IAIA SPECIAL SYMPOSIUM

Improving Impact Assessment and Management in the Mining Sector

LONDON, UK | 4-5 DECEMBER 2018

PROCEEDINGS

Institutional partner & venue

European Bank for Reconstruction and Development

European Bank for Reconstruction and Development (EBRD) Headquarters

IAIA International Association for Impact Assessment

conferences.iaia.org/mining18

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The IAIA Mining Symposium was held 4-5 December 2018 at EBRD headquarters in London, UK, and brought together over 120 practitioners representing government departments, permitting authorities, junior mining companies, large multi-national mining companies, non-governmental organizations (NGOs), civil society representatives, and consultants. Attendees represented 30 countries: 63% from Europe, 22% from North and Central America, 3% from South America, 6% from Africa, 4% from Australia and Oceania, and 2% from Asia.

Summary of discussions

The event sought to address key risks and challenges that arise within the process of undertaking impact assessments and identify approaches, tools, and techniques that would reduce risks and enhance outcomes for mining companies, communities, and financing institutions.

The introductory session provided an overview of the challenges in developing mining projects and the complex nature of issues which require robust and ongoing management, as well as being responsive to changing community and societal expectations. Case studies were used to demonstrate the value in long-term and regional planning. The discussion touched on several challenges facing the mining community, including dealing with regulatory and permitting frameworks which have different priorities, increasing pressure to develop mine sites, and cuts in available budgets to manage and address social issues. Some of the proposed solutions suggested that companies should be far more targeted in their studies and interventions, and should be coupled with robust evidence to support decision making when eliminating issues from the scope. Planning, implementation, and monitoring should be conducted in partnership with relevant organizations, including NGOs and local authorities. A challenge is presented in the fact that some companies want to complete assessment processes as quickly as possible and view it purely as a regulatory requirement, while others invest time and resources to develop and implement a responsible approach to eliminate risks and manage residual impacts. This means that implementation is applied differently within the industry.

The session "Tools, methodologies, and approaches of impact assessment in the mining life cycle: Case studies" provided insight on the role of impact assessment in project management. The main objective of an impact assessment is to identify and manage risks and impacts, and demonstrably add value to all stakeholders affected by, and interested in, the mine's development. Impact assessment should be proportional to the level and type of project-related impacts, which involves front-loading the assessment efforts and ensuring the scoping phase is done well and contribute to the vision of "the mine we want to see." Companies and financing institutions should invest time in preparing scoping Terms of Reference and consultants must advise clients on key risks and impacts to enable them to prioritize. The session also identified that the ESHIA process is one of the principal mechanisms in order to engage with stakeholders; hence, it is imperative to ensure implementation of the outcomes of this process. The session advised on using visual tools and materials to help participants understand the mine and its construction. The session provided examples of data management tools that can be updated in real time and are of significant value in enabling robust information management. Visual tools that can map sites over actual locations and demonstrate changes over time are invaluable, albeit require a significant level of investment.

The session "Community and stakeholder engagement: From exploration to mine closure" featured case studies which demonstrated that significant environmental and social issues can be identified and addressed during the consultation process. These issues require meaningful engagement and advanced data and information management and may mean digitisation of information and a significant up-front investment of resources. It is key to engage early and in a meaningful manner; using digital tools and story-telling can support this process and also helps to build trust and relationships. It is also important to take a multi-disciplinary approach to decision making, and companies should be prepared to finance studies or support processes when there is a lack of local capacity. The session highlighted that there are often disconnects between processes, which may affect stakeholder receptiveness to the project. For example, commitments are made to the community by previous project owners that are not carried forward when new ownership arrives. Companies must plan to develop skills and capacities in communities in order to enhance access to project benefits, which are felt at the local level. Engagement and capacity building, as well as sharing benefits, is a significant concern for stakeholders in locations where there are Indigenous Peoples. The session also highlighted the show-stopper problems that can arise when multiple actors have repeated conversations with the same project stakeholders, and when companies do not deliver on their commitments. Case studies were shared which demonstrated that a lack of meaningful engagement can halt mine development. Overall, the session reflected on the need to ensure that there are representative inputs into the stakeholder engagement process and that substantive issues and concerns of stakeholders must be addressed in the project design phase and integrated into management systems. How these issues are addressed must also be communicated back to stakeholders.

The session "From planning to completion: Managing biodiversity risks in the mining sector" examined how biodiversity issues can effectively be addressed. Case studies were used to demonstrate how creative solutions were developed in partnership with the local authorities and communities to manage biodiversity issues. The session also highlighted challenges of operating in a data-poor environment or when local capacity was limited. The session summarized key requirements to implement a robust and meaningful response to biodiversity issues. The case studies highlighted the importance of partnership with appropriate and credible bodies, and how offset design must be comprehensive and based on scientific data—this will facilitate processes when there are political and/or institutional variations in priorities. Induced impacts were able discussed with the notion that project proponents must be prepared to investigate and respond in a robust and sensitive manner.

The session "When the rubber hits the road: The practical challenges of complying with E&S standards and meeting evolving societal expectations" proposed that proponents may need to be flexible in order to source data and information to make an informed decision. The panel suggested that there are challenges in meeting international standards and local standards, as these do not always align. Increasingly there is convergence in the international standards and requirements from the financing industry; however, pre-investment decisions provide an opportunity to seek clarity over which standards will be applied. It was recognized that communications with local communities may present a challenge due to the fact that not all project concepts make it to investigation and therefore mining companies are reluctant to engage early in the process so as not to raise the expectations of local communities. There is a need for companies to understand their stakeholders and their agendas and to develop appropriate communication tools in order to disseminate information and source feedback effectively. It is also crucial that early commitments made are taken forward, in particular between project phases and when there are changes in ownership. Conflicts can be internal, between project proponents, with financers, or among the community; hence, consistent and clear communication (e.g., language and terminology) with all stakeholders is imperative. In addition, management plans and tools must be clear and understandable to operators.

The session on "Innovations and technology in impact assessment and the permitting process" discussed the purpose of the ESHIA as a decision-making guide and tool to design the programs to mitigate and manage the key social and environmental risks and impacts resulting from the project. Therefore, ESHIA must be proportional to the size, scale, and range of the project impacts. The panel provided some examples of simple, time-efficient, and cost-effective tools which can be used in order to identify significant risks (such as acid rock drainage) during the early stages of decision making. The session also presented an overview of new influences on the mining sector including increased and widespread media scrutiny, climate-related risks, legacy issues, and the positioning of mines in more extreme locations. The session demonstrated the value of early and targeted engagement and interventions and the importance of engaging with institutional actors and local project-affected persons (PAPs). The session demonstrated how valuable virtual technology and information management is for engagement with stakeholders and for companies to be able to respond to concerns. Visualization tools can be used to help dispel myths, create visual projections of specific issues, and enable information to be presented and adapted for different cultures and/or audiences. However, it is key that data and information can be trusted; thus, proponents should consider how to ensure that information and data is not manipulated and verify that the content is robust. Many low-cost tools such as mobile phones are available and can significantly contribute to capturing real-time data and stakeholder inputs.

The session "Integrating new approaches to gender in mining" highlighted key elements that are required in order to integrate gender into mine planning, including having a champion, being prepared to undertake an internal gender review, capturing the capacities and skills of governments in order to support delivery of the Sustainable Development Goals, engage with youth, link project aspirations and standards to the supply chain, and embrace information and communication technologies and innovation. The International Finance Corporation (IFC) and Oxfam have developed Gender Toolkits which will support the adoption of a gender-sensitive approach in decision making. The IFC Toolkit provides guidance on understanding gender dynamics internally, in the boardroom, and how to undertake a gender audit and assess the supply chain. The Oxfam Toolkit provide guidance on how to develop and implement a Gender Impact Assessment at the project level. These approaches emphasized the fact that "what gets measured gets implemented" and will support the delivery of contributions to gender equality. The session also discussed the sensitivity required when responding to issues relating to gender-based violence. The session concluded that company leadership needed to be engaged, and highlighted the importance of integrating a gender perspective into the mine-related studies, as well as being respectful, and urged caution to ensure that proponents were not reinforcing their own agendas.

The session "Safeguarding community well-being and health in mining projects" provided examples of successful approaches to integrating health concerns into mine planning; however, it also highlighted some of the challenges that face mining companies when engaging on health issues. The session urged mining companies to become health leaders. Engaging on health issues can help clarify any legacy health issues and related liabilities, it can help manage risks relating to unquantifiable events (such as in-flux), and it can establish direct linkages between mine activities and health outcomes. There is a need to ensure the privacy of health data. Health assessment can build trust, in particular, where there may be existing health concerns. It can also capture other health issues which present a significant risk to operations (such as an Ebola outbreak) and issues within the workforce which may have implications for productivity (such as mental health). The session presented case studies on an integrated malaria control programme, and a response to an outbreak of cholera. The importance of assessing cumulative impacts, especially in an area where there are several mines, was also discussed. The session highlighted the importance of senior corporate commitment and corporate culture.

The session "Innovations in social closure" recognized that there are very few examples of good practice for social mine closure, despite the number of mines that have transitioned into closure. The panel reflected on closure experiences in varied contexts and presented the drivers and tools to facilitate good practice for social closure. The International Council on Mining and Metals (ICMM) has produced a Social Closure Toolkit, although it was noted that stakeholders dislike the term "closure" and therefore ICMM encourages the use of the term "social transition" to capture the fact that although the mine might be closing, there are still alternative development plans in place. Closure is a key phase in mining and yet very few feel responsible for it. Governments have limited resources, and tend to have the same expectations as communities. Junior companies may not relate to the fact that the mine will close and therefore do not consider closure during initial planning. Mining companies should consider site repurposing options during planning in order to facilitate strategic planning and transition in the future. Evidence of closure processes suggests that consideration of closure at the early stages of mine development requires a passionate leader and tends to involve a long-term and profitable mine. Closure is difficult to plan for and often community members are better placed to determine (and take forward) any future plans for the site. However, successful case studies show that putting people at the heart of decision making and rethinking financing strategies for the longer term are key components of the success. Collaboration, consensus building, and compromise are also important components in the process of transitioning to closure.

