end of 2018, the committee was continuing to take steps to obtain the necessary funds.

COMMUNITY, COMPANY AND GOVERNMENT INVOLVEMENT

In the case under consideration, there is no monitoring, yet the reader's attention is drawn to the fact that the committee convened itself and that there was a high level of participation by the committee in the design of solutions to cope with the acid waters of the area and in the implementation of these solutions.



Panama



Participatory Environmental Monitoring in Chilibre, CEMEX Mining Company

MINING CONTEXT

This case study is related to non-metallic mining operations carried out since 1978 on the corregimientos of Chilibre y Caimitillo. Specifically, it includes mining operations in the buffer zone of Chagres National Park, which involve various companies, but mainly CEMEX. This company began its operations after the adjudication, through auction, of state operations in 1994.

MINING IMPACTS

In the beginning, the community presented its concerns over the passage of heavy equipment, air pollution, and the vibrations and noises associated with blasting for extraction. In 2015, protests were held regarding the proximity of operations to an area of environmental interest.



ORIGIN OF THE COMMITTEE

In this territory, various participatory monitoring efforts are carried out. This report focuses on the roundtable convened by CEMEX after the 2015 protests. In this instance, the company interacts with three community groups. The first is the Sub-basin Advisory Council. The Sub-basin Advisory Councils are the result of the management of the Panama Canal Hydrographic Basin and trace their origins back to the 2000s. These committees seek to promote citizen participation and the coordination of policies in a context of integrated water resource management of the basin. In the committees, community, productive, institutional and governmental actors from the water-basin have gathered together to achieve comprehensive management of the basin. The second community group in the area that is involved in the roundtable convened by CEMEX is the Community Association for the Participatory Management of the Chagres National Park (ACOGCHA). This partnership resulted from the Park in Peril Programme, funded by The Nature Conservancy. The third organization is the Socio-Environmental Development Committee of the East Area. As part of the initial agreement between CEMEX and this group, also following the protests in 2015, participatory environmental monitoring has begun.

MONITORING ACTIVITIES

In accordance with the concerns of the communities, the company monitors and communicates the results for air quality, vibrations in residential areas, and the noise level and speed of passing vehicles. This monitoring is performed on the basis of emergency situations. For example, the study of vibrations was carried out specifically to change the blasting schedules. Currently, some seismographs are installed. A further example is that the community can channel its complaints regarding increases in dust or vibrations through their leaders who liaise with CEMEX. The leaders then report the complaints to the company.



MONITORING OUTCOMES

Specifically, it has been a great achievement for the initiative to become an effective instance of coordination and communication where a large number of actors converge. A concrete impact is that the blasting method for the productive process was changed in accordance with the opinion and perception of the communities.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

In terms of participation, the call to organize the committee, the prioritization of issues to monitor, as well as the choice of specific places and times to be monitored, were carried out collaboratively through the CEMEX roundtable and the three organizations. The actual monitoring is carried out by technicians of the company, although the committee supervises this activity and reports on environmental changes. The follow-up of the monitoring is carried out in a participatory manner through coordination meetings held by the roundtable. At these meetings, the company reviews the progress and results of previously agreed mitigation measures. In the same way, the communities present their assessments and concerns. In addition to participatory monitoring, there are government monitoring exercises. However, the community does not participate in these exercises beyond presenting their complaints.



Defenders of Water Resources in Donoso, Cobre Panama Mine

MINING CONTEXT

The operation is a copper, gold and molybdenum open-pit mine. The mine began with the production of concentrates in 2018. The Cobre Panama mine is operated by Minera Panamá. As of June 2018, this company is owned by First Quantum Mineral (90%).

ORIGINS OF THE COMMITTEE

The participatory monitoring process began in 2013, in the context of a Citizen Participation Plan associated with the company's Environmental Impact Assessment (EIA). The monitoring is led by the consultant Avanzar, hired by the company. In the monitoring exercise, we observe participation by organizations focused on the management of water resources that already existed in the area. In addition, the Autonomous University of Chiriquí provides the necessary technical support.

MINING IMPACTS

Since the implementation of the monitoring activities, two direct impacts of the operations have been identified. First, a change in the coloration of a river occurred due to unusually high sediment movement. Second, as a result of accidents involving vehicles transporting fuel to mine sites, fuel temporarily contaminated some rivers. In addition, there are the usual risks associated with mining tailings, which are exacerbated in a humid tropical climate. Following consultation with the communities, Avanzar determined that the greatest concern was about water quality.

MONITORING ACTIVITIES

Accordingly and in line with commitments undertaken as a result of the EIA process, the quality of surface water is monitored every four months. In addition, there are reactive monitoring exercises based on warnings issued by the communities. An example of this is a change in coloration detected in the river. Water Defenders take these complaints and present them to the Autonomous University of Chiriquí and Avanzar, so they can be analysed and, if appropriate, channeled to the company for action.

MONITORING OUTCOMES

In its current phase, in addition to serving as a forum for communication, the initiative has been effective in establishing precautionary measures. In particular, the initiative has promoted more effective control of vehicle speed and spill hazards.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

The call to organize this monitoring process was made externally to the community and was initiated by the company. However, the prioritization of the aspects to be monitored, as well as the choice of specific places and the determination of possible mitigation actions are collaborative. Although the sampling and analysis are done externally, the committee supervises the process and the chain of custody of the samples. Participatory monitoring includes follow-up to the commitments undertaken in the EIA, but, up to now, it has had no connection with the government's inspection process.



Peru



Participatory Environmental Monitoring Committee of Orcopampa, Orcopampa Mine

MINING CONTEXT

The mine began operation in 1967, extracting gold and silver through an underground operation. The Orcopampa mining unit is operated by Compañía de Minas Buenaventura.

MINING IMPACTS

The operation of the mine has occasionally impacted nearby bodies of water due to discharges from the tailings or from the concentrator plant. Likewise, there have been impacts due to the emission of particulate material from the operations inside the mine and the vehicles that pass through it. The change in land use has also brought loss of topsoil.



ORIGINS OF THE COMMITTEE

The committee was created in October 2010 on the basis of a tripartite agreement between the community, the company and the state during the operation phase of the mine. As part of the initiative, it was determined that the NGO Labor would support the tasks of the committee. The committee was composed of representatives of the communities, the irrigation commission and the local governments of the area. It was determined that the person occupying the mayor's office of Orcopampa would chair the committee.

MONITORING ACTIVITIES

The monitoring process focuses on the quality of surface water and carries out two sampling campaigns, one in the dry season and the other in the wet season. The protocol carried out by the state agency in charge of water management in the country, the National Water Authority, is followed for the entire process. There are two types of analysis: the one performed in the field that measures pH, dissolved oxygen, conductivity, temperature and flow; and that carried out in the laboratory that measures total solids, metals, fecal coliform counts, etc. The samples, as a general rule, are made upstream and downstream of the mining operation.

MONITORING OUTCOMES

The Orcopampa committee has moved beyond strictly mining-related issues, being instrumental in identifying the need for a sewage treatment plant. Furthermore, the committee has incorporated women and gender-related issues into its activities.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

The committee was convened on the basis of concerns within the population; thus, the prioritization of issues to be monitored and the design of the monitoring process are collaborative. The execution of the monitoring is external because technicians take the samples. Likewise, the follow-up is external because the results are interpreted by laboratories not linked to the committee or to the mining company. Nevertheless, the committee oversees both stages by attending the sampling and choosing which laboratory the samples are sent to. As the committee is chaired by the local authority, it has the support of the municipality. Also, with the passage of time, it has ensured that the regional office of the agency associated with water, the Local Water Authority, is also involved in monitoring.



Participatory Environmental Monitoring Committee of Mallay, Mallay Mine

MINING CONTEXT

The operation of this mine is carried out to obtain lead, zinc and silver through an underground operation. The mine went on-stream in 2012 and is also operated by Compañía de Minas Buenaventura.

MINING IMPACTS

The operation of the mine could affect the water due to accidental spills, although this has not yet happened. Another risk lies in hydrological effects due to the fact that the site of the mine could reduce the natural harvesting of water.

ORIGIN OF THE COMMITTEE

Similarly to Orcopampa, the committee was created in September 2011 on the basis of a tripartite agreement: community, company and state. The committee began its activities in the exploration phase of the project, at the initiative of the local farmer community. In this case, the committee was made up of inhabitants of the communities and by the mayor of the area. It counts on the Institute of Dialogue to provide technical support for the work of the committee.

MONITORING ACTIVITIES

The committee monitors the quality of the surface water, following the protocol of the National Water Agency with its field and laboratory analyses. Moreover, it carries out monitoring on two occasions (the rainy and dry seasons) and takes samples in two areas: upstream and downstream of the mine.

MONITORING OUTCOMES

Among its achievements, the Mallay committee has participated actively in the environmental strategic pillar of the Community Development Plan, thereby underscoring its importance as a key stakeholder in environmental issues. A further achievement is the incorporation of high school students into their monitoring campaigns, which brings the initiative closer to the younger generation.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

The call to organize the committee in this case was likewise collaborative, although the prioritization and design are chiefly incumbent upon parties external to the community. In the same way, the monitoring is done externally, although the committee supervises this process through the choice of the laboratory that will analyse the samples and review the values obtained. The sampling is performed collaboratively as the committee members as well as the technical experts take the samples. In the monitoring campaigns, the regional government and the Local Water Authority are invited as observers.



Unified Committee of the Caserío de Juprog, Chipta and Cinco Troncos, Antamina Project

MINING CONTEXT

The Antamina Project consists of an open-pit mine for the extraction of copper, zinc and molybdenum. This project is being implemented by the Antamina Mining Company, whose ownership is shared by BHP Billiton (33.75%), Glencore (33.75%), Teck (22.5%), and Mitsubishi (10%).

ORIGINS OF THE COMMITTEE

The committee traces its origins back to January 2012, at which time a dialogue was entered into between the company and social, governmental and private actors. This dialogue addressed the concerns and complaints of the community regarding possible environmental contamination and the presence of lead in their own blood. In the course of this dialogue, the creation of a participatory environmental monitoring committee was advised. However, initial attempts failed to bear fruit and not until September 2015 was the committee officially launched. This committee benefits from input from the National University of Santiago Antúnez de Mayolo de Ancash, in the role of technical secretariat.

MONITORING ACTIVITIES

The monitoring efforts of this committee revolve around the quality of water and air. For water quality, they follow the same protocol, analysis and frequencies as their Mallay and Orcopampa peers. To study air quality, a government protocol that analyses particulate matter and metals is followed.



MONITORING OUTCOMES

The Juprog committee has managed to enroll in state public registries, becoming the only case studied where an initiative is present in an official registry. In addition, the committee once successfully persuaded a state agency to discuss, as equals, why the results of the agency's monitoring and those found by the committee were different.

COMMITTEE, COMPANY AND GOVERNMENT INVOLVEMENT

The calls for committee organization and prioritization stages were done collaboratively. The design and follow-up are more externally-driven, but the committee supervises. Regarding prioritization, the committee channels the community's concerns to the company. As for follow-up, it is essential that the organization, in addition to working with the university laboratory, choose the external laboratory that will perform the analysis and receive the results of these tests. The sampling is done as a collaboration among the parties. In the monitoring activities of the Juprog Committee, the committee enjoys the support of the Local Water Authority as well as of the Environmental Assessment and Control Agency. This Agency also carries out its own monitoring actions within the zone.



4. Results according to each stage

4.1 Call and organize: Committees overcome a series of difficulties during their creation

Committees can arise before conflict episodes

Although some cases arose from declared conflict, e.g., demonstrations, sometimes violent (Juprog, Peru; Alumbreira, Argentina; Chilibre, Panama), the committees in most cases emerged prior to unresolved conflicts. This is not to say that the communities were or are free of concerns about mine operations, but only that the committees were able to address these concerns before they became more explicit manifestations of conflict.

Three committees emerged even before the operational stage. Of these committees, one emerged from the direct outreach that the company had with the indigenous community organized during the exploration phase (Mallay, Peru). The oth-

er committees arose as part of the commitments associated with the Environmental Impact Assessment process (Olaroz, Argentina; Donoso, Panama).

Other committees were created during the operational phase at the request of the community and with support from the company. This request was given as part of a broader dialogue, where one of the agreements resulted in the carrying-out of these monitoring initiatives (Alumbreira; Orcopampa, Peru). In these cases, the contributions of the local government and/or individuals who facilitated and promoted the initial conversations with the companies are particularly noteworthy.