Recommendations

For impact assessment practitioners

- Ensure that the preliminary ESHIA work is scoped properly and with full consideration of potential social, health, and biodiversity issues.
- Impact assessment must be proportionate; hence, advise clients of relevant issues or scope issues out when not relevant.
- Mining companies are under scrutiny and human rights, gender, health, and biodiversity are areas which require appropriately robust responses. This will require time and detailed specialist studies.
- Develop and provide guidance on appropriate levels and types of engagement for different stages of project development for different proponents.

For policy makers and financial bodies

- Relate impact assessment to regional plans and the Sustainable Development Goals and evaluate the project's contribution to these goals.
- Impact assessment is a risk-based management tool and therefore studies should be proportional to the level and type of project related risks.
- Ensure that programs to develop closure plans are appropriately considered and outlined before financing sign-off.
- Ask for a handover manual to be developed and in preparation of handover in ownership.

For companies

- Develop long-term planning objectives and invest time in "site envisioning" with local communities.
- Be transparent and report on investigations, assessments, decision making, and outcomes.
- Create a structure that establishes processes to manage community, health, and biodiversity issues that can be easily transferred to and adopted by new owners.
- Planning should put communities at the heart of decision making and respond to the question "What kind of mine do we want to see?"
- Seek to avoid impacts altogether and when unavoidable, seek creative solutions which mean that the site minimizes its environmental and social impacts.
- Stakeholder engagement that is respectful and meaningful is key to success.
- Consider a holistic view of quality of life, which includes health, psycho-social, and landscape effects on the local communities.

For communities and/or civil society

- Engage with companies in the assessment process to highlight key community resources, activities, and perspectives which must be respected.
- Take ownership on mitigation and management measures that have additional community benefits.
- Closure can create new opportunities, so engage with companies to best plan and decide these options.
- Hold companies to account, participate in monitoring fora, and advise companies when something has gone wrong/is not working—use the mechanisms that the company has established to ensure that these concerns are documented.

Welcome and introduction

The European Bank for Reconstruction and Development (EBRD) and the International Association for Impact Assessment (IAIA)

The session opened with a thanks to all of the Mining Symposium event sponsors, including the EBRD, Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF), Centerra Gold (CG), Golder Associates (GA), SLR Environmental and Advisory Solutions (SLR), Lydian International (Lydian), Environmental Resources Management (ERM), SRK Consulting (SRK), and Anglo American (AA). There was a warm welcome and acknowledgement of the significance of IAIA through its outreach to over 7,000 members and Affiliate members worldwide. The opening session reminded the participants that the purpose of IAIA is to provide best practice frameworks and to bring critical assumptions to the discussions.

The aims of the symposium presentations can be summarized as follows:

- How can we improve the impact assessment process so that medium- and large-scale mining activities and projects become more sustainable and acceptable?
- How can the impact assessment process be improved to better manage key issues from the conceptual design phase through to the reclamation and closure phase? And what are the enabling conditions (e.g., regulatory, financial considerations, etc.)?
- What are the tools, methodologies, and approaches of impact assessment that are most valuable in the mining life cycle?
- How can we better address gender and social issues in the mining sector?

The event was held 4-5 December 2018 at EBRD headquarters in London, UK, and brought together over 120 practitioners representing government departments, permitting authorities, junior mining companies, large multi-national mining companies, non-governmental organizations (NGOs), civil society representatives, and consulting companies. Attendees represented 30 countries: 63% representing Europe, 22% from North and Central America, 3% from South America, 6% from Africa and 4% from Australia and Oceania, and 2% from Asia.

Introductory plenary | State of play of sustainability in the mining sector and implications for impact assessment

The plenary opened with an introduction of the "state of play" in the mining industry and the need to respond to evolving societal expectations, with a specific focus on human rights issues. There has been significant progress in the development of a policy framework to support decision making within the mining industry, as well as a convergence in stakeholder expectations and funding and investment criteria. This progress has been coupled with increasing pressure from consumers and an inter-connected and media-savvy audience.

The International Council on Mining and Metals (ICMM) has developed 38 performance expectations for mining companies; seven relate directly to human rights issues and there is a requirement to publicly disclose, as well as meaningfully consult, on environmental, social, and health impact assessment (ESHIA) studies. In addition, the ICMM mining community has committed to adopting the United Nations Guiding Principles on Business and Human Rights, which collectively reflects a third of the industry, operating 650 sites. This has left a lot of junior mining companies struggling to engage in these issues in a meaningful way and some ESHIAs are not fit-for- purpose and do not adopt a holistic approach to decision making. This, in part, stems from the origins of environmental impact assessment (EIA) focusing on the environmental impacts of projects; therefore, some companies have lacked the skills to engage with stakeholders and effectively manage social and human rights issues and/or project impacts.

The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) is an organisation convening 70 government members[1] and introduced the Mining Policy Framework which provides guidance to governments on management of issues relating to mining, including permitting, ESHIA, and closure. The IGF has recently undertaken a review of 25 country regulatory frameworks and the results demonstrate that there is a need to update ESHIA legislation and guidance in many jurisdictions. There is also a need to build capacities to reduce the inconsistent application of existing international standards. IGF has developed guidance on a range of related topics including managing artisanal and small-scale mining, local content policies, tax payments, and tax base erosion and is currently developing a new guidance for more effective environmental and social impact assessment frameworks.

IGF articulated the need for long-term and regional planning as well as the significance of the lack of long-term Strategic Environmental Assessment. One of the outcomes of its review of 25 country regulatory frameworks was the fact that in some countries, there is an assumption that the mine will be permitted, regardless of the ESHIA studies. Capacity building and regulatory reform is needed in some developing countries to ensure that impact assessment processes are designed and implemented to effectively and impartially assess the potential project related impacts.

The IGF review demonstrated that there was a range of perspectives on exploration permits, in contrast to mining approvals, on management plans and how these are dealt with in the regulatory environment, on closure frameworks and whether these are required at the permitting phase.

The panel reflected on the fact that the mining community is responding to different regulatory frameworks around the world and some of these frameworks are not fit-for-purpose. There are also a variety of perspectives including industry, governance, and more recently, including human rights-driven perspectives.

Danish Institute for Human Rights (DIHR) described its mandate to work collaboratively with the private sector and to protect and promote human rights. The institute has a lot of experience working with the mining sector and their thinking is closely aligned with the IGF and ICMM. DIHR suggested that there are three key takeaways:

- Companies cannot be complacent about their social performance, and despite increased commitments made by companies, there are drastic gaps in implementation.
- Social performance is diminishing due to cuts in budgets, and is damaged by being seen as a public relations exercise.
- There is increasing pressure to develop mines; however, many are not addressing key challenges, specifically including Indigenous Peoples, gender, resettlement, livelihood dependence, grievance management, and conflict.

DIHR recommended that to enable a stronger focus on social and human rights issues within impact assessment processes, practitioners needed to adopt a strategy which involves a multi-disciplinary approach, provides sufficient time for analyses and assessment, and engages collaboratively and effectively to address the project impacts.

DIHR also recommended that companies do not approach managing these risks and issues as a legal risk but should demonstrate a full understanding of these issues and elaborate on the steps undertaken to address them. Unfortunately, non-disclosure of social impact assessments or human rights reports continues to be an issue for many stakeholders.,

Companies should aim to report on the outcomes of the processes that have been undertaken. There is also a need to enable sufficient time to develop processes and build corresponding capacities.

DIHR also articulated the need to relate project-level impact assessment with regional planning. Regional plans should encompass thinking around how structural issues (such as transport infrastructure or telecommunications) can be addressed.

CASE STUDY

DIHR provided a summary of a project in Papua New Guinea (PNG) where the community were involved in the discussions around community benefits. The remote community needed to build their capacity in order to engage in the dialogue and to be able to negotiate effectively. This kind of process required **commitment**, **significant time**, and **dedicated resources**.

The panel discussion agreed that robust social due diligence and impact management has the potential to make the most significant contribution to the United Nations Sustainable Development Goals (SDGs). The linkages between sustainable development, business and the SDGs are obvious; however, business cannot cherry-pick specific SDGs. Companies should (and some do) see social assessment and impact management as a core part of the way in which a mining company does business. Mining companies already have significant potential to support delivery of the SDGs through state-investor contracts and incentive levers. However, in some jurisdictions, some punitive tax incentives may lead to reduced monies being made available for local social issues.

EBRD commented that although there is increasing convergence on social and human rights issues, there is a real need to translate impact assessment into something digestible and understandable. EBRD suggested that a 3m-high stack of documents which comprises the ESHIA may not be appropriate nor regarded as fit-for-purpose. The challenge is in the fact that legal bodies require specifics and detail and therefore need the 3m-high ESHIA documentation to provide evidence in the elaboration of plans. Currently, BHP Billiton are looking at Extractive Industries Transparency Initiative disclosure and ways to make information more digestible.

ICMM stated its support for human rights integration into decision making and the application of the UN Guiding Principles on Business and Human Rights (referenced specifically due diligence, access to remedy, and the Voluntary Principles on Security and Human Rights). ICMM has also made statements around its explicit support and expectations for its members on gender. ICMM commented that there is a need to engage willingly and invest the time and resources necessary to undertake tasks relating to impact assessment. ICMM also recognized the true potential of partnerships with civil society and referenced the case of Anglo American's dialogue process in Quellaveco, which required the recognition that things had gone wrong and to encourage the participants to re-engage and take as much time as required for their decision-making processes. ICMM argued that it is this flexibility in approach and level of understanding that is required, rather than 3m of ESHIA studies.