The cases of Pocoata and Tupiza in Bolivia, rather than reflecting a conflict between the community and a company, reflect the idea that the organ-



A committee does not always work from the first attempt. In relation to **Antamina**, after a roundtable at which the authorities of various local governments, community leaders, the ministry of the environment and the company participated, a decision was made to set up a monitoring committee. However, the committee did not prosper. The committee studied at **Juprog** replaced the failed initiative, although it no longer includes all communities that participated at the outset.

ization can facilitate coordination with the state to solve historical environmental problems.

Committees have incorporated organizations already existing in the community

Whether with local government or concerned citizen organizations, initiatives are usually created from existing institutions.

In both cases of Panama, the associations managing water resources have been key participants. In Donoso, the Administrative Board of Rural Water Supply is a participant and manages the availability of water for human consumption in sectors with low population. In addition, the company reached out to head-of-household associations to get closer to the community. In Chilibre, the Sub-basin Advisory Councils associated with the Panama Canal Hydrographic Basin and a community association for the participatory management of the Chagres National Park both support the work.

In three other cases, the committees were created from existing organizations. In Alumbrera, the monitoring committee originated within the

framework of a dialogue between the company and the Federation of Environmental Organizations of Tucumán, whereas, in Orcopampa, the committee is chaired by the local government and has the participation of the local organization of irrigators. In Juprog, the situation is similar, since the committee was generated within a structure formed at the suggestion of the Association of Municipalities of Populated Centres of Huari.

In Bolivia, this phenomenon is more explicit. The committees studied are part of existing organizations, in the form of secretariats or subcommittees. In the Bolivian context, the community not only participates in their grass-roots and union organizations, but may also influence their local-municipal governments, which is not to say that the community always achieves its objectives, since other jurisdictions or resource problems may be involved.

The community-company relationship is not free of risks. For example, there is the possibility of disruptions within the organizations involved. In Alumbrera, a person who was engaged in talks with a mining company was excluded from some environmental organizations due to this participation. In Bolivia, one case reported that, following the intervention of an NGO that failed to work



in coordination with the existing organizations, conflicts arose due to lack of clarity about the fate of some equipment left by the NGO.

Monitoring becomes part of a broader strategy of the mining company for community interaction

In at least three of the cases studied, the companies, in addition to promoting participatory monitoring, have other mechanisms for participation and networking. This broader relationship creates a more favourable climate for the development of monitoring activities.

In the cases of Chilibre, Olaroz and Alumbrera, the companies have a programme that encourages local development. In Chilibre, the company has a “Community Development Centre”, in Olaroz it has a “Shared Value” programme and in Alumbrera it has an “Approach to Sustainable Communities”. Although these are not the same, the three programmes seek to promote inclusive production, education and entrepreneurship.

In Bolivia, this company-community relationship culminated where the company – the cooperative – is formed by members of the community. This does not mean that problems are made invisible; on the contrary, communities recognize that the very people who are sometimes affected by pollution work at other times in mining activities.

When created, the committees encounter logistics and communication difficulties inherent to rural settings

As the location of mineral deposits is usually found in areas with low populations, committees normally arise in rural areas.

Due to the geographical range of the possible impacts of the mining operation, the committees must coordinate multiple villages: 12 in Donoso; 10 in Olaroz; six in Orcopampa and three in Juprog. Even in committees with more urban participation, it is necessary to coordinate several cities (three in Alumbrera). Similarly, it is necessary to deal with jurisdictions of various local and regional governments.

The rural context and the geographical range of the potential impacts also generate logistical difficulties. These include long trips to the monitoring points or the need for accommodation for those who perform the monitoring. In turn, this translates into costs in terms of time and money, and even loss of working hours for those who participate in the monitoring.

Considering that personnel from companies and the state generally come from urban contexts, special care must be taken to recognize cultural differences with the communities where the projects are located. This becomes more important in those cases where these officials interact with indigenous communities. This, in turn, may involve special legislation such as ILO Convention 169.



In **Olaroz**, the monitoring takes seven days and happens every three months. This is one of the major obstacles facing the creation of a stable group of committee participants. This is reflected in the fact that participants must miss work days to carry out the monitoring.

There is important turnover that makes formalization and capacity-building difficult

In the cases studied, the number of people participating in the monitoring committees – without considering the cases of Bolivia, as they do not strictly correspond to monitoring committees – varies from six (Juprog) to 25 (Orcopampa). Among these figures, we find Mallay, with seven participants; Olaroz, where they fluctuate between five and eight; and Alumbraera, where the most stable group is composed of around 15 people. Usually, the committees incorporate more men than women (Alumbraera, Juprog), but there are also organizations with more equal composition (Olaroz, Orcopampa, Donoso, Chilibre, and Tupiza). In terms of age, there is no general rule either, although there is a tendency towards participants over 35 years of age (Mallay, Alumbraera).

Those who participate do so voluntarily. In Olaroz, the indigenous communities involved choose their representatives to become monitors in assemblies or by designation of the community authority. In the Peruvian cases, participants register themselves to participate when open-calls are made. In Tupiza, the two members of the Secretariat are elected in the general assembly of the Farmers Union.

Participants are concerned for the quality of the environment in their territory. In addition, participants see the committees as an opportunity to learn about environmental issues and receive formal training in the subject.

Regarding leadership and internal decision-making, assemblies are the more common way of reaching agreement, as in the Bolivian and Peruvian cases. In Donoso and Olaroz, internal decision-making is led by the mining companies, or their collaborators, in consultation with the participants and the community. In Alumbraera, the committee, at least in the beginning, worked deliberatively in an informal way. The leadership team was formed by a well-known environmental activist from the capital city, who usually convenes the committee, and one locally well-known activist from each of the three involved cities.

A difficulty identified by the committees of Olaroz, is ensuring the generation of a stable group of people who participate and securing their consequent professionalization. Further, in some cases, participants are starting to feel the consequences of burn-out. These challenges are related to the operational difficulties raised above, but also related to the effects that changes of elected authorities can have.



In **Mallay** and **Orcopampa**, the elected authorities of the municipalities are the chairs of the committee. Sometimes this generates problems because, when new municipal authorities are elected, the composition of the committee can also change.

Financing is a critical issue: due to its availability and due to the process required to obtain it

Monitoring requires financing to cover direct costs, such as travel, accommodation, equipment, transportation of samples, and analysis of laboratory samples. There are also indirect costs, such as loss of wages for days not worked. Frequently, committees do not have the resources to cover these costs. This leads to the question of whether they or others should pay for monitoring initiatives.

In this context, the availability of financing becomes crucial. In all cases studied, financing for direct costs comes from, or has come from, the company that is being monitored, although situations may have arisen in which additional funding for monitoring activities was desirable.

For some of the initiatives, the fact that the financing comes from the company generates sensitivities and suspicions. Related to the above, it is common for a large part of the community to be employed, directly or indirectly, by the company. Members of the communities are also linked to it through grants available for local development projects. This adds an additional layer of possible

suspicion that the community might have about monitoring. A contrasting example is the case of Pocoata in Bolivia, where miners and farmers are seen as a single group, as “agromineros”.





Indirect costs are borne by the participants who, in all cases studied, carry out their work voluntarily, quite apart from their day jobs or domestic chores. In the case of Olaroz, a state official expressed some concern about paying the people from the communities that perform monitoring, as this could lead to them perceiving themselves or being perceived as employees of the company

or the public sector, with the result that their independence could be called into question.

Finally, it is important to note that the lack of financing can also be a barrier to government participation. For example, in relation to the Olaroz project, the Ministry of the Environment had to issue a resolution obliging the companies to finance the expenses of their technicians. In Peru, a similar decree exists, but the committee must enroll ahead of time in a special national registry.

Table 2. Source of financing according to cost associated with monitoring.

	TRANSPORT AND FOOD	EQUIPMENT AND SAMPLING	LABS	EMPLOYMENT ABSENCES
Alumbrera, Argentina	costs paid directly by the company	costs paid directly by the company	costs paid for or managed by the committee	costs paid for or managed by the committee
Olaroz, Argentina	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party
Tupiza, Bolivia	costs paid for or managed by the committee	n/a or no information	costs paid for or managed by the committee	costs paid for or managed by the committee
Pocoata, Bolivia	costs paid for or managed by the committee	n/a or no information	costs paid for or managed by the committee	costs paid for or managed by the committee
Donoso, Panama	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party
Chilibre, Panama	costs indirectly met through a third party	costs paid directly by the company	costs paid directly by the company	costs indirectly met through a third party
Orcopampa, Peru	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party
Juprog, Peru	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party
Mallay, Peru	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party	costs indirectly met through a third party

-  costs paid directly by the company
-  costs indirectly met through a third party
-  costs paid for or managed by the committee
-  n/a or no information

Legislation presents opportunities for the creation of committees, but committees tend to work in informal ways

The strengthening of legislation on citizen participation and environmental standards in mining contexts creates opportunities for the committees.

Among the countries studied, Peru has the most specific legislation on participatory monitoring in mining contexts. The environmental oversight agencies have issued a regulation to govern citizen participation in environmental monitoring, as well as a regulation on transparency, access to public environmental information, and consultation in environmental matters. Finally, from the body associated with mining management, there is a Regulation to Govern Citizen Participation in

the Mining Subsector. Although the existence of these regulations enhances the creation and work of the committees, most of the data from the committees are not yet considered official and the committees are not yet legally formalized.

In Peru, the national water planning and management body has a specific protocol that committees can use to monitor the quality of surface water resources. Although in other countries there are also official standards, the committees do not readily declare that they use them.

Bolivia appears to give greater powers to communities. Although the possibility of creating monitoring committees is not made explicit, the legislation provides the possibility for communities to reject the installation of mining projects and allows for social control of the government, especially at the local level. Finally, the Bolivian



constitution recognizes the possibility for indigenous communities to use their traditional justice systems and autonomously regulate access to resources such as water, according to communal customs and practices.

Bolivia, Argentina, and Peru have ratified Convention 169 of the International Labour Organization. This agreement, although not directly related to participatory monitoring, is especially relevant because of the requirement to engage in free and informed prior consultations with indigenous communities regarding measures that may affect their territories or rights.

In Argentina, which has a federal government system, the two cases studied present different regional legislation. Although there is a national legal framework, each province may have specific legislation, provided that the national protection minimum standards are met. Nonetheless, the Alumbra mine is subject to a special regime that entails supervision from the national level. This has not been without controversy, because, in 2017, a state agency identified deficiencies in the supervision carried out by national and regional governments. The committee also comments that, although the company provides information to the state, the state does not always share it with its citizens.

Also in Argentina, the situation in the Olaroz project is mixed. On the one hand, there is controversy because the same government agency promotes mining activity and supervises it. On the other hand, there is recognition that the frequency of monitoring and citizen participation, due to the commitments acquired during the EIA, put this particular project on higher standards than the ones prescribed in the legislation.

In Panama, there are regulations that promote citizen participation during the process of EIAs and mining concessions. Additionally, a participation plan can be established as part of the EIA undertakings. This plan would then be an integral part of the implementation, monitoring and closure of the project. This option has triggered participatory monitoring in Donoso. Additionally, the legal framework establishes the installation of a basin committee for each basin in the country as well as an environmental advisory commission for each local and regional government in the country. The establishment of these committees and commissions includes public, private and civil society stakeholders.

Immersed in these policies and legislation, government plays different roles, from supervisors to companions. These different roles are discussed in [section 4.3](#) Monitoring and Communicating.

Table 3. Legal tools related to each monitoring experience

	ILO CONVENTION 169	COMMITMENTS FROM ENVIRONMENTAL IMPACT ASSESSMENTS	RECOGNITIONS OF ANCESTRAL CUSTOMS AND PRACTICES	BASIN GOVERNANCE SCHEMES	SPECIFIC LEGISLATION FOR PARTICIPATORY MONITORING IN MINING CONTEXTS
Alumbra, Argentina					
Olaroz, Argentina					
Tupiza, Bolivia					
Pocoata, Bolivia					
Donoso, Panama					
Chilibre, Panama					
Orcopampa, Peru	*				
Juprog, Peru	*				
Mallay, Peru	*				

*Not relevant but in place.