IGF understands that there is still a wide range of companies' approaches to ESHIAs. Some view the ESHIA purely as a process to receive a permit and fast-track an investment, whilst others are motivated to do a good job. After 50 years of learning in the field of impact assessment, there are still a wide-range of applications.

DIHR commented that one of the key problems is the fact that impact assessment is viewed as a task rather than a risk-based assessment to inform management plans, which are realistic and implementable, and something which the affected parties know about. DIHR is also interested in ensuring that these assessments are human rights compliant, in as much as providing the opportunity for communities to challenge companies when community agreements are not honoured. ***"If community agreements were on an equal legal footing and thereby communities could challenge company actions, this would lead to a strengthening in implementation."***

There are also different levels of understanding and progress within impact assessment. EBRD commented that gender still presents a problem to some actors; however, EBRD has recently mainstreamed gender throughout its programming. Gender-Based Violence (GBV) is recognised increasingly as a significant issue, and EBRD noted that this potentially remains largely a concern to International Financing Institutions (IFIs). DIHR stated that the gender issue is very broad and gender sensitive thinking should be integrated comprehensively into mine planning and programming.

The panel opened up the discussion to the participants. The discussion points are summarized below:

One participant questioned the representatives from government with respect to the need for ESHIA. Do they understand it as a guide? Or something required for permitting? Do the permitting authorities see it as a tool to issue a permit? And are the outcomes considered, including zero impact and/or net positive impact for the communities and environment?

ICMM responded that an ESHIA must meet a whole range of needs and thereby must involve detailed studies (e.g., biodiversity assessments). ICMM stressed the need to distil messaging and for different audiences in a manner which is understandable. IGF commented that there continues to be a lot of focus at the front end (i.e.. permitting); however, very little attention is given to post-mine closure. IGF shared some good examples of closure including clean energy production at former mine sites and reflected there were potentially exciting opportunities in relation to closure for both community engagement and for post-mine developments. Unfortunately, many regulatory environments are not equipped to manage closure; this is still a challenge. The fact that mining plans can change by months/year means that adaptive management is key. However, adaptive management techniques and processes are not being addressed within mine planning.

A junior mining company questioned what junior mining companies could do in light of the fact that budgets do not stretch to complete exhaustive studies. How do juniors dedicate sufficient time with limited resource?

ICMM responded that some exploration departments do not have an overview or picture of the mine that could be shared. Another challenge is the fact that several departments are engaged during the preliminary stages, yet, there is no consideration of "preservation of value." Juniors must apply the same processes as the majors (e.g., consultation) and ensure that promises and commitments are captured within the system (e.g., hand-written promises on a piece of paper don't count!). There is a need to establish the process from the start and then it is easier to apply regular approaches and responses to environmental and social issues. ICMM Netherlands noted the importance of making impact assessment systems and tools more effective; however, there is an issue with accessing data and information. If mining companies cannot access relevant data, how can the companies improve access to information to the public? IGF advised that access to information and how this information is presented is important. IGF questioned how governments could change regulatory environments to enable access to data and determined that due to the variations in locations and regulatory environments around the world, that one size does not fit all, and solutions and responses must be devised on a project-by-project basis. All recognized that producing case studies on

what processes and activities were successful and those which were not would be useful.

DIHR suggested that at the early stages, regulators needed to be more challenging with project proponents and question how they will engage with the communities and project-affected persons (PAPs). Proponents could explain how feedback mechanisms would be established. Junior mining companies should work with local stakeholders and local level actors (such as NGO and Indigenous Peoples representatives) who can play a role in providing channels to feed back to communities. These engagements should include information on processes and activities and prioritise local networks and communities.

A mining advisor suggested that there were three appropriate environments for impact assessments and engagement. The representative summarized these as:

1) The exploration process involves multiple companies (typically 5 different companies) and recognizes that there is possibly a 25-year period from mine concept to development.

2) During exploitation and mining.

3) In preparation for and during closure.

The mining advisor commented that there are several occasions when impact assessment may be evaluated and may require engagement with stakeholders. The advisor commented that there may be several companies involved in mine concept and development and some messages and/or promises may be lost by the time the project reaches closure. The advisor requested guidance for appropriate levels and types of engagement for each phase of the mine life.

ICMM echoed that it was important for clarification over the types and actors involved in stakeholder engagement. Often a mine site will be passed from multiple actors and therefore processes start, stop, and sometimes are not completed. Each stage should gather information on the different actors, community expectations, promises should be made, and roles and activities should be discussed and agreed. All companies should:

- Recognize that the process is iterative and therefore needs to be methodological in its approach to engagement and gathering such data.
- Recognize that engagement is an iterative process and requires ample engagement with a broad range of actors and representatives.
- Recognize that assessment and management bring different challenges and therefore present information for different audiences.
- Understand that as a process, stakeholder engagement requires methodological and consistent approaches to dissemination and recording activities.

ICMM commented that the organization had started to look closely at closure, as there has been a lack of focus on the social impacts of closure. ICMM stated that all companies should design for closure prior to breaking ground (provided an example of pump storage at coal mines in Europe which can endure for 300 years if designed appropriately during the design and assessment stages). IGF is currently developing guidance on closure of mining operations and recognizes the challenge. The guidance will include activities which can be undertaken from exploration and through permitting; however, exploration and exploitation stages of the mining cycle requires some detailed transitional guidance.

Session 1 | Tools, methodologies, and approaches of impact assessment in the mining life cycle: Case studies

Chairs: *Alistair Fulton, Environmental Resources Management (ERM)*
Roberto Mezzalama, Golder Associates (GA)

Participants: *Kate Miller, Horizonte Minerals*
Jane Shaw, Environmental Resources Management
Alistair Billington, International Environmental Management Association

Session goal and purpose

This session aimed to contribute to the discussion on approaches which will address the complex issues of mining projects. The session presented case studies including the application of Digital ESHIA from the early stages in project design for application in a water-rich environment at the Kucova Oil Field in Albania, Araguaia Project in Brazil, Nordstream2, and Houtribdijk in the Netherlands and captured a range of issues including social justice, human rights, biodiversity conservation, water management, and long-term economic benefits.

Summary of session discussions

The session chairs introduced the subject by emphasizing the need for strong project management of impact assessment so that the results are fed through to project design and make a more effective contribution to mining throughout the project life cycle. They also questioned whether the process and the outcomes were fit-for-purpose and reflected on the fact that often these studies can involve numerous meetings and significant staff resources and yet may not be effective in delivering an appropriate response to the project impacts. The session sought to engage the participants in discussion on how ESHIA studies can move from a technical niche study area to a pragmatic, practical process which demonstrably adds value to the mine development and to all the stakeholders involved in its development.

The panel reflected on the fact that environmental and social issues require specific management approaches and responsive strategies in order to attract financings. Social and human rights issues and related performance has emerged as the single biggest risk facing investors. Environmental Resources Management (ERM) is currently looking at how impact assessment can be more effective and successful, focusing specifically on how documentation produced can be useful. There were several nods of agreement in response to the claim that financial institutions are fed up with having to review long and turgid documents. ERM proposed that impact assessment should be far more proportionate and that this would be welcomed by practitioners on all sides. It was suggested that this would require a conversation with relevant bodies and actors, including internal executives on answering the question "What is the mine that we want to see?" The presentation summarized principles which should be adopted when undertaking this discussion. These principles included:

- Driving collaborative action and understanding across the ESHIA community.
- Focusing assessments so the findings are accessible to all stakeholders.
- Reducing uncertainty and risk within project consenting.
- Saving time and costs for developers, consenting authorities, lenders, and consultees.
- Enabling more time to be spent exploring the delivery of environmental and social improvements.

The panel reflected on what a proportional ESHIA should look like and a shorter report was identified as the priority; however, it is key that practitioners recognize that using an ESHIA solely to get permits and consent is the wrong approach and will inevitably lead to failure. The ESHIA should not be seen as a document for delivery at a certain point in time; instead it should use the studies as a guide to the development of appropriate and proportional responses to project-related impacts. The Institute of Environmental Management and Assessment (IEMA) recently published a strategy paper which provides guidance on how to enable more time to explore the delivery of social and environmental outcomes. The IEMA strategy paper suggests that impact assessment should be based on four key principles:

1) Need for collaborative effort. Usually the first time that regulators and project proponents meet is during the disclosure; however, IEMA recommends engaging with them from the outset.

2) Need to invest time in front-loading the ESHIA effort, which signifies that projects should be scoped properly to avoid redundant efforts further down the process.

3) Need to embrace new technologies to facilitate processes, such as mobile phone technology.

4) Keep the ESHIA simple and answer the following three questions:

    i. What will happen to the natural and human environments?

    ii. It this important?

    iii. What can we do about it?

The ESHIA should be seen as a tool to support stakeholder engagement over the project life cycle. Proponents need to start at the early stages to help avoid any specific environmental, social, health, and human rights issues. It was recognized that the ability to influence the project design is far greater at the start of the planning process; thus it is important to scope the project accurately at that stage in order to front-load the ESHIA effort. The panel suggested that miners need to embrace new technologies in the field of impact assessment, in particular the use of mobile telephones.

Currently, the impact assessment process focuses on the management of technical issues; however, there is a need to ensure that impact assessment makes more of an impact throughout the life of a mine, as well as adding value to the relevant stakeholders, including investors, mining companies, communities, and regulators. Innovation in impact assessment is a process that has evolved over 40 years and is continuing to evolve through changing regulatory and societal expectations, as well as advancements in social media, technological advances and increasingly sophisticated data management tools.

The presentation provided an overview of tools used in visual impact analysis and explored a range of applications, benefits and constraints of using computerized visual simulations for mining projects throughout the assessment and permitting processes. The presentation clearly demonstrated that there is vast potential to apply visualization simulations and help explain complex issues relating to water management, biodiversity conservation, social justice, human rights issues and economic development, in a variety of geographical settings.

Access to data and information is key in building solutions to issues and for messaging to non-technical audiences. Translating technical issues into language for wider audiences has presented challenges and thus there is increasing recognition of the importance of story telling. The story should include details of the whole life of the mine plan, including mine closure, when presenting the opportunity for mine development at the initial stages.

The session identified several potential causes for delays in project development. ERM presented their experiences on 67 projects and cited the following as reasons for delays: social opposition (42% of projects), environmental concerns (35%), permitting issues (23%), land access (6%), health and safety (6%), and adverse weather (3%). The panel agreed that delays lead to a direct impact on value and in their experience, and the delays are caused by a lack of engagement during the early stages. Usually the engagement undertaken as part of the permitting process acts as the catalyst for difficulties.

The panel were aligned in their view of the benefits of the use of digital platforms, as well as increasing the use of technology for the collection of data using drones and digital resources. There was also agreement on the need for rigorous scoping and a clear and consistent definition of the project. The panel reflected that in some jurisdictions, it would be beneficial to create a partnership with local authorities to help build an understanding of the ESHIA process and technical project requirements. The panel encouraged the sharing of knowledge with the regulators. It was also suggested that the use of tools such as 3D imagery can enable a robust and clear visualization of the project and is helpful for understanding the potential impacts over the project timeline. This requires significant engagement with the relevant stakeholders. Digitization of the baseline and impact assessment also supports the development of relevant dashboards in order to monitor the project going forward, and can enhance messaging for stakeholders at key stages of the project. The panel provided examples of how water holes and borehole drilling can be mapped to provide assurances to stakeholders who may have concerns that drilling would affect their water supply, through the visualization of the drilling in relation to the ground water sources, and providing a visualization of the safety measures put in place to eliminate the risk of borehole contamination. The discussion concluded that there were many benefits to providing good quality graphical data and mapping which can provide evidence to both regulators and affected parties. The panel recommended engaging with and involving the regulators in the development of the data mapping and visualisation.

Guidance for implementation

It is important that issues are properly scoped during the initial stages of the project. It is important that sufficient and robust evidence be provided if issues are scoped out of the ESHIA or are deemed not relevant to the project. ***Proper scoping of the issues early on during the decision-making process can save resources, energy and time***. It is essential that the scoping exercise is informed by knowledgeable input. Inputs may be sourced from local knowledge, learning on other projects, and/or from senior technical participation. It is key that specific points of knowledge are brought into the discussion to inform decision making and then evidence is collected to demonstrate the potential issue and/or impact. Conducting this at the early stages of project decision making can trigger questions, potential impacts, and related management approaches which should then be embedded into the project design.

The panel highlighted several technological tools which can support the delivery of the ESHIA and help present results in a meaningful manner for the stakeholders. Examples included dating and aging trees and fire escape planning which could then create visualization tools to support scenario planning. These visualization tools also mean that stakeholders can be considered within the scenario planning. This increases stakeholder understanding of the issues and puts stakeholders at the centre of planning priorities. This approach can help to reduce any defensiveness.

Transferring the data to cloud-based storage can also mean that information and data is available in real time and provides an opportunity to review potential project impacts while in the field and when communicating

with stakeholders. This also enables real-time data application which can provide assurance to regulators.

A challenge is in bringing all of the data together and making it meaningful to stakeholders. The panel discussed what a report should look like. They recommended having conversations early on to help understand what messaging is important and this can help develop story maps which can be used throughout the life of the mine. These story maps should be based on asking "what if" questions and undertaking a range of scenario planning in a range of contextual environments. The mine story maps can also aid monitoring efforts as well as closure due to the fact that all datasets can be available throughout the project and transferred for decommissioning and closure to support any post-mine planning.

The panel also discussed the need for companies, in particular large mining companies, to provide inputs into the reporting on the Sustainable Development Goals (SDGs). If the SDGs are considered during the mine planning phases, then this may enable specific baseline data to be collected and reviewed in order to report progress against the SDGs. Applying the SDGs at the start of mine development enables holistic thinking around the project's contribution to the SDGs, and can support the cohesion of the mine's strategy and plans. The panel agreed that embracing the opportunities within the life cycle will inform the approach to the ESHIA which needs to be brought into the core of project development. Being project-focussed on contributions to the SDG should enable the production of a proportionate ESHIA.

ERM provided a case example of data use and management to map and monitor water. Water provision, supply, and distribution, as well as community uses was a critical aspect of the mine plan decision making. In all cases where there has been digitization of data management, it is key to consider scoping. It is essential that the environmental and social teams as well as the digital teams are engaged early on in the mine planning process in order to consider a broader range of social and environmental information requirements and issues. It is also helpful to consider influence versus expenditure. It is far cheaper to involve a broad range of practitioners and discuss meaningful and agreed solutions to issues during the planning phases, than it is to redesign or mitigate a design flaw later on during the development of the mine. ***Engineering solutions are usually always available to resolve problems; however, it is much cheaper to avoid them in the first place.***

Horizonte Minerals (HM) described their experiences on the Araguaia mine planning process and advocated an approach of trying to plan for "the mine that we want to see." HM shared their experiences at Araguaia on designing the mine plan to minimize impacts on the local water springs and manage the extremes in water levels between high and low season. The solutions were technologically challenging and resulted in the entire plant moving location to flatter ground. This reduced the need for resettlement, eliminated the risk to water supply and to the water table, avoided a protected habitat, and introduced a habitat protection zone. The project still required a Biodiversity Action Plan; however, the scale was greatly reduced due to the amendments in the location of the mine.

The project undertook a transparent process of engagement with potentially affected parties and was explicit about the project approval phases, as well as community investments which would be made available. This approach succeeded in managing community expectations and enabled partnerships to manage the potential impacts, in particular on biodiversity management.

HM discussed how adopting an approach of prioritizing water management enabled the site to plan across many functions. This resulted in the development of community ideas around water stewardship and long-term sustainability of the water courses, including thinking around closure and post-closure planning. It was essential to collect one set of data which could be used by all relevant partners. This data is being used to map out trends and undertake trends analysis, which helps to manage budgets. It was also useful to bring other stakeholder perspectives into the discussion. This required the datasets to be flexible enough to respond to stakeholder ideas and solutions and enabled and facilitated internal planning due to the cross-functional nature of water use. If data is robust, then modelling and numerical tools can be applied. This is essential to enable the adaptation of methods for the different stages of the mine plan. HM gave an example of why it is important to understand water quality, as well as flow data during exploration and scoping as some permits require 4 to 5 years of data.

HM discussed what companies should do when there is an absence of data and advised that the whole catchment area should be mapped and then sized according to potential inputs and impacts (e.g., influence between project activities and catchment). There may be boundary issues; however, the project should define the catchment as broadly as possible to capture all issues and then can redefine/define them at a later stage. The studies also need to capture iteratively, including climate conditions, groundwater courses, receptors, and undertake a water census. These tools can capture key sensitivities and flooding potential which should feed into modelling.

ERM West Africa Mine Case study

A **catchment-level water supply review** identified that existing hydroelectric dams would threaten the surface water resources. The modelling identified available groundwater supplies which could be prioritized based on non-competition with local users. The design of the water modeling programme **saved the company £500k in the first year** through its targeted locations.

HM spoke of the importance in identifying red flag issues and looking at the whole catchment area. It is important to bring an awareness of these issues at the pre-feasibility and feasibility stages in order to change the design of the mine, if necessary. Data should also be interactive and project dashboards should have the capacity to be interactive. It is essential to ask strategic questions during the planning stages and not accept the status quo if issues have been identified. For example, question what will happen if the mine site is located in a different place, and ask questions relating to impacts on the community. These questions need to be raised constantly throughout the life of the mine, including commissioning, operations, and closure. There is a need to continually ask if the systems are in place to avoid actual impacts on the conditions. The mitigation and management plans need to grow and adapt in response to project needs. Reviewing water supply and consideration of climate impacts can also inform the project of natural climate variations which can identify potential problems.

The panel raised issues in relation to closure and agreed that mining companies cannot look after sites in perpetuity. The following points were discussed:

- The need to find cheaper solutions (e.g., a lined tailings dam) and consideration throughout the life of the mine in order to reduce closure mitigation costs.
- Scoping is essential in order to consider issues early on in the decision-making process, as well as eliminate superfluous issues.
- Data management is critical—all data should be updated, in particular if re-opening assets.
- Coordination and integration is key. Many projects involve international project teams with engineers located in various parts of the

world, with different partners participate in the process at different stages, and who may have varied perspectives on the same issue. Integration of thinking and decision making between regional, company, community, engineer, environmental, headquarters, and field offices is essential.

HM provided a case study of the Aragaia Ferro-Nickel Project located in the southeast of the Northern State of Brazil. This project was seen by all parties as a key economic driver for the region where 50% of the population live below the poverty line. The feasibility study demonstrated that there was a planned contribution of $700m over the life of the mine, a well-established permitting procedure and competent authorities. 1500 people participated in the initial public hearing ESIA event. North Brazil is wet and humid and is home to mosquitoes for seven months during wet season and then five months of dry season. Water management was key to the success of the project. In consultation with stakeholders, the project designed a closed-circuit system with 90% recycling rate and with mechanisms to reduce use during dry months through seasonal pumping. HM recognised that there was a need for additional studies on the water catchment and on the flora and fauna in the area. Operational discussions endured for a decade before even laying a brick and HM provided significant training for their mine site workers on dialogue, including reading stakeholder receptiveness and body-language. HM also was candid about how long the process of assessment and the development of mitigation and management measures would endure. HM recommended being honest about the purpose of the reports, as well as the process undertaken. This approach ensured that all community members were informed and engaged on where the mine development was and what stage in the process. The engagement with the community members also identified key priorities for community engagement, some of which were very cost effective. These included:

Aragaia Ferro-Nickel Project

Analysis of the water balance demonstrated that the dam levels were at their lowest during the dry season and should be avoided. The project used the natural environment to support solutions. This included the use of runoff from the dam and slag areas and consideration of additional catchments in order to minimize the risks to the levels of water.