4.2 Prioritize and create a vision: It is important to build consensus regarding what is essential

Supervising mining operations is not the only objective of the committees

In addition to the natural objective of monitoring the possible impacts of the mining operation on the environment and on the lifestyles of their communities as a way to avoid such impacts, the committees pursue a diversity of other objectives.

For some committees, issues such as citizen participation, trust, and maintaining a constructive relationship with the company and the government are also important. Additionally, some committees seek to go further through awareness and education activities. Teaching about

environmental issues is not only directed at the communities, but also at the companies and governments themselves regarding mechanisms for participation and about the need to increase sensitivity to the concerns of the communities. The details on committees that explicitly declared other objectives are summarized in [Table 4](#).

In Chilibre and Donoso, Panama, although the participants do not recognize explicitly established objectives within the committees, it is acknowledged that a good committee must be transparent in its processes, clear about what is going to be monitored, generate information for the community as well as make provisions for participants' training.

Table 4. Summary of committees that reported objectives over and above environmental monitoring

	TRUST-BUILDING	ENHANCE PARTICIPATION	CREATE A CONSTRUCTIVE RELATIONSHIP	AWARENESS AND EDUCATION
Alumbrera, Argentina				
Donoso, Panama				
Orcopampa, Peru				
Juprog, Peru				
Mallay, Peru				

From their inception or once fully operational, the committees have considered it their duty to monitor all activities that could pollute the environment in their geographical area, and this concern transcends the operations of any given mining company. The committees in Juprog, Orcopampa, Alumbrera, and Chilibre recognize the importance

of considering the impacts of other economic activities, including those of the community. In this context, the committees are increasingly evolving into stakeholders that do not simply monitor, but also propose actions that affect other areas of community life, as discussed later in [section 4.4](#).



In **Mallay**, the goal of raising awareness and teaching is realized through the inclusion of secondary school students in the monitoring exercises.

Priorities usually are identified in a collaborative manner

The involvement of the committee is crucial in monitoring and gives it its participatory character. Those who convene the committee typically develop discussion forums to identify the general topics for review.

Dialogue platforms like roundtables for dialogue or discussion seem to be effective for these purposes. The examples of Alumbraera, Chilibre and Juprog show that the community can participate in the high-level design of what will be moni-

tored and how the group will work. The process to form a roundtable varies from case to case. In Alumbraera, two civil society leaders started the process by building trust among all actors. In Chilibre, the mining company soundly engaged with community organizations after protests erupted. In Juprog, the association of local governments led the process, although the company had to step forward to lead after the first monitoring arrangement did not work out. Now in Bolivia, Pocoata and Tupiza, there are community assemblies that work as a forum in which this high-level design typically takes place.



4.3 Monitoring and communicating: Monitoring is a complex endeavour

Generating participation in monitoring activities is possible

There is no single definition of participation, so, depending on the context, the resources of the communities and the receptiveness of the company and the state, the committee performs various tasks during monitoring. Sometimes, this includes the choice of monitoring methods, as well as the location and frequency of monitoring. Regarding where to monitor, in some cases, the decision is made predominantly by the company during each monitoring initiative or during the EIA process (Olaroz, Argentina, Orcopampa, Juprog and Mallay, Peru), predominantly by the committee (Donoso and Chilibre, Panama), or else the decision is adopted by agreement with the committee (Alumbrera, Argentina).

The cases of Panama present specific examples of this phenomenon. In Chilibre, the community actively participated in the identification of the places where it was most important to measure the level of vibrations. This work was extended for three months until reaching an agreement

on where the seismographs should be permanently installed. Once the planned monitoring was defined, the company presented communication channels that allowed the community to channel its concerns and enabled the company to develop unplanned monitoring accordingly. These communication channels continue to be used, allowing for the company and community's ongoing collaboration.

In Donoso, the points to be monitored are also defined collaboratively between the technical teams and the representatives of the community. Additionally, members of the communities, with the help of their cell phones, register and report environmental situations that come to their attention and that could be related to the mining operation.

In Tupiza, Bolivia, when carrying out autonomous monitoring, the Secretariat determines, based on its experience, the places and times where samples are to be taken. As in Chilibre, those affected can also communicate their complaints via cell phone to trigger on-site monitoring.



In **Olaroz**, a state official raised objections to the performance of participatory monitoring without the state:

- a. Monitoring is a state function and state responsibility,
- b. The technical complexity of environmental monitoring cannot be met through training to the community, and
- c. Monitoring is a job for experts, who can be independent from the government and the company.

Without judging the relevance of these arguments, it is noteworthy that there are cultural/subjective barriers for participation, from different sectors.

Committees monitor various environmental aspects

In general, the committees carry out their activities related to water quality; however, each initiative carries out this activity differently. The variety of approaches to the issue of what to monitor indicates that this is a complex decision, influenced by the context, which influences the protocol chosen to perform the monitoring.

In Peru, in the three cases studied, when analyzing the water quality, the protocol “monitoring the quality of surface water resources”, created by the state agency in charge of water management in the country, is followed. This helps ensure that the data obtained are perceived as legitimate. In particular, at Orcopampa, monitoring measures pH, dissolved oxygen, conductivity, temperature, flow, oils and fats, chemical oxygen demand, biochemical oxygen demand, anionic detergents, total suspended solids, metals, wad cyanide, as well as fecal and total coliform counts.

In the three Peruvian cases, specific equipment is needed to perform the measurements. In fact, the committee reports carrying two or three sets of equipment in case one set malfunctions. In Juprog, there is training in place so that the committee can manage the tools. Furthermore, they are acquiring their own equipment. In Orcopampa, one improvement is the use of newer devices that shorten the time in the field; in this case, the devices are owned by the mining company.

In the other countries, the monitoring procedures are designed by the company or by agreement between it and the committee. In Olaroz, the operative was designed by the company. Here, they do limnological analysis and physical and chemical analysis of surface water and of the saltern. In Alumbraera, the monitoring of the different aspects has been carried out by mutual agreement. The same has happened in Chilibre.

Another alternative is for the protocol to be designed by a third party. This is the case in Donoso, where the consultants from Avanzar are in charge of monitoring and a local university established a protocol based on international standards.

A hybrid approach is found in Tupiza, Bolivia, where, pursuant to a protocol designed by Agua Sustentable, an NGO third party, the community determines its own procedure. Agua Sustentable trained the community in how to read the acidity of water through the use of violet paper. After this intervention, the community learned to find equivalencies between simple visual readings

and the indications revealed by the violet paper. When there was no more violet paper left, the community continued to monitor based on the bioindicators already identified.

In terms of the specific locations to be monitored, in the three cases of Peru, sampling is done upstream and downstream from mining operations. In Olaroz, different zones of the basin are monitored. On the other hand, in Alumbraera, different locations of the project are measured, with an emphasis on the pipeline, and, on one occasion, the water quality was studied at points in the urban drinking water network.

With regard to timing, monitoring in Alumbraera is carried out periodically according to risk factors, such as climatic situations or human intervention, that are foreseen. In Olaroz, monitoring is carried out periodically every three months. In the three cases in Peru, a monitoring exercise is carried out every six months: one in the dry season and another in the rainy season. In Chilibre, monitoring is carried out in a planned but also periodic way.

Although the focus of the cases studied is on water quality, several committees measure other aspects. In Chilibre, they measure suspended dust, vibrations, noise and the speed of vehicles. Specifically, vibrations are measured by seismographs installed by the company. In Juprog, Alumbraera and Olaroz, in addition to water quality, they measure air quality. In Olaroz, they measure noise and the state of flora and fauna.



Participation in the sampling is crucial

In all cases reviewed, the taking of samples and their transportation are key for the committees. The committee participates actively in them or at least supervises the process.

Two of the three Peruvian committees participate in the formal sampling process. In the other committees studied, the participants supervise the sampling carried out by the technicians of the secretariat or the mining company. In Donoso, the transport of the sample is also monitored from its collection until it is sent to the analysis laboratory. In Tupiza, although the sample is taken by people from the community itself, many residents who live in the vicinity comes to observe the process.

In the three Peruvian cases and one Panamanian example, the laboratories that analyse the

samples have been chosen by the committee. In Donoso, people work with an international laboratory, while, in Peru, people work with national laboratories. In Peru, upon request of the committees, different laboratories were selected. Further, at times, the committee decided to change to a different laboratory to analyse samples.

Regarding the choice of laboratories, the situation in Argentina is different. In Olaroz, the laboratories are chosen by the company and neither those who participate from the community nor the government would have the financial capacity or the opportunity to work with other laboratories. In the wake of a new government resolution in 2018, the company has been responsible for financing the monitoring, transfer and analysis of samples and countersamples requested or carried out by the environmental authority. In Alumbraera, the links with laboratories have been informal, based on financial and logistical resources as well as personal contacts.



In **Olaroz**, after the monitoring in May 2018, the participants presented a formal demand to increase the rigor and comparability of the monitoring. In September 2018, the company stated its intention to resolve the situation and is working together with the University of Jujuy on the design of a training programme for community monitors.

Technical assistance is essential

The communities know their region well and, in many cases, are able to quickly identify changes in the water or in the environment in general. However, they typically lack the technical knowledge required to perform a water quality analysis that is valid for other partners. Specifically, the technical assistance to the committees gives them this legitimization.

In Peru, the three committees explicitly recognize this assistance role by establishing a technical secretariat, external to the community but possessing the required scientific knowledge. These secretariats advise the Chair of the Committee, communicate information to and from the state

and the company, prepare the annual work plan, carry out training. The secretariat supports the committee with communicating about upcoming monitoring exercises or assembly meetings, and generates dissemination materials to the community, among other tasks. Two of the secretariats are led by NGOs, while, in the remaining case, the position is held by a university.

In Argentina and in Donoso, Panama, external entities support the committees. At Donoso, the main support is delivered by a company that was hired by the mining company to design and implement the committee. After four years of work, the company has been scaling back its efforts in order to delegate its functions to the committee and a local university.



In **Donoso**, before Avanzar took on the role of technical secretariat, another organization led the process on behalf of the mining company. However, that organization was unable to forge a relationship with the community based on trust, as it was not considered to be transparent in the process.

Table 5. Type of technical secretariat by case study

	UNIVERSITY	NGO	PRIVATE FIRM	NO EXTERNAL SECRETARIAT
Alumbrera, Argentina				
Olaroz, Argentina				
Tupiza, Bolivia				
Pocoata, Bolivia				
Donoso, Panama				
Chilibre, Panama				
Orcopampa, Peru				
Juprog, Peru				
Mallay, Peru				

Communication with their communities and monitored company is present but with an informal component

The committees recognize the importance of fluid and open communication between them and the company and between them and the communities they represent. It is vital to achieve great progress in both directions: committee-company and committee-community. In the first direction, the committees manage to articulate their concerns to the companies, although they feel that the companies do not always have the skills to listen to them or the willingness to answer. In some cases, good communication between committees and companies turn the former into an early warning system for themselves and the companies. More of this is discussed in [section 4.4](#) Follow-up.

In the second direction (e.g., committee-community), the committees convey the results to their communities, yet they identify space for im-

provements. In Peru, the three committees have a communication strategy carried out by the technical secretariat. Based on this strategy, the results are communicated to their communities through brochures or other dissemination materials prepared by the secretariats. However, during the Regional Workshop, participants pointed out that there was room for innovative ways to make the information easier to understand.

In Alumbrera, there are no reports or publications containing the results of the monitoring; rather, the results are sent informally between the members of the committee and the company. Similarly, in Olaroz, monitors are responsible for informally transmitting what happened during the monitoring to their communities. In this case, although the official technical reports resulting from the monitoring are available within the state, the communities usually do not use them because they do not fully understand them.

In both cases from Bolivia, the community assemblies are the forum where the various findings are

discussed and presented. In parallel, the alliance with the local radio Pío XII in Pocoata is the medium for delivering information and publicly making complaints.

In Donoso, monitoring results are available in printed and digital formats. Furthermore, the full report is available to the committee, while an executive summary is made for the communities. In Chilibre, the committee disseminates information in a participatory manner through the working groups.

During the Regional Workshop, the transmission of the results was identified as a key problem that the committees must resolve. This is a challenge because an effective method must be identified so that the process and the results of the monitoring are understood by all the interested persons. One discussion revealed that committees appreciate where companies had established effective forms of communication, however, some companies are still weak and could benefit from strengthening their communication process for monitoring results.



In **Bolivia**, the assemblies are a forum for the communities, sometimes lasting for more than one day. The assemblies require people to move to the meeting place, commonly a school, where they not only participate in the assembly, but also help prepare food for the group.

Committees coordinate with the government, albeit in an informal and fragile way

While several committees indicate that they would like to have greater involvement from state authorities, there currently is governmental presence, albeit an informal and irregular one.

For specific issues, the government recognizes the committees as relevant actors. In Alumbraera, the monitoring committee is consulted by provincial authorities concerned with socio-environmental issues. This more fluid relationship is the result of the early involvement, as an observer, of the provincial government during the formation of the committee and in the initial meetings with the company. In Juprog, the committee has been summoned to a roundtable to discuss the creation of health plans in the area. In Mallay, the committee actively participated in the construction of the strategic environmental pillar of the Community Development Plan.

In the three committees of Peru, officials of environmental government agencies are present. Although this could imply state validation of the results, the committees do not officially have formal validation. Only Juprog is in an official registry in which the state recognizes its existence. In

the Peruvian cases, the relationship is more fluid with regional and local governments, rather than with national authorities.

Although it does not have a proper committee, Olaroz is the only instance where monitoring is considered official by authorities. In this case, the oversight authorities supervise the process and keep the results; in addition, they can object to the results. This official status of the committee was established because the EIA process resulted in a mandatory participatory monitoring initiative.

In Peru, Panama and Alumbraera, the authorities carry out additional official monitoring in parallel with the monitoring of the committees. These monitoring exercises frequently, but not always, are open to the community.

Another form of coordination between the committees and the state is the incorporation of local governments as members. The committees of Pocoata and Tupiza in Bolivia and of Orcopampa and Mallay in Peru use this approach.





At the outset in **Pocoata**, the mayor of one community and the deputy mayor of another were the leaders of the committee. However, after seeing that their performance had not been effective and was not aligned with the objectives of the assembly, the community changed the committee's leadership. Now, the municipalities continue to participate as institutions, but their executives are no longer committee leaders.

Table 6. Specific roles that governments are playing in participatory monitoring

	CONVENES THE COMMITTEE TO DISCUSS VARIOUS TOPICS (NOT MONITORING)	PROVIDES AN OFFICIAL REGISTRY FOR COMMITTEES	SUPERVISES THE MONITORING EFFORTS	CARRIES OUT THEIR OWN MONITORING	IS A MEMBER OF THE COMMITTEE
Alumbrera, Argentina	R			N	
Olaroz, Argentina			R		
Tupiza, Bolivia					L
Pocoata, Bolivia					L
Donoso, Panama				N	
Chilibre, Panama				N	
Orcopampa, Peru				R	L
Juprog, Peru	R	N		R	
Mallay, Peru	L			R	L

R - Regional level of government involvement

N - National level of government involvement

L - Local level of government involvement



4.4 Follow-up: Although still developing, committees are increasing their impacts over time

Monitoring activities do not always have a baseline with which to compare

Once the values for water quality parameters have been obtained, either independently by the committee or through a specialized laboratory, they should be compared against some standard in order to transform the data into relevant information.

In Peru, the Orcopampa, Mallay and Juprog committees use the permissible limits for water and environment set by the relevant government agencies. In Alumbraera, Argentina, the committee recognizes that it does not have the technical capabilities to analyse the results, even while be-

ing able to point to people with technical studies within the group.

Regarding the use of baselines, they would not be available for several projects and thus are not used. In Alumbraera, the government entities explain that, at the time the project was initiated, there were only isolated studies and non-systematized data. This fact shows the great effort necessary to address the supervision of mining megaprojects. In the Peruvian cases, the committees are unaware of the existence of this baseline and do not have the results of the respective EIA, although the companies do state that this information exists.



In **Donoso**, the Defenders of Water Resource are building a water quality database, prior to mining operations, to be used in future comparisons.

Monitoring also generates information about other sources of pollution

Although the committees in general are created to monitor a particular mining company, it has been identified in some cases that there is pollution originating from other sources.

In Alumbraera, through talks and training, agroindustry and household waste were identified as potential sources of pollution. Moreover, the committee initially identified the use of cyanide as a risk, but subsequent observation has determined that this reagent is not used in the operation.

In Orcopampa, the committee's work helped to determine the need for a treatment plant for the city's wastewaters and further found that these wastes formed a major part of the pollution of water courses.

In Chilibre, Panama, following a complaint filed by the community, it was found that the observed change in water coloration was due to contamination by waste waters and had not been caused by mining activity.

Monitoring has a positive impact on mining operation

In Argentina, Panama and Bolivia, the committees have justified their work by identifying problems that the mining companies have subsequently had to correct.

In Argentina, in the case of Alumbraera, the company acknowledged that, with respect to the pipeline, it has adopted the committee's suggestions. For example, it deepened a segment of the mine pipeline and launched a climatological early warning system. On the other hand, the moni-

tors in Olaroz have had an impact at least on how future monitoring will be carried out: in a more standardized way and with stricter protocols.

In Donoso and Chilibre, Panama, tangible improvements have been elicited from the situations identified during the process. For example, in Chilibre, explosive loads for blasting and traffic are better managed. In this case, quarterly meetings analyse the progress of mitigation measures and discuss emergency situations. Meanwhile, in Donoso, better control of vehicle speed and the risk of spills has been achieved.

Finally, in Tupiza, Bolivia, following complaints from the community, it was determined in the course of meetings that a mining company should upgrade its facilities to reduce the risks of pollution. The Secretariat managed to reach out to the government entities that moved the

company to carry out the required actions. The community used not only dialogue, but also demonstrations, such as blockades of the streets. Specifically, in Latin America, it has been reported that organizations, even when they are in talks with the state, assert their autonomy and threaten confrontation, based on their experience that has shown them that different forms of action are necessary to reach their objectives (Bebbington, Delamaza & Villar, 2004).

Another episode in which the contribution of the committees is observed occurred in Tupiza. Through monitoring, it was identified that a company in the process of obtaining its license to operate was illegally exploiting gold. After this, and in the framework of the process for prior consultation, the community rejected the venture. This decision was endorsed by the state.



Committees become an early-warning system to the companies and the community

In most committees, in addition to the formal role during the monitoring campaign itself, the participants permanently monitor any anomalous situation and issue appropriate warnings to the company or the government. Specifically, the committees also become recipients of the concerns of their communities and channel them to the outside world.

In Chilibre, Alumbraera and Donoso, the committees use the established communication channels to make the company aware of the risks they perceive or the situations they observe. In Alumbraera and Chilibre, they revert directly to the company, while, in Donoso they convey messages through the technical secretariat, which handles concerns vis-à-vis the company. This does not rule out the possibility of the community also directly addressing the relevant authority. Indeed, this happened in Chilibre with respect to a change in the coloration of a river, which turned out to be a consequence of sewage.

Trust: a prerequisite and an outcome of the process

Among the outcomes most valued by the committees is the creation of a more stable and more reliable link with companies.

In Alumbraera, the committee feels that, in order to achieve this link, it was crucial that they needed to maintain the same contact person within the company during the entire working time of the committee. Consistently maintaining a person from the beginning to the end allowed for continuity and trust-building. Of course, this does not necessarily mean that committee members have no further reservations about the possible impacts of mining or about the actual capacity of the state to control the associated risks.

In Peru, although the committees have been functioning for some time, there is a similar dynamic. A constant effort is necessary to maintain and increase trust between the parties regarding the monitoring process and its results. On the one hand, some members of the community may continue to perceive pollution from the mine, while, on the other hand, some companies may conclude that the leaders will oppose the mining projects despite the absence of any tangible evidence against such projects.

In Donoso, as already mentioned, the first attempt to carry out a monitoring committee was cut short due to a lack of trust in the technical secretariat.



In **Alumbraera**, the university has a percentage stake in the ownership of the mine, which sometimes generates a climate of distrust.

The committees, while recognizing themselves as a work in progress, nonetheless feel that they have achieved their objectives

The committees recognize that they would like to expand the monitored parameters: for example, to analyse soil, air or groundwater. In addition, for surface water, they would like to consider flow analysis, a greater number of monitored sites, and a greater frequency of sampling, all done on a more regular basis. However, those who participate in the committees perceive their work as successful initiatives.

One reason for this feeling of success is that several of the cases studied have resulted in the company addressing specific events or risks (Alumbrera, Chilibre, Donoso).

Similarly, the committees recognize that, although they have not influenced the structural policies that affect them directly, there have been some successes in this respect. These include promoting greater access to information, and participation and dissemination of environmental issues that concern the community. It can be concluded that, beyond the creation of a mechanism according to a pre-set model, the committees do make it possible to generate a continuous dynamic of democratization at the local level that increases the relative impact of traditionally excluded sectors (Bebbington et al., 2004).

4.5 Learning, a crucial component at each stage

Learn to make decisions and lead

None of the cases studied included training prior to the establishment of the committees. Therefore, the participation of the committees in the design of the monitoring, if any, was based on the daily knowledge they had of their own environment.

Over time, committees tend to increase their influence on the design and execution of monitoring. The cases of differences of opinion with governmental entities in Juprog, Peru; of complaints from the monitors of Olaroz, Argentina; and of the change of technical secretariat in Donoso, Panama, are proof that the committees learn relevant knowledge over time. Not only do they learn, they use it to increase their impact in the process.

Specifically, the committees also seek training in environmental issues such as solid waste management and natural resource management (Juprog) or water chlorination (Donoso).

Closely related to the above, the committees in Orcopampa, Mallay and Juprog in Peru manage training to increase their leadership capacity. In particular, training has been conducted in community relations management and resolution of socio-environmental conflicts, strategic planning, leadership and citizen participation.

During the Regional Workshop, the need to train committee members in conflict resolution and leadership was strongly emphasized.



In **Juprog**, on one occasion, there were discrepancies between the results of official monitoring and the findings of the committee. The situation was tense, but it was possible to resolve it through a roundtable with the authority in which the state agency agreed to improve its procedure and to be more transparent in its dealings with them.

Learning how to trust and communicate

The committees emphasize that, to increase their trust in the process and enhance the trust of their community, it is important to learn more about the technical aspects necessary for monitoring. This would allow for achieving technical autonomy, that is, achieving a stage of development where a technical secretariat outside the community is no longer necessary.

For example, in Olaroz, some community members believe that if you do not understand the technical concepts, but you participate anyway, you could legitimize results that you do not understand.

In Alumbra, Argentina, the mining company acknowledged that it has also had to learn. The work with the committee meant that the company had to learn to design and open collaborative settings to make the initiative possible. However, there is still much to learn. The same company comments on how difficult it has been to convey the value of working with the committee to the company as a whole.

Specifically, during the Regional Workshop, the participants of the committees expressed their desire that the companies should learn to communicate in a better way with the communities, which implies using a common language and not a technical one. Using the language of the community would also bring the benefit of motivating the community to participate more actively in monitoring. On the downside, they noted that sometimes the companies abandon the dialogues unilaterally, which damages trust.

Learning for monitoring

Regarding specific technical knowledge, the committees receive various training activities during their operation, although not all committees received training (Chilibre, Panama; Pocoata, Bolivia). In Peru, the training is carried out by the technical secretariat. In the other countries, the training is carried out by the company (Alumbra), universities in agreement with the company (Olaroz, Donoso) or NGOs (Alumbra; Tupiza, Bolivia).

In Peru, where the training activities were more formalized, the following topics, among others, have been touched upon: water sampling techniques and associated protocols, as well as environmental legislation. The training activities have been complemented with guided visits inside specialized laboratories and inside the mining companies.

In Peru, as there are a greater number of participatory monitoring initiatives, visits to other committees have been used as a learning tool. In Juprog, for example, the members of the committee carry out an internship to another committee, at least once a year. Similarly, there are also national or regional conferences where the committees share their experiences.

In Alumbra, although they recognize the value of the training carried out prior to the monitoring, the interviewees mention that these classes could be carried out more regularly to consolidate knowledge more effectively. In Olaroz, there have also been training activities on the taking of samples, but, due to the turnover of participants, such knowledge has not been taking root. Even so, there was an occasion when Olaroz participants visited the local university to learn about the handling and treatment of samples.