Flora and fauna surveys were also undertaken which identified several flora species, including some which were new to science. The results of the studies led to amendments in the plan, in particular, adjustments to the site infrastructure. They also led to the creation of a habitat exclusion zone and the development of "green corridors" to improve the land management. The process also enabled engagement with the local communities, which also provided opportunities for discussion on the mine and potential impacts, as well as a way of managing the expectations of the communities. This was only possible due to the fact that HM had engaged with their potential stakeholders right from the initial field investigations and the start of the exploration process.

- Sexual health awareness-raising, training, and partnerships with relevant bodies.
- A greenhouse project which will rehabilitate areas before the mine starts.
- Long-term training program with a view to recruit locals.
- Employee volunteer days to support relationship building with community members.

The key takeaways summarized by HM include:

- Multi-disciplinary approach and integration is key to project success.
- It is essential to study all areas of the site in order to identify potential significant risks which may require a re-design.
- Engage early, hire locals, and partner with agencies with specialised competencies. This also helps to integrate the company into the community.

Plenary discussion

A participant questioned how we can improve the impact assessment process if the impact assessment is not leading to good decisions. The participant asked how early decision making can be undertaken when elements lack certainty at this stage and commented that the best results from the ESIAs are value driven, which is client-dependent and sits outside of the requirements of ESIA, to address uncertainties and identify how to best engage. The panel responded with an example from the British Airport Authority (BAA) public enquiry on Terminal 5 at Heathrow airport. BAA had to adapt the behaviour of others and hence engaged with regulators to ensure that the pubic consultation process was undertaken early to inform planning and decision making. This enabled BAA to demonstrate how they had listened to public inputs and concerns and explain how these were addressed within the design.

A participant from a large mining company raised the issue of producing giant ESHIA documents and states that this is usually because the wrong questions have been asked at the start of the process. The role of the ESHIA should be to integrate issue management and mitigation into core decision making and suggested that the ESHIA should provide a clear set of guidelines which can be turned into measures which can be integrated into operations. The participant proposed that this should happen as early as possible; however, most companies only start thinking about these issues at the feasibility stages. The participant wanted guidance on how to integrate these issues at the earliest stages of decision making. An environmental advisor responded that decisions should be value-driven and that this would enable companies to engage early, preferably pre-feasibility stages, in order to develop plans appropriately. Integration is often a challenge on these projects due to the fact that there are several different companies (undertaking separate contracts e.g., civil, water, etc.) and actors involved during the early stages. All contractors should adopt the same environmental, social, and health standards, but this will require environmental and engineering teams to collaborate and share findings at the early stages.

An environmental advisor queried how companies could initiate studies, without raising community expectations. HM responded by sharing their experiences and concluded that people want and need information and therefore companies should provide information on their aims and corresponding activities, and a timeframe of when activities/results may be available. This information should be made available regularly and in advance of any activities at the project site. If the company hasn't provided information for a period of time, then there is value in explaining the delay.

A participant from a mining company asked about misinformation, as well as data collection, management, and analysis given advances in technology such as Artificial Intelligence (AI). AI presents a challenge for companies in light of the potential for engagement with the local community through employment and related economic benefits, as well as data management and health and safety monitoring, which may be replaced by AI in the future. This will have corresponding impacts on potential employment opportunities for local community members. The participant's query was a good segue into the next session.

Session 2 | Community and stakeholder engagement: From exploration to mine closure

Chairs: *Tricia Wilhelm, Anglo American and Susan Joyce, On Common Ground*

Participants: *Froydis Cameron-Johansson, Anglo American*
Nick Bainton, Centre for Social Responsibility in Mining
Ana Maria Esteves, Community Insights Group

Session goal and purpose

This session provided a forum to discuss the approach to stakeholder engagement at different stages of the mining project. It included discussion around the challenges to early engagement and presented industry best practice around stakeholder identification, planning and engagement.

Summary of session discussions

Session 2 was chaired by Anglo American's Head of Social Performance and the President of On Common Ground. The session was arranged as a panel discussion with inputs from Anglo American's Head of Safety, Sustainability and Corporate Affairs and Compliance; the Associate Professor – Program Leader Extractive and Communities at University of Queensland, Centre for Social Responsibility in Mining; and the Director of Community Insights Group.

The Centre for Social Responsibility in Mining (CSRM) representative provided an introduction as an anthropologist and to his experience in Papua New Guinea (PNG). His formative experiences included the Development Forum Process, a formalized mechanism to enable engagement and benefit sharing on projects in PNG. PNG is heavily dependent on mining and oil and gas industries, both of which are growing and have resulted in a patchwork of leases and permits. The state has limited capacity to deliver benefits for communities, and this has led to high expectations on mining companies to deliver social and economic development benefits. There is also a high level of conflict which often accompanies these types of projects. CSRM hypothesized that the forced closure of the Bayum Burn Copper mine in 1989 resulted in local resistance and a heavy-handed response from the authorities that resulted in 20,000 deaths. This has led to a situation where many PNG-based projects are time bombs resulting in major social resistance.

The PNG Porgera Gold mine was initiated in 2002, and the company prioritized understanding the potential levels of community approval for the mine. Various development forums have fleshed out and enabled a longer-term perspective on mine development. However, the forum itself has challenges including identification, representation, distributions of benefits, and disconnect from the ESIA process. There are currently many disconnects between processes in-country including between landowners; customary land owners; customary land users; identification and mapping of rights within defined areas; rights and inheritance; and a lack of information required to achieve Free, Prior and Informed Consent (FPIC). The Development Forum focused on the benefits; however, the failure to accurately identify affected parties and a failure to deliver on promises has also created disconnects. There is a lack of understanding and/or acknowledgment of initial commitments, and this tension is compounded by a lack of monitoring and evaluation. CRSM commented that while most elements of a good social management system may be in place, the problems are created when issues are not connected through the project life cycle. CSRM also commented on the need to have the capacity as well as the capability to understand and manage the complexity of the local geographical and social context. This requires the consideration of timing, sequencing, and the skills needed to implement effectively. Disciplinary influence, as well as technical competencies are needed in order to respond effectively to issues. FPIC also requires time as well as information. If the process to secure FPIC is compressed, this creates pressure to resolve and often means that the "Informed" element is missing. All projects should enable the feedback loop so that it is effective during and between all stages of the project.

Community Insights Group (CIG echoed the need to ensure that the phase between concept and development (i.e., pre-feasibility and feasibility) is robust. CIG presented a case study of a project where the local District Commissioner was having repeated conversations with multiple groups but there was a lack of response to his request for a sequencing profile to understand scheduling (in order to free up capacity at the different levels of authority) to facilitate their involvement in project decision making. The local District Commissioner wanted to have only one point of contact so that he could effectively disseminate relevant information to the departments and institutional stakeholders. Another issue raised during the discussion was that it is often assumed that the impacts identified in the ESIAs are initiated once the construction starts. However, there are impacts[2] from preliminary interventions, studies, and engagements that start long before the ESIA has been prepared. CIG stated that practitioners needed guidance that goes beyond "management of expectations" and provided the following advice:

- Have an early warning mechanism in place—multi-stakeholder forums are useful but have their limitations and only convey the views of those who are willing to speak talk to the project teams. There is value in sourcing third party actors to source views of opposing groups or putting in place additional tools (such as an anonymous SMS feedback mechanism).
- Invest in local skills—there are always high expectations when a new project is initiated. Local people tend to believe that the economic benefits outweigh the social and environmental costs. Companies should plan to maximize local content as much as possible and start early to enable the required investment in skills development and training[3]. Funds must be set aside and training should enable the development of transferable skills and develop supply lines. Stakeholder engagement is key to enabling this.
- Companies need to have accountability—people who have competency, mandate, and budget to act. People need to be able to respond in real time to issues, whether it be a security threat or labor treatment.

CIG presented a case study of two different community responses within 20 kilometre (km) of a mine. The closest community was desperate for the mine in order to revitalize a depressed economy; however, the fishermen from a coastal village took a case against the proponent in the Constitutional Court and subsequently the discussion on protection of the environment versus economic growth became a national discussion. The project approval has been delayed for five years already, despite the company having set up best practice forums. CIG proposed that it is essential to frame the initial phases of contact with local communities and authorities in order to understand existing conditions and aspirations. ***The early phase of decision making is critical, as this is when attitudes can be formed that are difficult to change and can harden over time.*** It is key to ensure that the proponent undertakes the following at the early/pre-permitting phases:

- Listen to those who will not talk to you.
- Facilitate the transfer of skills and businesses.
- Hire fixers and mediators.

Anglo American (AA) spoke of the Quellaveco project, which took 20 years to get approval. Quellaveco is a Copper Greenfield Project in Southern Peru. AA had completed ESIA studies—community expectations were

high and there were water issues which required careful management and direct engagement with community members; however, engagement was not undertaken and the announcement on water issues resulted in protests. This led to the creation of a "Mesa de Dialogo" or "Dialogue Roundtable." There was also weak institutional capacity and there was no knowledge of AA's approach or reputation.

The Mesa de Dialogo enabled an 18-month process of dialogue and discussion which involved the engineering team, in order to help the company understand community perceptions and issues and design an effective response to demonstrate that they had listened to the community. This process highlighted that there were some consistent questions raised by the stakeholders:

- What is in this process for me?
- How are you going to manage the impacts to land, air and water?
- What can this mine do for my children?