During the Regional Workshop, the experiences that the members of the monitoring committees have had in the visits to the mine sites were positively highlighted.



In **Tupiza**, the training activities carried out by the NGO Agua Sostenible in the study of the acidity of the water were quite effective inasmuch as, following the departure of the NGO, the monitors were able to continue to perform this work.

5. Recommendations based on promising practices

5.1 Suggestions to the committees for their strengthening: Gender equality, networking, and formalization

Deepen inclusion, particularly equal participation by men and women

As any participatory instance, a monitoring committee should be wary in reproducing the usual patterns of exclusion. Committees should have groups like youth, indigenous peoples, and women present. Regarding youth, promising practices like involving high school students in monitoring campaigns (Mallay, Perú) may be replicated. Regarding indigenous peoples, it was outside of the scope of this report, but it is important to point out that four out of nine of our cases involve indigenous communities.

Only in one case have there been concerted efforts to incorporate more women into the work of the committee (Orcopampa, Peru). These efforts have led to training sessions that focus on gender issues and to concrete actions that facilitate women's participation. Bear in mind, however, that not simply a balanced number of women and men on the committee matters; rather, it is also important

to achieve parity at the leadership level, in the decision-making process, and in the various roles. Even when there are no concerted efforts to achieve a certain outcome, contextual issues can facilitate or hinder the participation of women. In Alumbraera and Olaroz, Argentina, women have broad participation and, although not in the same proportion as men, have reached leadership positions. This occurs in a context where there is also strong female representation in the state and in companies, albeit not at full parity.

In the same vein and with reference to Tupiza and Pocoata in Bolivia, the Andean worldview would include the complementarity between man and woman in the concept of *chacha warmi*⁷. The equal presence of women at the management level and in assemblies in the case of Tupiza would reflect the above values. The Bolivian legislation and regulations present guidelines in the same direction. Similarly, in Chilibre and Donoso, Panama, the division of tasks in rural contexts would allow for greater female participation in monitoring committees.

7 The reference to this indigenous concept is based on the country report from Bolivia and is not intended to impose a specific meaning. The authors of this report do not have knowledge of this concept, but include it as a reference that the reader can use to explore the subject in greater depth.



In contrast, the role of women in some places is restricted to domestic work, or domestic roles are forced to take precedence over volunteer work such as monitoring. Similarly, in some contexts, community leadership environments are understood, sometimes explicitly, as a male bastion.

Get involved in other participation spaces and/or with other stakeholders

The committees value their participation in other dialogue spaces, which underscores the importance of these multi-stakeholder partnerships.

Complementing the institutionalization of the committees, participation in other structures highlights the importance of their role and enables them to coordinate more effectively with local decision-making mechanisms. The cases of the participation of Juprog (Peru) in the health plans, of Mallay in the plans of communal development, and of Alumbra in environmental issues, show that the opinions of the committee may extend well beyond issues that are strictly related to monitoring.

The cases of Bolivia can serve as examples because the Secretariat studied in Tupiza and the Committee in Pocoata *do constitute* other instances of participation. Specifically, the Secretariat and the Committee are part of the unions in the area, in which various issues relevant to the communities are discussed, other authorities are invited, and decisions are taken that become binding upon the community.

It was noted during the Regional Workshop that interacting with universities can be very useful as a way to design technical solutions and to ensure that those who participate in the committees can receive training.

At all events, those who serve on the committees must balance their volunteer work with their daily tasks and therefore cannot be asked to take on too many roles.

Formalize internal processes, including communications

The country reports and the Regional Workshop participants agree in recommending that the committees should formalize their processes. The crucial thing would be to have “protocols”, “manuals” and/or “permanent training” to standardize the processes of analysis and sampling.

It is also recommended to include the formalization of the processes of accountability, transparency and communication during and after the monitoring activities. Such an approach is designed to be not only mindful of the community, but also responsive to the companies and authorities involved.

On one hand, it is natural to leave the formalization of their processes to the committees themselves, but this formalization process should not be seen in isolation from the socio-cultural and legal contexts. An important part of the formalization process also has to do with the institutionalization of the committees. To achieve this objective, it can be useful to identify a specific contact agency within the state; similarly, it can be useful, too, that the state define a specific role for the committees within the environmental governance.

On the other hand, formalizing the processes may involve highly technical issues, such as sampling protocols, the implementation of quality assurance processes, and sophisticated data management systems, that can require the involvement of other actors like governments, companies and universities. Nonetheless, committees can start the process by identifying areas in which they need more support, with which stakeholders it would be beneficial for them to interact with, and in which other areas it would be vital for them to maintain their autonomy and pertinence to their specific context.



5.2 Recommendations for the state to strengthen committees: Expand the mechanisms for participation, provide training, and listen attentively, especially to monitoring results

Incorporate participatory monitoring into legal and existing mechanisms, such as environmental impact assessments

In the Regional Workshop, one of the three critical challenges identified had to do with the institutionalization of the committees. The challenge lies in creating effective and efficient legal frameworks to ensure citizen participation in the supervision of mining ventures. This would entail defining how the committees operate and specifying the responsibilities of all the participants.

In Donoso, Panama, and Olaroz, Argentina, participatory monitoring was incorporated as a result of the companies' EIAs. Although more could be done to institutionalize the committees in both cases, the fact that participatory monitoring is a legal requirement seems to have helped ensure the frequency and consistency of the monitoring process and to have helped secure funding from the company.

Specifically in Olaroz, the fact that monitoring is tied in with the EIA allows state officials to comment on the performance of the monitoring process and thereby to enhance the transparency of this process and its impact on decision-making.

According to discussions at the Regional Workshop, it is key for committees to be institutionalized. Participants presented their expectation that, if the state institutionalizes the committees, the following benefits will be achieved: higher levels of financing and a greater impact on the decision-making that affects the companies. The participants perceive that institutionalized committees could even receive part of the royalties and taxes paid by the companies in order to finance the monitoring campaigns. According to the opinion of the participants, institutionalization would allow for more effective management of demands, opportunities and possible com-

plaints. It would even allow for monitoring of the verification measures that the state carries out, to ensure that the agreed measures are effectively performed. However, there is a perceived risk that greater centralization and institutionalization could decrease contact with the general public.

Provide training and establish guides for the various aspects of monitoring

The existence of a protocol to study water quality that the committees can then invoke appears to have been helpful in Peru. In particular, this makes it possible to standardize language across different committees and also improves the perceived validity of the data.

The suggestion to create such protocols, or manuals, was a conclusion of the field work carried out in Panama. Although not explicitly addressed, the problems in the monitoring procedure in Olaroz (Argentina) indicate the same need.

The protocol guides should not only include environmental issues, but also address such issues as leadership, constructive communication throughout the monitoring process and effective communication of results.

These guides can form the first step towards greater involvement of governments in the training of committees. Participants at the Regional Workshop highlighted the importance of regular training for them, the companies and even the government. The training that committees highlighted had to be innovative in terms of being accessible and meaningful to committees, which usually come from a different context than urban governments' officials.



Listen actively, especially to monitoring results

In only one of the cases, the results of participatory monitoring are reviewed by a state agency. During the Regional Workshop, committees emphasized that making others, especially the government, use their data was one of their greater challenges. Nonetheless, in all cases, committees positively valued the participation of the authorities, however limited that may be.

In Peru, the environmental and mining control authorities are invited to participate in monitoring campaigns. In Alumbraera, Argentina, the

authorities are invited to the meetings that the committee holds with the mining company. In Bolivia, they are invited to discuss potential solutions. One may infer that these initial efforts to engage in dialogue are a first step towards greater trust and a more firmly established institutional role for the committees.

In any case, empowering the monitoring committees does not obviate the fact that the states have specific roles to play in the supervision of mining operations and in the protection of the society and the environment.



5.3 Recommendations for mining companies to strengthen committees: timely response, transparent funding, and shared decision-making regarding monitoring

Continue giving timely, clear and transparent responses

The committees especially value the ability of companies to meet the demands resulting from the monitoring exercises.

The cases of Alumbraera and Olaroz, in Argentina, Tupiza, in Bolivia, and Chilibre, in Panama, show that it is possible for mining companies to respond tangibly and effectively to community demands, without adversely affecting the mining operation.

The opposite outcome was also experienced by some committees. The Peruvian committees concluded that one difficulty encountered in planning is that their communities might not see adequate implementation of corrective or precautionary measures requested from the company. In Tupiza, the community's request for infrastructure improvements was accompanied by road closures. Therefore, some communities ex-

perience a disconnect between the seriousness of their concerns and the quality and timeliness of the responses. Specifically, despite the success stories, several communities would prefer to see greater transparency and responsiveness from the companies.

Monitoring is not an end in itself. The ultimate goal is to take care of the quality of the environment. Thus, it makes no sense to carry out a monitoring exercise that disregards any negative results that are found. Specifically, the nine cases studied show that the mining companies involved in participatory monitoring activities actually do appear to be addressing the issues encountered. This is a promising development, since the companies appear to be moving beyond the types of situations previously reported in Latin America, where extensive delays in environmental improvements became one way of exerting control over communities that suffer from pollution (Auyero, 2018).



In **Chilibre**, during the coordination meetings, discussions do not merely focus on mitigation measures, but also include reporting status on exploitation.

Ensure that financing is stable, without strings attached, and transparent

Perhaps one of the most contentious aspects in the performance of the committees is financing. In a context of states without sufficient resources, as perceived by the committees, the financing for the monitoring usually comes directly or indirectly from the mining companies.

During the Regional Workshop, the power to generate financing that guarantees the sustainability and independence of the committees was identified as a critical challenge. Specifically, during the event, participants emphasized the need to generate creative mechanisms and arrangements that allow committees, companies and states to design economic strategies to cover the expenses of the committees.

If a mining company provides financing, it should, as a first step to allay the suspicions of the community, seek arrangements that enhance transparency and, broaden the autonomy of the committee. The case of Donoso is a promising example of how the company can delegate to a third party the management of available funds as a way to generate transparency. Specifically, the blind trust mechanism emerges as a case in point.

A basic aspect for any arrangement that the company and the committee can design is that it must be transparent and responsive to the community. In practice, this means that the community must at least know and understand the financing mechanism. Furthermore, it would be desirable for the community to agree with it.

A more long-term step is to look for mechanisms that allow committees to receive funding from other sources, for example, from international aid or, as already mentioned, from existing specific taxes.

Shared decision-making regarding monitoring

It is important for the communities that the committees participate in the selection of the laboratories and professionals with whom they will work. Companies can be open to this concern and make it part of their work agreement with the committee.

In this sense, the committee participation in the overall design of the monitoring scheme seems important, too. [Section 6.2](#) discusses this in more detail.



5.4 Recommendations for the international community: support the knowledge exchange, foster trust, and include participatory monitoring in the global SDGs effort

Support network building and knowledge exchange

For committees, mining companies and governments, to walk towards strengthened participatory environmental monitoring will translate into learning new skills like inclusive leadership, inclusive communication, and inclusive policies. This can be boosted by providing forums, communication networks, and knowledge products specific for each actor.

For example, at the Regional Workshop, participants valued the opportunity to learn from people from different environments but with the same concerns and objectives. Further, at this workshop, UNDP, CIRDI and their partners brought academic experts who provided meaningful theoretical knowledge. This report is another example of how the international community can boost learning by producing specific knowledge products, based on needs identified by communities, governments and companies.

Foster trust among different stakeholders

The international community and its organizations can use their reputations to convene dialogue between different actors. UN agencies, including UNDP, can adopt an approach to supporting monitoring committees that has been effective in other areas of the organizations' work: supporting multi-stakeholder dialogue processes as a tool to build consensus, navigating natural resource-related conflict. UNDP has helped generate the conditions for meaningful dialogue and for supporting governments to build the neces-

sary institutional framework to convene and lead multi-stakeholder dialogue.

For example, UNDP worked with a Peruvian government agency to create a dialogue space to address a complex oil dispute in the Peruvian Amazon. In this area, affected by poverty and a weak state presence, oil production had caused serious damage to the environment and the effect on human health was a concern. The state had not remediated damages caused by company oil spills and poor practice by some companies, leading to deep distrust between the communities and the state. Communities' unmet demands led social organizations to organize and carry out protests from 2006 onwards.