AA advised developing robust responses to these three questions prior to engaging with PAPs. The engineers learned humility and respect and AA advised that these were important qualities in order to maintain a dialogue. It is important to ensure that the right representatives are in place to speak on behalf of the communities, and that the dialogue demonstrates that the company is listening and focuses on community needs. It is also key to engage in the appropriate way for the local context so that it is meaningful. AA also advised that companies must seek to improve the project and therefore recommended that the team is resourced with appropriate qualified and experienced personnel with the right technical skills. The social team member has to wear many hats and be able to manage a range of technical vehicles (such as stakeholder engagement, government relations, skills development) and also suggested that it was helpful if senior management had lived through a similar experience on another project so that they had "the fear."

On Common Ground (OCG) stated that social practitioners must do a better job of integrating social issues into ESHIA processes and management decision making. OCG argued that there is much innovation in impact assessment but not as much on criteria to measure impact and effectiveness. Key issues such as FPIC have driven change across the industry; however, there is still a need for further learning in practice. The challenge is in dealing with the specifics: for example, how do Community-Based Agreements relate to FPIC? How do we integrate into ESIA processes and management plans? What are the substantive issues in terms of rights and benefits? How do we ensure that the benefits get to PAPs?

The panel was asked the question of whether the impact assessment process needed to change, or whether social issues were separate and should be fed into the impact assessment process. AA was clear that success can only be based on trust. If there is no trust in the ESIA process, then projects are unlikely to secure the social license to operate. In order to build this trust, companies may have to embark on processes and activities which they did not plan for. For example, AA has invested in building the capacity of the "Consultor Proberia"[4] and supported training. This was key, due to the fact that the District Commissioner saw his role as debottlenecking and did not share the same understanding of the value of impact assessment. He saw community benefits rather than potential impacts. AA asked how mining companies can work with these groups of people, in particular, having to adopt a balancing act of supporting and protecting community rights while encouraging authorities to engage and inform local communities of their rights and to inform decision making.

All of the panel members agreed that relevant data and up-to-date information must inform project planning and decision making. This requires data-based evidence so that decisions are impartial and are not driven by personalities.

Plenary discussion

A mining research university stated that there may be capacity issues (within both government and communities) and companies should ask themselves whether they have the capacity to understand issues and then drive forward processes to address them or to negotiate in order to make changes to the project.

A social practitioner suggested that companies should not outsource the role of engagement with communities and that they should never underestimate the time required in order to develop the relevant studies and engage with different groups. The social practitioner identified that in the PNG context, leaders in PNG often act as gatekeepers to information, and the mining research university stated that companies have to respect local traditions and respect cultural norms, and that engagement with leaders often limits access to other stakeholders, women and youth in particular, to meaningfully provide their input. The mining research university argued that practitioners should also engage with leaders in order to educate them about the benefits of broader engagement and inclusion of other groups, while still maintaining authority. It stated that this process inevitably requires a lot of time and energy and additional resources and support.

An ecological organization stated that the connection between human rights and FPIC/environmental issues is important and asked for the panel's perspective on how an ecosystem services review could provide human rights related insights into decision making. It asked for guidance on how to distil these issues as often they touch upon political issues which require a different type of navigation.

A medical and travel security firm raised the issue of institutional capacity and the importance of being able to partner with effective and relevant agencies, in particular on implementation of health programs. In order to implement this effectively, it advised that health institutions are engaged right from the start of the project planning process.

The panel provided examples of companies that are looking at higher level interventions in order to address potential future issues, including potential need for additional health services in the future and infrastructure that may be required. This partnership requires influencing skills, and it is helpful to be able to demonstrate success on other projects in other locations, which could provide some assurances to local decision makers. It is also important to note that some jurisdictions have active regional planning units, while others may need support. The panel suggested that this support should be targeted interventions and gave an example of a project where the company paid the fees of technical specialists to provide advice to the local regional authorities in order to develop an effective plan and response to the potential health impacts from project-related influx.

The panel repeated the fact that planning in partnership with regional governments, local authorities, NGOs, and development agencies to put in place effective response mechanisms to mine impacts requires a significant investment of time and resources. The panel qualified that some non-profit agencies are not willing to get involved with specific companies; however, processes tend to be more successful when there is collaboration with other actors and partners.

A social consultant summarized some of the issues relating to the PNG Development Forum and identified that many of the issues are directly related to efforts to attain/retain power. This means that processes can be easily manipulated by political agendas and it is important for the company to maintain control of stakeholder engagement processes and include representatives from these political bodies. The social consultant also raised the issue of the manipulation of data and information in social baselines. Sometimes communities may feel that they should increase the numbers of PAPs in order to maximize any potential benefits from the pro-

jects. It is important to verify data sources and ensure a robust representation of socio-economic conditions.

A mining consulting company suggested that there are two types of engagement with stakeholders: (i) relationship building, and (ii) a requirement in the ESHIA process. The consultant wanted to understand how to move from one type of engagement to the other. The panel proposed that one type of engagement is extractive, and the other type, ESHIA, is a process to identify and discuss potential impacts and help prepare PAPs so they understand how they may be potentially affected by the project and how these effects may be addressed. ***Practitioners have an ethical responsibility to prepare people for project impacts.*** The panel agreed and reiterated the need for active participation of PAPs in consultation processes and related decision making. This process also enables and supports capacity building and relationship-building.

The panel repeated an earlier statement from the plenary discussions and advised that all discussions with stakeholders and interested parties should seek to answer the question, "What kind of mine do we want to see?"

Session 3 | From planning to completion: Managing biodiversity risks in the mining sector

Chairs: *Peter Moore, EBRD*
Nicola Faulks, SLR Consulting

Participants: *Jared Hardner, Hardner and Gullison Associates*
Alice Davies, SRK Consulting
Leigh Ann Hurt, International Union for Conservation of Nature
David Hamilton and Oyu Tolgoi, Rio Tinto
Pippa Howard, Fauna and Flora International

Session goal and purpose

This session aimed to address the challenges and opportunities for managing biodiversity risks in the mining sector. The panel presented a range of case studies which discussed the challenge of integrating biodiversity conservation into mine related decision making. The panel also presented ideas on how to integrate biodiversity conservation and risk management into all phases of the mine life cycle from planning to rehabilitation and closure.

Summary of session discussions

The chairs introduced the session by recognizing that biodiversity issues must be considered throughout the ESIA process from concept to closure and that the panel members would present a range of case studies to help understand approaches and reconciliation with the concept of "No Net Loss."

Hardner & Gullison Associates (HGA) presented the most significant challenges with undertaking biodiversity studies and the problems that this can lead to as a project progresses. HGA prioritized engagement with biodiversity specialists early on in the decision-making processes in order to avoid more significant problems further into the process of mine development. Biodiversity assessment may require changes in the conventional project process and activities; hence the earlier these aspects are considered and incorporated into mine planning, the more effective the response will be. A significant and common issue is the need to "fill in the gaps," and therefore it is more cost-efficient if companies adopt a biodiversity-aware approach from the initial decision making. HGA experience has demonstrated that companies either undertake the process correctly the first time or they have to complete the process again. HGA identified key challenges during the baseline stage; these include:

- **Study area is too small:** The project footprint should be considered; however, so too should the emissions and effluence. Indirect, induced, and perceived impacts all need to be addressed. Decisions will be informed by regional distribution of priority biodiversity features and therefore the distribution of these features must be understood prior to project decision making. This will also help companies to understand should there be a need to develop an offset plan.
- **Field work is not combined**: Undertake a vegetation study as a first step and then organize the rest of the studies and assessments according to those identified ecosystems; otherwise it can be difficult to understand the full consequences of impacts.
- **Studies are focused on getting approvals:** The purpose of the biodiversity study is not to make lists of the presence or absence of biodiversity resources. It is to consider the potential extent of impacts and the users of the ecosystems and ecosystem services, as well as the representation of concerns in decision making.
- **Insufficient data to support risk assessment:** The studies should explore the local, regional, and national viability of ecosystems and how vulnerable it is to the potential impacts. This helps to create mitigation measures which achieve No Net Loss.
- **ESIA studies are not adaptive:** ESIAs are planned and implemented according to a defined area and fixed scope. Biodiversity studies must involve adaptive management to enable the exploration of further information and/or studies. For example, studies might identify new species, or identify those on the International Union for Conservation of Nature (IUCN) Red List which require updating. These outcomes require additional information in order to understand distribution and the vulnerability of the species to the landscape.

All these challenges mean that baseline studies often require more time. All ESIA processes should invest adequate time in scoping early on during the process, in order to select and pursue studies that enable a focus on a subset of critical issues. EBRD mentioned that their web site hosts several guidance notes on good practice for baseline, mitigation, and management planning and implementation. EBRD suggested that these guides should be used as a reference point when practitioners are developing Terms of Reference for studies.

SRK Consulting presented two case studies located within the Democratic Republic of Congo. The first case study presented a project that included a 35km conveyor belt which takes potash to a port. The project site was sandwiched between two protected areas and the area is home to a key connectivity corridor for elephants. Studies identified that there were critically endangered dolphins as well as turtles which may be affected. The studies identified that there were illegal trawling activities in the port area, that communities were very poor, and that illegal logging had significantly degraded the environment. The response was to design the conveyor, which stood at 15m, in order to enable the elephants to pass underneath and without impediment. The solution required active management of the conveyor and this had the additional impact of reducing the presence of illegal logging, due to the fact that haulers could no longer pass through the area. In addition, the community members appreciated the fact that elephants no longer passed through their fields, disrupting their crops.

The response to mitigate any impacts on the dolphins and turtles involved engagement with specialists and local conservation NGOs and developed a partnership based on this dialogue. This partnership has resulted in additional scientific studies for the species, as well as increased access to

funding. The 300m exclusion zone was expanded to 1.5 nautical miles in order to restrict any illegal trawling.