The Peruvian Government created the National Office of Dialogue and Sustainability (ONDS) in 2012 to analyse and address conflict driven by the extractive sector in Peru, focusing on dialogue to transform conflict and to ensure that public policy more effectively addresses social conflicts. Today, the function and mandate of ONDS are carried out by the Vice Ministry of Territorial Governance.

In this case, UNDP supported ONDS, helping to create conditions for dialogue to address the oil dispute, including building the capacity of the parties to participate. The parties' view of UNDP as an impartial organization proved an important factor in motivating them to engage. After 10 months of dialogue in 2014-2015, agreements were signed. One of these agreements established a UNDP-led Independent Technical Report to guide environmental remediation in the region, which is currently being carried out and jointly monitored by the community⁸.

8 See United Nations Development Programme (UNDP), 'Dialogue and governance of natural resources in Peru: 24 representative breakthroughs' (2016); United Nations Development Programme Peru (PNUD Peru), 'Vigilantes de la Amazonia' (June 11th, 2018); United Nations Development Programme Peru (PNUD Peru), 'Un Acuerdo Por La Amazonia' (March 19th, 2018).



This UNDP capacity can be put to work for participatory monitoring committees to build ongoing institutional dialogue spaces.

Include participatory monitoring in the global SDGs effort

As discussed next in [section 6.1](#), monitoring committees advance the SDGs. Keeping in mind that the SDGs are a global endeavour, it is important that committees, mining companies, and governments remember that they are not alone and that their successes benefit all of us. Identifying with the big picture, committees can draw

lessons from other experiences that add to the SDGs, even if they are related to other industries or contexts. Further, they can assign meaning to their work by seeing themselves reflected in the struggles and successes of others.

International agencies that work towards the SDGs seem the perfect fit for staging participatory environmental committees globally. They have the knowledge base, the connections and the resources to help those actors involved in participatory monitoring engage with and grow from the global SDGs ecosystem.



5.5 Summary of recommendations

SHORT-TERM AND MEDIUM-TERM RECOMMENDATIONS

FOR DETAILS, REFER TO SECTION 5

SUGGESTIONS FOR THE COMMITTEES

RECOMMENDATIONS FOR MINING COMPANIES

GOVERNANCE



DEEPEN INCLUSION

- Monitoring committees must not reproduce the usual patterns of exclusion. It is important to include youth, indigenous peoples, and women.
- Some cases have shown the importance and effectiveness of working towards gender equity in committee participation to enable oversight by the whole community. This means seeking gender equality in terms of participation, leadership composition, and the decision-making process.

FORMALIZE MANAGEMENT

- The committees have room to standardize and formalize their management and communications.

RESPOND IN A TIMELY MANNER

- Companies can deliver a timely, clear, and transparent response to the committees' monitoring results.

SHARE DECISION-MAKING REGARDING MONITORING

- Committees should participate in the selection of the laboratory and the professionals that they will work with.

MAKE FUNDING MORE TRANSPARENT

- Typically, mining companies will finance the committees. Although other sources of financing may be available, company funds should be delivered to the committees stably and transparently, without strings attached. This will enable the committees to plan and to build the trust of their communities. Financial trusts could also finance committees.

SOCIAL + ENVIRONMENTAL



NETWORKING

- Once the committees are known in their territories, they become involved in other opportunities for participation with different stakeholders. Cases show that coordination between committees and other stakeholders and organizations through networks should be pursued.

LEARNING



IDENTIFY AND ADDRESS CONTEXT-SPECIFIC NEEDS FOR TRAINING

- Governments, mining companies, the international community, universities and other stakeholders can provide training to committees. However, committees can assess their particular training needs and opportunities.

LONG-TERM RECOMMENDATIONS

FOR DETAILS, REFER TO SECTION 6

COMMITTEES, MINING COMPANIES AND GOVERNMENTS MUST WORK TOWARDS AN ECOSYSTEM APPROACH

- An ecosystem approach will better reflect the complexity of the environment and the concerns of the communities. Such an approach includes closer attention to communities' perceptions of pollution and accounting for them. This approach could also take into account possible cumulative effects of mining processes.



RECOMMENDATIONS FOR GOVERNMENTS

RECOMMENDATIONS FOR THE INTERNATIONAL COMMUNITY INCLUDING UN AGENCIES

SHORT-TERM AND MEDIUM-TERM RECOMMENDATIONS

FOR DETAILS, REFER TO SECTION 5

USE AND EXPAND EXISTING MECHANISMS TO PROMOTE COMMITTEES

- Governments should use existing processes, such as the Environmental Impact Assessments, to promote the creation and operation of the monitoring committees. Governments could also allocate some tax revenue or mining royalties to participatory monitoring initiatives, thereby institutionalizing the committees.

LISTEN ACTIVELY ESPECIALLY REGARDING MONITORING RESULTS

- Governments can also empower committees by listening to them closely. This can build greater trust and develop institutional status. In the Regional Workshop, a key challenge identified was how to increase the use of the monitoring data generated by the committees.

FOSTER TRUST

- To support monitoring committees, UN agencies, including UNDP, can promote multi-stakeholder dialogue processes to build consensus. UNDP's experience in conducting dialogue and helping governments build institutional frameworks to convene and lead multi-stakeholder dialogue can also foster dialogue with monitoring committees.

GOVERNANCE



PROVIDE GUIDANCE

- Governments can create protocols and methodological guides that community organizations can use in their monitoring, which can improve the standardization and validation of the results. These guides could consider the environmental aspects, but also leadership, communicating and disseminating results, and constructive communication.

INCLUDE PARTICIPATORY MONITORING IN THE GLOBAL SDG EFFORT

- Monitoring committees contribute to advancing the SDGs. Here, committees can learn from other initiatives that work towards the SDGs. International organizations can use participatory environmental monitoring as part of the global SDG effort, enabling on-the-ground actors to learn from and improve their effectiveness.

SOCIAL + ENVIRONMENTAL



PROVIDE TRAINING

- Training for government officials and for committee members in topics such as leadership and constructive communication can be promoted.

SUPPORT NETWORK-BUILDING AND KNOWLEDGE EXCHANGE

- Committees, mining companies and governments will need to learn new skills to strengthen participatory environmental monitoring. International organizations that provide forums, communication networks, knowledge products and training specific for each actor can support this.

LEARNING



COMMITTEES, MINING COMPANIES AND GOVERNMENTS MUST START PROFESSIONALIZATING THE MONITORING

- This requires moving from training volunteers to more structured and ongoing instruction. This requires generating a stable group to participate in monitoring – which raises the question of whether to compensate those involved.

LONG-TERM RECOMMENDATIONS

FOR DETAILS, REFER TO SECTION 6



6. Future challenges and limitations of participatory environmental monitoring committees

6.1 Participatory monitoring committees and the challenge of the sustainable development goals

In 2015, the UN General Assembly adopted the 2030 Sustainable Development Agenda, an opportunity for countries and their societies to embark on a new path to improve the lives of all concerned, without leaving anyone behind. The 2030 Agenda has 17 Sustainable Development Goals (SDGs), which range from the elimination of poverty to the fight against climate change, through better education, gender equality, the

protection of the environment and the design of cities. The following paragraphs show how participatory monitoring supports these objectives. The analysis focuses on the objectives that could be addressed through a monitoring committee and that have already been identified as key in the relationship among governance, environment and mining (Carlier et al., 2017; UNDP, 2016).

Monitoring and its direct impacts on environmental sustainability



Goals 6 "**Clean Water and Sanitation**" and 15 "**Life On Land**" are the SDGs most directly relevant to participatory environmental monitoring.

The objectives associated with the environmental sustainability of water and land (SDGs 6 and 15, respectively) are directly related to the work of participatory monitoring and focus on diminishing the possible negative impacts of mining on water courses and bordering territories.

In particular, the committees can facilitate efforts to achieve target 6.3 "Improve water quality", because they enable continuous monitoring of water. In the same way, through their ongoing monitoring efforts, these initiatives pursue target 15.1 "Protect, restore and promote sustainable use of terrestrial ecosystems".



Monitoring and its indirect impacts on the environment



The Goals 2 "**Zero Hunger**", 3 "**Good Health and Well-Being**", 9 "**Industry, Innovation and Infrastructure**", and 12 "**Responsible Consumption and Production**" are indirect results of the impact of the participatory monitoring of the environment.

The committees' success in reducing environmental impact makes this type of organization a useful tool to accomplish other sustainable development goals that require a clean environment.

The story of Pocoata shows that pollution can affect local food resources. This is a firsthand example of how pollution-prevention monitoring can help reduce hunger (SDG 2) and ensure healthy lives (SDG 3). Specifically, participatory monitoring facilitates the attainment of targets 2.1 "Ensure access to safe, nutritious and sufficient food" and 3.9 "Reduce the number of deaths and illnesses from hazardous chemicals, pollution and contamination".

From the point of view of the company, the ability, in partnership with the committee, to continuously ensure that there are no possible leakages of untreated wastes into the water and soil, allows the company to achieve a more responsible form of production. This comes under the heading of SDG 9 "Industrialization, innovation and infrastructure" and SDG 12 "Ensure sustainable consumption and production patterns". A particularly important role in this respect is played by targets 9.4 "Upgrade infrastructure and retrofit industries" and 12.4 "Significantly reduce the release of pollutants".

Through the manner in which they operate, participatory environmental monitoring committees contribute to social inclusion



Through their processes and their ways of operation, the participatory monitoring activities promote Goals 5 "**Gender Equality**", 10 "**Reduced Inequalities**", 16 "**Peace, Justice And Strong Institutions**" and 17 "**Partnerships For The Goals**".

Participatory environmental monitoring typically establishes a relationship between a private company and the organized general public, serving as a meeting place where various stakeholders help to bring about the ongoing supervision and protection of the environment. Specifically, the monitoring progresses towards SDG 17 "Partnerships for the Goals", particularly, target 17.17 "Encourage and promote effective public, public-private and civil society partnerships".

When distrust arises between the community and the companies or the state, conflict can escalate. Participatory environmental monitoring can help to minimize and manage such distrust. As indicated above, the committees, in addition to being a forum for dialogue, should also develop into a framework in which consensus-based corrective or precautionary measures are designed and adopted. This is a clear example of how the monitoring committees can contribute to SDG 16 "Peace, justice and strong institutions", specifically, target 16.7 "Ensure responsive, inclusive, participatory, and representative decision-making at all levels".

Although an environmental monitoring experiment is designed to monitor the environmental situation in partnership with the mining company, with all the benefits that it brings, it is necessary to take one additional step. In Orcopampa, Peru, the committee did exactly that, by empowering the participation of women and generating forums for discussion on gender issues. In this way, the committees can also be a vehicle to achieve SDG 5 "Gender equality" and particularly target 5.5 "Ensure women's full and effective participation and equal opportunities for leadership at all levels".

Finally, the mining ventures are not distributed evenly in all territories; consequently, not all territories are required to deal to the same degree with the possible problems that mining can cause. For example, the cases addressed in this report pertain to rural or semi-rural areas. Seen from this perspective, a monitoring exercise that reduces the possibilities of pollution also helps to diminish the possible environmental inequalities that such pollution generates. This approach, in line with SDG 10, reduces inequalities, specifically, targets 10.2 "Empower and promote social inclusion" and 10.3 "Ensure equality of opportunity and reduce inequalities of outcome".

6.2 Challenges for committees, mining companies and governments for the medium and long terms

In addition to the challenges identified by the participants of the Regional Workshop, which were detailed in [section 2.3](#), (transparent and stable financing, institutionalization within the state, and effective communication), two further challenges are presented below.

An ecosystemic approach that better reflects community perceptions

Several of the committees stressed that it was necessary to extend the monitored aspects. During the Regional Workshop, they pointed out soil, air and groundwater as areas for expansion of their monitoring efforts. In addition, for surface water, it would be desirable to incorporate streamflow data and monitor such data more frequently and over a larger geographical area with a basin-oriented approach.

Scientific evidence shows that environmental processes are complex and interconnected, so focusing completely on a few parameters risks diminishing the actual extent to which the monitoring activities could predict or keep track of changes in nature. In the same way, it would not be sufficient to obtain an occasional “snapshot”; rather, sustained and sufficiently frequent monitoring would be required. The situations in Bolivia also prompt us to think about monitoring activities that transcend the immediate environment and encompass studies on food crops grown in the vicinity, as well as on the health of people. Such an approach could evolve into a means of studying the cumulative effects of mining operations, which are not monitored in the cases studied in this report. Reflecting this complexity is a great challenge not only for the committees, but also for the state and companies.