SRK Consulting suggested that ***success was dependent on the adoption of the approach to avoid impacts where possible.*** This meant using habitat maps to re-route around sensitive receptors. After minimization of potential impacts, an offset plan was produced in partnership with local bodies and with the community. SRK Consulting advised that prioritizing biodiversity protection during the discussions helped them determine community perspectives and priorities. This approach enabled SRK Consulting to engage with other local NGOs to advise on best approaches.

IUCN stated that several topic-specific toolkits are available, but advised that projects should always seek to develop Independent Scientific and Technical Advisory Panels. IUCN commented that the case studies provided examples of conservation outcomes and that all had their own mandates and observed that the case studies all shared the principles of independence, transparency, and accountability. IUCN reflected upon experiences garnered in Nigeria in response to the Shell oil spills, when the actors identified an opportunity to restore biodiversity in the area. A panel that had a mandate to rehabilitate the oil-spill affected areas was formed. The panel took a risk-based approach to their analysis and developed a strategy for biodiversity protection for the region. The panel also brought impact assessment as well as biodiversity teams together to improve reporting and monitoring.

IUCN reflected on the challenges in implementation. Field visits were limited due to security risks and therefore a robust scope was defined and a process of engagement and dialogue was initiated. The process endured several years in development and dialogue was key to building and retaining trust.

IUCN commented on another case study which established the Western Grey Whale Panel for the Sakhalin expansion project. The financial lending institutions for the project had stipulated a condition which required the establishment of an independent panel to advise Sakhalin. The panel advised Sakhalin to re-route the pipeline and are involved in the monitoring of the grey whales for the project. The process took a long time, during which the team were transparent about their activities with stakeholders and therefore established trust between the parties and engaged a range of actors in the recommendations. This work also led to the development of operational guidelines for seismic survey work.

IUCN presented another case study where IUCN had been invited to participate in the response to the tailings dam collapse of the Rio Doce project in Brazil, in which over 650km of river was affected. IUCN's mandate was to focus on restoration and since the panel was established in 2017, 42 programs to address immediate needs have been established. The panel has adopted a long-term approach and subsequently is supporting projects which tackle the historic pollution and improve the condition of the river. During the process, a baseline was established, the outcomes were evaluated, and potential future threats to the river were identified. This panel supports the protection of a large area which covers two states, a river, a dam, the ocean, and a forest.

Rio Tinto presented a case study on No Net Loss in a data-free environment for a large copper mine which included an open pit and underground mine in Mongolia. Rio Tinto reflected on the fact that mining is increasingly exploring more remote areas where there is very little or non-existent baseline data available and no primary data. The project is located in the Gobi Desert and includes steppes and forests which are home to high levels of biodiversity. IFC Performance Standard 6can develop[5] was triggered and Rio Tinto committed to achieving net positive gain. Net gain calculations were completed in order to design offsets. A challenge was little understanding of the basic behavior of the species, and it was recognized that larger offsets may be required. This presented a challenge on how companies can measure and assess the institutions and organisations which are to benefit from the mitigation and offset programs. The approach required commitment of time and resources to undertake the research, and although not all potential impacts were identified at the start of the process, it was important to be confident that the representative data reflected the broader area and potential issues. This also enabled research into other areas including additional organisms and ecosystem services and community uses, as well as the benefits from the potential offset options. Spending time at the early stages to establish a robust scientific-based approach and creating opportunities to undertake investigations in under-studied areas of research ensured that the results of studies could demonstrate that the offsets were being effective.

Fauna & Flora International (F&FI) presented a case study on the "ForestSmart" mining approach, which was undertaken in partnership with Levin Sources and the Swedish Geological AB. Forests are highly sensitive: if the forest is disturbed, the whole ecosystem is disturbed. Despite mining being fairly well regulated in the majority of jurisdictions and having processes in place to create a framework in which the mine can develop[6], the mine requires a lot of corresponding infrastructure, including power, which has an indirect footprint. F&FI estimated that the area of influence of a mine has a 70-75km radius. Artisanal mining and large-scale mining both have impacts, and F&FI stated that there were 1500 mines located in forests[7] and an additional 1800 either mothballed or about to go into operations. This signifies that 10% of all forests are affected by mining.

F&FI identified some countries where there are forests and a lack of robust regulatory and legal framework on forestry management. These included Brazil, DRC, Ghana, and Zimbabwe and indicated that these countries were dependent on mining for income. In addition, F&FI estimated that 60% of minerals such as gold, iron, copper, bauxite, and titanium are located in forests and stated that currently, 77% of all mines are located within 50km of protected forested areas. This situation will be affected by the increase of mining projects. F&FI has developed a dataset at the global level in order to map the forests. The dataset includes 29 projects in 19 countries and has considered in detail the mining, forestry, and environmental policies in each country.

The panel shared two case studies: the Newmont Akyem Mine in Ghana, which is located within a forested ecosystem, and a Lundin Mining project in Ecuador.

The Newmont Mine in Ghana was located in an area where 60% of the forest had disappeared and there was a rapidly growing population. Mining and forestry are managed within the same government ministry in Ghana (Ministry of Lands and Natural Resources); however, they are divided into sub-sectors. Both departments contradict one another and decision making does not consider the other priorities within the department. This has transpired to mean that a mine has been permitted to be located within a designated biodiversity offset area and this is very challenging to manage. Newmont adopts an approach of proactive engagement and in convening decision makers to determine outcomes. In addition, Newmont commented that there are spikes in deforestation during the exploration phases and has to proactively manage exploration-related influx.

Lundin Mining presented a case study in Ecuador at a site which was host to artisanal mining until 2009 when a new law reintroduced mining in the country. The Fruta del Norte site was located within a primary forest system, in an Indigenous Peoples area; however, there were very few residents located nearby. The site was characterized by very low forest degradation. Lundin Mining compared the context with the LKAB Mertainen project in Sweden where there are strong laws on forestry protection and capacity is good. The forest health index was good, with little deforestation and young forests and an abundance of biodiversity resources. Lundin

reflected on the fact that there is a strong correlation between the law and institutional capacity, as well as corporate commitment. Lundin provided some constructive reflections including:

- Companies can address impacts on forests and in a meaningful way in isolation.
- No company has been mining in a ForestSmart way and mitigation measures are not always applied.
- Indirect and secondary impacts can be devastating.
- Companies cannot achieve ForestSmart mining in isolation and therefore need to work with governments, who are often ill equipped to implement, suffer from a lack of coordination among departments, or lack knowledge about potential responses.
- The Lundin Mining site in Zambia presented an opportunity to demonstrate a ForestSmart approach within a large forest area and developed a successful partnership with the Zambian authorities, which provided land and enable protection.
- If governments have restricted capacity and/or policies, companies should provide technical accompaniment and time in order to protect forests.

Artisanal and small-scale mining (ASM) is harder to define in terms of impacts, as compared to large scale mining. However, ASM still has significant impacts on biodiversity, mainly through loss of ecosystems or increased toxicology in water courses. ASM is driven by economic factors and therefore significantly affect livelihoods. There are also issues in land tenure and ownership, as well as access rights. F&FI recommended the following:

- Minimize the footprint of the mine site.
- Source mitigation advice on land tenure.
- Ownership over land resources may be unclear and additional protection mechanism may be required[8].
- Stakeholder engagement with the right people is key.

Plenary discussion

Companies are reluctant to consider induced impacts from operations or mining activities, and the law only protects some components of forestry. ForestSmart mining companies should convene relevant actors, including government, consultants, financers and communities in order to integrate understanding on economic benefits and forestry management. Understanding the ecology and how it relates to habitats, ecosystems, ecosystem services, and related dependencies requires all parties to be involved. In addition, forests are integral to climate management and water security and therefore impacts must be considered as part of the project decision-making process. F&FI will present a report outlining approaches for integrated forestry management at Indaba in February 2019.

EBRD concluded the session, stating that practitioners need to be innovative as well as flexible and should develop a variety of tools to support impact assessment. The case studies presented provided several examples of these types of innovation: elephant crossings, expert panels, clarity on scope, and time and resources for investigation. EBRD reminded practitioners that it was important that terms of reference for these approaches needed careful consideration to enable success. EBRD also advised that a team was in place which balanced skills and viewpoints (e.g., facilitator, expert, scientist, fixer) which would enable inputs from different perspectives to arrive at the right outcomes.

A mining company advised that a robust biodiversity review had informed management decisions and the allocation of resources, in particular for the monitoring of impacts. They suggested that practitioners should be prepared to hear answers which may not be welcome. They also stated that when working in partnership with different specialist organizations, all parties should be prepared to agree to recommendations which are in the best interest of the panel aims (e.g., biodiversity protection).

An international NGO agreed that all approaches and responses have to be unique in order to respond effectively to the situation. It suggested that it is helpful to understand project constraints in order to enable discussion and compromise, which results in effective solutions. A biodiversity specialist asked F&FI whether the results of the ForestSmart mining approach could be applied to other processes and scenarios. The panel hypothesised that there may be an application to wetlands; however, forests have specific characteristics and so the approach could be applied to intact ecosystems rather than degraded ones. The key is in the application of the principles of the ForestSmart mining approach as well as restoration.

Recommendations

- Good planning is key and biodiversity should be considered throughout the life cycle of the project. Good baseline studies are essential in order to identify impacts and implementing mitigation as part of the ESIA process. Mitigation implementation and monitoring must be on-going throughout the life of the project.
- Take on board the good guidance that is available and consult with NGOs and other stakeholders who may be able to support delivery of the mitigation measures.
- Be prepared to invest time and resources and adopt a long-term approach to planning and decision making.

Guidance and available resources

Several good practice guides for conducting biodiversity baseline studies, impact assessment, and management planning are available at www.hg-llc.com/publications.

Forest Smart Mining Summary Report and Full Report will be available in February 2019 and will be launched at the Mining Indaba in Cape Town.