Additionally, there are the day-to-day perceptions of the communities. In some cases, it is clear to local people that there has been some change. For example, in Juprog, Peru, community members have observed occasional changes in the color or smell of water or, more dramatically, cattle deaths are reported. Quite apart from the issue of whether the monitoring exonerates

the company, it would be necessary to design a process that provides a satisfactory response to these occasional phenomena. During the Regional Workshop, Peruvian participants observed how monitoring that identifies pollution, but not sources of pollution, creates the perception that the state is protecting mining companies. Specifically, addressing these emergencies through special monitoring would clarify the situation and, if necessary, identify where the responsibilities lie.

With the foregoing in mind, it seems essential to deepen community participation in the design of the monitoring and not only in its implementation. This participation should involve the choice of sites for sampling, as well as the opportunity for monitoring. Specifically, the efforts of some companies to value the day-to-day knowledge of the affected people are praiseworthy, since, according to the literature, a narrow focus on expert scientific knowledge in participatory monitoring in mining contexts can harm the communities involved (Himley, 2014).

Going from training volunteers to professionalization

Training in water quality and the parameters that can be used to study it are customary during the operation of the committees. However, those who participate recognize that they need to deepen and structure their knowledge more.

One option is to professionalize the monitors, as this would build relationships between those who perform the technical tasks and the members of the committees. Such an approach would also ensure that committees exercise a more entrenched role in monitoring.

Based on the fieldwork during the country report with indigenous communities in Olaroz, it was concluded that this issue is vitally important, given the typically more complex relationship between indigenous communities and the state. Professionalizing indigenous environmental monitors would allow communities to have technicians that are more closely in touch with their worldview.



The topics to be addressed during professional training can include environmental issues such as monitoring protocols, legislation, natural resource management, etc. Additional elements that could be included in this training are social issues such as communication, citizen participation, cross-cultural skills, gender equity and citizenship.

One key prerequisite for professionalizing the committees is to reduce the turnover of participants. Without a stable pool of members, it is difficult to generate the necessary depth of learning. In this context, it is vital for steps to be taken,

in conjunction with the communities, to explore the controversial possibility of giving monetary or other compensation to those who participate. In fact, this option is controversial because, when viewed in combination with financing from mining companies, it can deepen the suspicions of the community. On the other hand, however, the time spent by citizens on these participatory forums must be recognized. In any case, it is crucial to ensure that the decision to pay be made in a transparent and participatory manner by the community itself.

6.3 Limits on the possible benefits of the committees

Monitoring will not prevent all potential social, cultural or spiritual negative effects of mining

Although the monitoring process allows for greater participation by the general public and diminishes the risks of negative impacts that the industry could have on the environment, mining activities have possible repercussions that cannot be addressed through the monitoring mechanism. Further, while monitoring and subsequent action diminish the risk of negative impacts, there will nevertheless still be impacts.

There are communities and people who do not agree with large-scale mining. For these communities and people, the problem goes beyond the environmental effects and has more to do with opposing views on how development should occur within their territories. In these cases, a monitoring programme has no power to eliminate such differences.

Furthermore, mining can have profound social, spiritual and cultural effects. One of these concerns the possible harm through relocation of families and communities. These situations, beyond the possible environmental impacts, can produce sharp disruptions in personal and/or community history. Another potentially adverse result is the formalization of employment. Although labour formalization is found not only in the mining industry and generally brings benefits for communities, the changes that occur in social relations when the labour market – in particular mining-related labour market – is introduced into a community, can harm ways of life in certain contexts. Here, an environmental monitoring programme would fail to address such problems.

Finally, because mining activities can be located in territories of indigenous communities, mining operations there could openly conflict with the worldview of these peoples/nations. Although monitoring may increase trust and reduce impacts, community acceptance of these ventures is not guaranteed.



In **Alumbrera**, during a visit of the committee to the facilities of the mine, participants were invited to exit their vehicles and to review the site. One person refused because, in his indigenous worldview, the pit represented an irreparable and unforgivable injury and thus he could not agree to pass through it.



Monitoring must be incorporated into a broader environmental governance process for mining

An important prerequisite is a legal framework that allows companies to be monitored and, if appropriate, sanctioned. A framework where there are no tools to monitor the commitments of companies, let alone to make them effective, leaves the committees with few official tools to deal with a possible dispute with a particular company. The situation is exacerbated if communities cannot make complaints based on their own perceptions and/or measurements or if the state cannot investigate and impose penalties on companies.

Specifically, the institutional framework for the environmental governance of mining generates the framework within which monitoring activities can be carried out. For example, Olaroz (Argentina) questions whether it is feasible for the state body that is in charge of promoting mining activity to simultaneously regulate and supervise such activity. In this type of context, it is unclear with which state entity the committee should interact most effectively to exercise closer supervision over a particular mining undertaking. Similarly, when the state has been unable to generate data for legitimate baselines or refuses to share all environmental information in its possession,

the committees are unable to compare current results with the situation that existed before the mining operations began.

In this sense, when the committees are not institutionalized within government agencies, it is difficult for them to conduct official business with government agencies and thereby to be perceived as a meaningful stakeholder in the eyes of the state. This, in turn, limits the extent to which the committees can be fully incorporated into operational decision-making chains. Moreover, it hampers efforts to provide appropriate input for policymaking.

This brings us to the fact that monitoring activities are an instrument for local governance, establishing connections between those parties that directly may be affected (usually communities that are already excluded or marginalized). Thus, the committees alone will not influence the decision-making process at the regional or national level. For example, the possible cumulative effects of different mines in a region may go unnoticed by one particular committee. Similarly, an improved environmental management in one mining company may not easily be known by others. To address this, the state can generate the institutional framework needed. This could be done by granting a formal role to the committees in regional and national mining-related planning processes or by preparing the ground for regional and national networks of monitoring committees.

Credits

Design: LS – Isgraphicdesign.it

Text: Claudio Pareja, Andre Xavier and Sarah Daitch

Photos

cover: Representatives of the indigenous peoples Asháninka, Yánesha, Shipibo, Wampis, Nomatsiguenga, Awajún, Awaruna, Kukama-Kukamiria, Kechwa Lamista, Quechua del río Pastaza, Kichwa del río Tigre y Achuar del río Corrientes participating in the UNDP project 'Alliances for Dialogue: Preventing Social Conflicts in Natural Resource Management, Peru. © UNDP Peru/Susan Bernuy

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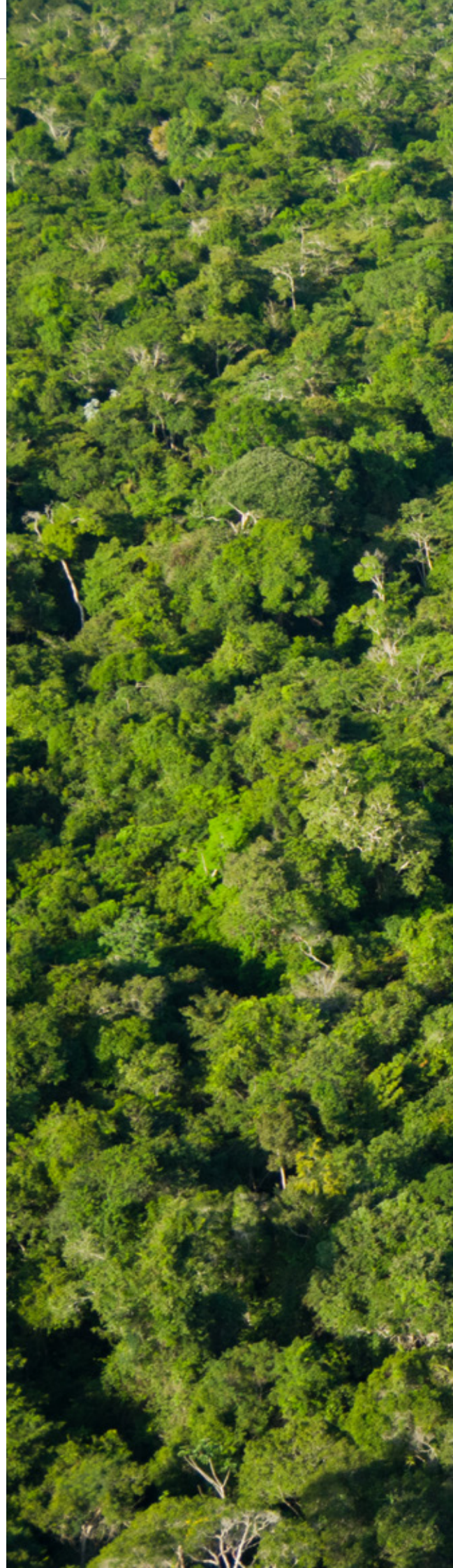
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Relevant bibliography

Used in the report

Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Planning Association*, 35(4), 216–224. <http://doi.org/10.1080/01944366908977225>

Auyero, J. (2018). Llevando a Bourdieu a los márgenes urbanos. Taking Bourdieu to the Shanty Town. *Revista Antropologías Del Sur*, 5(9), 17–28.

Bebbington, A., Delamaza, G., & Villar, R. (2004). El desarrollo de base y los espacios públicos de concertación local en América Latina. *Debate Agrario*, 40–41, 299–334.

CAO. (2008). *Participatory water monitoring a guide for preventing and managing conflict*. Retrieved from <http://www.cao-ombudsman.org/howwework/advisor/documents/watermoneng.pdf>

Carlier, A., Leon, A., & Xavier, A. (2017). *The Third National Conference on Participatory Environmental Monitoring and Surveillance Committees in Mining (CMVAPs)*. Vancouver. Retrieved from http://cirdi.ca/wp-content/uploads/2017/04/Report-of-the-3rd-CMVAP-conference_Final_Apr_12_2017.pdf

Conrad, C. C., & Hilchey, K. G. (2011). A review of citizen science and community-based environmental monitoring: Issues and opportunities. *Environmental Monitoring and Assessment*, 176(1–4), 273–291. <http://doi.org/10.1007/s10661-010-1582-5>

Danielsen, F., Burgess, N. D., Balmford, A., Donald, P. F., Funder, M., Jones, J. P. G., ... Yonten, D. (2008). Local participation in natural resource monitoring: A characterization of approaches. *Conservation Biology*, 23(1), 31–42. <http://doi.org/10.1111/j.1523-1739.2008.01063.x>

Ecoplan-International, & UN-Habitat. (2005). *Development through Strategic Planning Volume 1: Quick Guide* (Vol. 1). Retrieved from <https://unhabitat.org/books/promoting-local-economic-development-through-strategic-planning-local-economic-development-led-series-volume-1/>

Guijt, I., & Gaventa, J. (1998). Participatory monitoring and evaluation: Learning from change. *IDS Policy Briefings*, (12).

Himley, M. (2014). Monitoring the impacts of extraction: Science and participation in the governance of mining in Peru. *Environment and Planning A*. <http://doi.org/10.1068/a45631>

Pareja, C., Honey-Rosés, J., Kunz, N. C., Fraser, J., & Xavier, A. (2018). What participation? Distinguishing water monitoring programs in mining regions based on community participation. *Water (Switzerland)*, 10(10), 1–16. <http://doi.org/10.3390/w10101325>

Turreira-García, N., Lund, J. F., Domínguez, P., Carrillo-Anglés, E., Brummer, M. C., Duenn, P., & Reyes-García, V. (2018). What's in a name? Unpacking “participatory” environmental monitoring. *Ecology and Society*, 23(2), art24. <http://doi.org/10.5751/ES-10144-230224>

UNDP. (2016). Mapping mining to the sustainable development goals: An Atlas. Retrieved from <http://unsdsn.org/resources/publications/mapping-mining-to-the-sustainable-development-goals-an-atlas/>

UNDP. (2016). ‘Dialogue and governance of natural resources in Peru: 24 representative breakthroughs’

UNDP. (2018) PNUD Peru, ‘Vigilantes de la Amazonia’ (June 11th, 2018) Retrieved from <https://pnudperu.exposure.co/vigilantes-de-la-amazonia>

UNDP. (2018). ‘Un Acuerdo Por La Amazonia’ (March 19th, 2018). Retrieved from <https://pnudperu.exposure.co/un-acuerdo-por-la-amazonia>

Xavier, A., Leon, A., Carlier, A., Bernales, M., & Klein, B. (2017). The role of participatory environmental monitoring committees in mining regions in Peru. *Proceedings of the 8th International Conference on Sustainable Development in the Minerals Industry*, 176–181. <http://doi.org/10.15273/gree.2017.02.032>

Other relevant bibliography

Banco Mundial & OXFAM. *Construyendo desde el conflicto: Las mesas de diálogo de Tintaya y Moquegua en Perú*. Washington. Retrieved from <http://www.bancomundial.org/es/country/peru/publication/construyendo-desde-el-conflicto-las-mesas-de-dialogo-de-tintaya-y-moquegua-en-peru>

Bebbington, A. (2010). Minería, instituciones y sostenibilidad: desencuentros y desafíos. *Anthropologica*, (28. Supplement 1), 53–84.

Caja de Herramientas Ambientales Tomo 4: Gestión ambiental comunitaria. (2017). Lima. Retrieved from <http://democraciaglobal.org/producto/caja-herramientas-ambientales-zonas-mineras/>

Flores Unzaga, C. (2016). *Conviviendo con la minería en el sur andino: experiencias de las mesas de diálogo y desarrollo...* Lima. Retrieved from https://peru.oxfam.org/sites/peru.oxfam.org/files/file_attachments/Conviviendo_con_la_mineria_en_el_sur_andino.pdf



Annex 1: List of interviewees

Below are the names of those individuals interviewed by the consultants during the completion of each country report.

Argentina

	NAME	INSTITUTION
Alumbrera	Juan José “Petu” Palacios	Coprodesa
	Ramón Arias	Citizen
	Gustavo Poch	Ambiente Sano Aguilares
	Rodolfo Romagnoli Muedra	Citizen
	Carlos Guillermo Olarte	Citizen
	Diego Pittau	Citizen
	Héctor Oscar Nieva	Citizen
	María Florencia Martínez	Ciudadano
	Alfredo Montalván	Environment Secretariat-Secretary
	Luis Costantini	Environment Secretariat
	Rodolfo Micone	Mining Secretariat
	María Inés Ulla	Mining Secretariat
	Ana Isabel Ulla	Mining Secretariat – Directorate for the Promotion of Social Mining
	Italo Francile	Mining Secretariat – Directorate for Environmental and Mining Management
	Jorge Montaldi	La Alumbrera Mine – Institutional Relations
	Carolina Sánchez	National Mining Secretariat
	Carolina Del Valle	National Mining Secretariat – National Directorate for Production in Mining, the Environment and the Community
	Dolores Duverge	Environmental and Sustainable Development Ministry- Subsecretariat for Environmental Planning in the Territory
	Andrés Trebino	Environmental and Sustainable Development Ministry – Subsecretariat for Control, Environmental Budgeting, and the Prevention of Pollution
	Luciano Pafundi	Mining Secretariat of the Nation – Community Development Directorate



	NAME	INSTITUTION
Olaroz	Miguel Soler	Mining Secretariat
	María Inés Zigarán	Environment Ministry – Minister
	Natalia Sarapura	Indigenous peoples Secretariat
	Waldo Chayle	Mining Secretariat – Director of Mining
	Fernanda Yapur	Environment Ministry – Environmental Quality Secretariat
	Pablo Bergese	Environmental Ministry – Budgetary and Control Directorate
	María Inés Yeber	Environmental Ministry – Budgetary and Control Directorate
	Miguel Soler	Mining Secretariat – Secretary
	Carolina Sánchez	National Mining Secretariat
	Carolina Del Valle	National Mining Secretariat – National Directorate for Mining Production, the Environment and the Community
	Luciano Pafundi	National Mining Secretariat – National Subdirector for Community Relations in Buenos Aires
	Dolores Duverge	Environmental and Sustainable Development Directorate – Sub-secretariat for the Environmental Planning of the Territory
	Andrés Trebino	Environment and Sustainable Development Ministry – Budgeting
	David Cachullani	Sales de Jujuy – Operations Management
	Silvia Rodriguez	Sales de Jujuy – Community Relations
	Cecilia Mendez	Sales de Jujuy – Legal affairs
	Miguel Soriano	Community Advisor for Olaroz Chico
	Liliana Nieves	Local liaison officer INAI
	Axel Nieva	Community Monitor
	Gustavo Nieves	Community Monitor
	Luisa Jorge	Indigenous Peoples Committee
	Elena Urbano	Community Monitor for Coranzuli Jujuy
	Blanca Cardona	Community Monitor for Coranzuli Jujuy
	Pía Marchegiani	Environmental and Natural Resources Foundation



Bolivia

	NAME	INSTITUTION
Tupiza	Hilda Rodríguez	Regional Office AJAM Tupiza – Tarija
	Alberto Valenzuela	Mining Manager Mallku Khota COMIBOL
	Juan Carlos Cachambi	Environmental Technician. Tupiza Municipality
	Neyfi Lafuente	Environmental Technician. Tupiza Municipality
	Marisabel Cruz Loza	Deputy Mayor District III. Tupiza Municipality
	Orlando Dávila	President District III
	Raúl Llave	Secretariat of Mining and the Environment District III Tupiza
	Abel Ramos	Secretariat of Mining and the Environment District III Tupiza
	Arturo Segovia	Mining Businessman Tupiza
	Andrés García	Mining and Environmental Secretariat, Regional Federation for Mining Co-operation Mineras del Sur, FERECOMIR SUR
	Ariel Flores	Secretariat for Social Forecasts, Regional Federation for Mineras del Sur Co-operative, FERECOMIR SUR
	Juan Carlos Aguilar	Treasurer for the Regional Federation for Mining Co-operation Mineras del Sur, FERECOMIR SUR
	Reynaldo Choque	President of the co-operative Minera Tatasi
	Dante Ortega	Monitor Tatasi
	Margarita Flores	Federation of Female Country-Dwellers Bartolina Sisa
	Francisca Reynoso	Provincial Executive Bartolina Sisa Tupiza
	Jacinto Velasco Paco	Country-Dwellers Central Office, Tupiza
	Leonardo Huallpa	Secretariat for the Organization of the Federation of Country-Dwellers of Tupiza
	Isidora Arenas E.	Federation of Female Country-Dwellers Bartolina Sisa

	NAME	INSTITUTION
Pocoata	Vladimir Tumiri	Secretariat for Actas de la Cuenca Macha Pocoata Colquechaca
	Víctor Alvarado	Legal Adviser, Colquechaca Mining Co-operative
	Efraín Uvaldez Alandia	President, Minera Colquechaca Co-operative
	Eriberto Calani Mamani	President, Committee for the Macha Pocoata Colquechaca Basin
	Ever Cocha	Mayor, Pocoata Municipality
	Agustín Coria	Deputy, Committee for the Macha Pocoata Colquechaca Basin
	Magda Barahona	Formerly Civic Committee of Macha
	Filiberto Siaque Calizaya	President, Pocoata Civic Committee
	Yolanda Choque Berrios	Press Secretariat, Committee for the Macha Pocoata Colquechaca Basin
	Félix Torrez	Executive Director, Radio Pio XII
	Valentín Loredó	Rector, Nacional Siglo XX University
	Pastor Tarqui	Member of the Committee of the Macha Pocoata Colquechaca Basin
	Clemente Paco	Legal Advisor, Centre for Ecology and Andean Peoples, CEPA



Panama

	NAME	INSTITUTION
Chagres	Cristina Ortega	Community Association for Participatory Management in the Chagres National Park
	Ignacio Ochoa	Consultative Committee for the Chilibre and Chilibrillo Sub-basin
	Abel A. Vega S.	Consultative Committee for the Chilibre and Chilibrillo Sub-basin
	Susana Madrid	Consultative Committee for the Chilibre and Chilibrillo Sub-basin
	Gloria Madrid Ortega	Socio-Environmental Development Committee for the Eastern Área
	Gina Iveth Fortet	Manager for Corporate Affairs CEMEX
	Mayka Him	Responsible for Social Affairs, CEMEX Adviser
	Charlotte Elton	Centre for Social Study and Action, Panama
	Francisco Herrera	Centre for Social Study and Action, Panama

	NAME	INSTITUTION
Cobre Panama	Dionisio Catillo	Defensores de los Recursos Hídricos (Defenders of Hydraulic Resources) Coclesito
	Dominga Fuentes H.	Defensores de los Recursos Hídricos, San Benito
	Digna E. Navarro	Defensores de los Recursos Hídricos, San Juan de Turbe
	Selmira Santana	Defensores de los Recursos Hídricos, Nuevo San José
	Cristobalina Oliveros	Defensores de los Recursos Hídricos, Río Caimito
	Víctor Mendoza	Defensores de los Recursos Hídricos, Llano Grande
	Pedro Herrera	Defensores de los Recursos Hídricos, Cascajal
	Horacio González	Defensores de los Recursos Hídricos
	Christina Savater	Avanzar
	Marco Tulio Guillen	Chiriqui Autonomous University
	Alberto Casas	Environmental and Community Affairs Manager, Minera Panama
	Isabel Dalance	Communications Manager, Minera Panama

	NAME	INSTITUTION
Both cases	Dania Franco	Trade and Industry Ministry, National Directorate for Mineral Resources, Mineral Laboratory
	Yerikel Peña	Trade and Industry Ministry, National Directorate for Mineral Resources
	Judith Pitu Jaén	Environment Ministry, Directorate for the Development of Environmental Culture
	Sonia Montenegro	Environmental Impact Centre
	Isaías Ramos	Environmental Impact Centre
	Osvaldo Jordán	Conservation and Development Alliance
	Lourdes Contreras	Pryma Social Consultancy



Peru

	NAME	INSTITUTION
Orcopampa	Aurelio Vilca Giraldo	Mayor for the District of Orcopampa and President of CMAP Orcopampa
	Juan Sana Huamán	President of Regantes de Orcopampa Committee
	Anita Cacyacuri	President of Agua Huimpilca Committee
	Natividad Taco	Country-Dwelling Orcopampa Community
	Walter Rondinelli Zaga	Superintendent of Social Affairs Buenaventura Orcopampa Unit
	Hilda Quintana Patiño	Aldersperson for the Orcopampa Municipality
	Fiorela Castro	Technical Secretariat CMAP Orcopampa

	NAME	INSTITUTION
Juprog	Marcelino Dominguez	President of CU Juprog
	Zócimo Pérez Chavez	President of Cinco Troncos
	Hugo Gaytán Díaz	Member of CU Juprog
	Pablo Salazar Solis	Municipal Ex-Agent in Juprog
	Mario Leyva y Ana Morales	Technical Secretariat of CU Juprog, Santiago Antúnez de Mayolo National University
	José Carlos Farfán	Directorate for the Environmental Evaluon of Ancash – OEFA
	Luis Montes Mallqui	Sub-Management for Environmental Management in the Regional Government of Ancash
	Pavel Ascue Alagón	Environmental Management Division of Cía. Antamina S.A.
	Ing Julio Poterico Huamalyalli	Rector of Santiago Antúnez de Mayolo University
	Darío Zegarra Macchiavello	Vice-President of Corporate Affairs, Compañía Minera Antamina

	NAME	INSTITUTION
Mallay	Salomón Rios	President of the Campesina de Mallay Community
	Aida Borja Julca	President of CMAP Mallay
	Adelina Abarca López	Head of the Division of Environmental Management and Health, Provincial Municipality of Oyón
	Rolando Quispe	Community Relations Unit, Mallay Cía. Minas Buenaventura

	NAME	INSTITUTION
Others interviewed	Bettina Reyna Ugarriza	Specialist of the Social Management and Dialogue Secretariat of the Territorial Governance Vice-Ministry PCM
	Eduardo Perochena y Joseph Pérez Pardo	Head of the Non-Structured Unit for the Prevention and Management of Conflicts, National Water Authority
	Heydi Araujo Sifuentes	General Coordinator of Social Management, OEFA
	César Araujo Araujo	Social Management Directorate, Energy and Mines Ministry
	Luis Alvarado	Specialist in the Prevention of Conflicts, Ombudsman's Office
	Alejandro Hermoza Maraví	Social Management and Environmental ManagerCompañía de Minas Buenaventura S.A.A



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