The Cross Sector Biodiversity Initiative, a partnership between ICMM, IPIECA and IFIs (including EBRD, IFC, IDB and EPFIs) have also prepared a very relevant Guidance Note: The Mitigation Hierarchy Guide, which has been published in5 languages: http://www.csbi.org.uk/our-work/mitigation-hierarchy-guide/.

World Bank user's guide on Biodiversity Offsets: http://documents.worldbank.org/curated/en/344901481176051661/pdf/110820-WP-BiodiversityOffsetsUserGuideFinalWebRevised-PUBLIC.pdf.

Session 4 | When the rubber hits the road: The practical challenges of complying with environmental and social standards and meeting evolving societal expectations

Chair: *Kevin D'Souza, Centerra Gold*

Participants: *David Williamson, EBRD*
Chloe Cranston, International Alert
Fiona Cessford, SRK Consulting

Session goal and purpose

The session highlighted the realities of working concurrently through local and international ESIA approval processes and the associated challenges of developing collaborative partnerships between mining companies and local communities and a variety of local stakeholders, consultants, government regulators, and project financers.

Summary of presentations and discussion

Attendees were invited to download the Slido application onto their phones in order to undertake some instant research with the audience and therefore participants submitted responses to questions via the app.

Centerra Gold (Centerra) introduced the session reflecting on the challenges of presenting the various requirements for a project to his Board. This included explaining local and international standards, jargon, and the time required to enable local permitting processes to be completed, as well as accessing financing and meeting international standards. Centerra was explicit that explaining that the project will meet international standards to local permitting authorities can feel quite patronizing.

EBRD supported this view and stated that EBRD projects require local standards, EU law, and EBRD standards to be met and there is always a gap between the local standards and the international requirements. This gap is typically in the area of social management. However, EBRD recommended having a clear dialogue with the local permitting authorities on how the EBRD standards are different to local regulations. EBRD clients are informed that they will not receive financing unless the EBRD Performance Requirements are met.

SRK stated that most authorities recognize that the international and local review can run in parallel and benefit when run in close cooperation and is increasingly common as legislation sometimes references Good International Industry Practice (GIIP), albeit capacity to review these at the local level is sometimes limited. Centerra referred to a project in Turkey when Centerra used local Turkish consultants, who did a good job for the project to meet local Turkish standards; however, they had limited capacity to respond to the need to help the project meet international standards.

International Alert (IA) highlighted the potential for pre-investment discussions to provide an opportunity to discuss the application of international standards. If undertaken, this would reduce the likelihood of there being gaps between the local and international standards. Centerra commented on the need to manage project risks and uncertainty, and that there are ongoing spikes in risk and activities. Mines rarely have adequate financial resources to enable the completion of everything at the start of the mine plan. The panel reflected on the need to discuss and understand risks internally however, it requires involvement from the communities in order to undertake and understand social risks and related management strategies and enable their involvement from concept to closure.

The panel also reflected on the need for robust and ongoing communications. Communications was presented as a challenge but also the most critical aspect of mine planning success. However, not all explorations lead to detailed studies and not all detailed studies lead to mine development. Therefore, it can be challenging for companies to know when it is appropriate to engage with local communities, in particular, to avoid the risk of raising expectations. IA advocated meaningful engagement to inform communities and help make them knowledgeable about the decision-making process, as well as the trade-offs and competing factors in decision making. Improving community awareness about the mine and potential activities not only helps to build local capacities; it can also help to build trust. It may be helpful to build capacities through an independent party such as an NGO. IA advocates for mining companies to undertake a conflict analysis and impact assessment in order to understand how the conflict may impact on the project and how the project may impact the conflict dynamics.

EBRD proposed that the communities should have in place representatives to speak to relevant issues and that companies should have in place local engagement specialists in order to understand how to engage with communities and PAPs in the most appropriate manner. Communication strategies must be meaningful and should aim to build relationships with local organizations and civil society; however, companies must undertake robust due diligence on any potential partners.

Centerra stated that the challenge for mining companies is knowing how much information to share during the initial stages when decision making is in flux and liable to change. Centerra stated that it was essential to manage expectations and so advised providing information about the life cycle of the mine and the proposed stages of investigation which will inform decision making on whether the mine will go ahead. ***It is also essential that mining engineers are giving out consistent messages about the process of mine development, rather than committing to promises that cannot be delivered.***

Centerra commented on the need to understand different stakeholder agendas and to recognize that when working with NGOs and civil society representatives, the company can be dealing with competing and/or political agendas. IA identified that there were areas of commonality between investors and NGOs and community members and the view that companies can have a social agenda. Sometimes conflict is internal to the company with competing agendas and therefore companies should also be mindful of how to manage internal competing demands. SRK stated that it is a very different scenario when there is conflict within the community over whether there will be a mine vis-à-vis internal corporate struggles. Both are difficult to manage and require appropriate sensitive responses, however, it is important for companies to get it right, from the beginning. For example, before breaking any ground, the company should decide whether they want to "dig a hole or do a good job". Consultants want to do a good job and therefore it is important to get all the relevant partners around the table from the start in order to determine what kind of mine will be developed, and to reinforce the message that community members need honesty, transparency and information.

EBRD echoed the difficulties around internal corporate conflicts and suggested that sometimes these are personality based and sometimes companies try to play the banks against each other. NGOs can provide great insights and perspectives into decision making; however, companies must also be aware that these organizations can also have a political agenda. Communication and clarity of communications is essential, as is understanding the agenda and motivation of different stakeholders. SRK referred to syndicate groups which can establish single priority groups (e.g., biodiversity, labor, etc.) and this can happen among the parties in

a joint venture (e.g., one partner is focused on stakeholder engagement and the other on cultural heritage). EBRD stated that it invests time in understanding the client.

Mining companies also have to respond to different dynamics. For example, different banks have different priorities and areas of focus. The panel recommended engaging internally within the company to agree a strategy for communications, key messages, and content, as well as roles and functions. IA commented that it had started seeing operations and finance departments involved in discussions on the ESHIA. It has proved helpful to have the bank, the environmental manager, human resources, and procurement participate in the early discussions, as well as participate in consultations.

The panel discussed the danger that commitments made at the start of project development present. Companies should not make any promises they are not prepared to keep. It is essential that any comments or promises made by senior representatives are captured and endure throughout the mine development process. It is good practice to plan for commitments; however, it is essential to understand the life of the mine, as well as developing strategies to work through commitments from start to finish. Commitment registers can help; however, these should include promises and outcomes from stakeholder discussions. The internal teams should then review what is possible and feasible and then communicate the outcomes of this decision making.

Plenary discussion

A participant suggested that companies should focus on high-risk environments and develop a "Promise Diary" in order to capture the promises made. Myanmar has new regulations in place which requires ESIAs to be completed by consultants. However, some of these consultants do not have international experience. The relationship between bankers, proponents, and communities therefore is increasingly significant and should relate to the mitigation and management plans, and the commitment registers and related implementation plans. An environmental consultant suggested that consultants and/or companies that are developing the plans should include commitments in the environmental and social management plan and present requirements in a concise and actionable format.

A variety of requirements on companies are presented within loan agreements, community engagement and agreements, and corporate requirements, as well as permitting requirements. These commitments should be gathered so that there is a consolidated understanding of all obligations. Companies should also address legacy issues and statements, in particular clarify any misleading statements. Companies also need to improve their understanding of their obligations which are contained within permits.

The panel recognized that sometimes it is difficult to deliver on social commitments, and this is reinforced when social actions are not included within the commitments' register. It is therefore important to encourage the involvement of the developer in the development of the management plans. Consultants should include operators in the development of the management plans so that these are actionable and ensure the implementers are aware of all requirements in order to implement them. Mining companies should work with their consultants to develop implementable action plans.

The panel also discussed the dilemma of "theory vs. reality" when consultation with local communities can lead to a distortion of prioritization of areas of focus. For example, a community may be concerned about blasting; however, water management may be the most significant issue that requires management. There is a need to gather and evaluate the inputs from external and internal parties, and subsequently, there may be a need to introduce conflict minimization strategies when consulting with local communities and reflecting back on the priorities for the management plans and related actions. A financing institution also advised that management plans need to be understandable to the operators and so the development of these should involve operations personnel to ensure that the plans are feasible and implementable.

The panel also discussed the management of change and reflected on the need for flexibility and to manage change over time, and over the life of the mine. The panel agreed that if a site had a functional management system on site during construction, then this is likely to lead to a successful management system during operations. ***A mining company pleaded for practitioners to harmonize their language and use correct terminology (e.g., ESIA, SIA, HIA, ESHIA).***

The panel discussed the issue of corporate turnover and the challenge that this can present to a project. When environmental managers leave their roles, this creates a huge gap in institutional knowledge and also can threaten to damage existing institutional relationships. This is also a problem when junior mining companies sell to larger actors. In these situations, there is a complete change in staff and management, and therefore all proponents need to ensure robust documentation of all engagements and actions in order to facilitate and hand over.

A financing institution reinforced the need to document all interactions, including engagement with communities, decision-making processes and inputs, process amendments, etc. It advised that these are all consistently documented as communities have long and extensive memories. It is also helpful for both communities and companies to understand the process of evolution in decision making and so it is useful to document this, especially if there is likely to be more than one operator involved in the mine over time. This is especially important due to the fact that the local community is the one constant actor involved in the mine.

A mining company argued that training the environmental team and the community on how to sustain relationships was helpful. General Mangers therefore needed to work with the environmental teams and the social function. It advised that the education of General Managers in the site's environmental and social matters should be part of all succession planning.

The discussion raised concerns around using local companies and quality assurance for the outputs. It also raised issues relating to different jurisdictions. For example, proponents may want to use a Western-based laboratory to analyze results from sampling; however, Colombia requires the use of local laboratories. The results can be completely distinct from each other and therefore difficult to accept one over the other. The panel advised that documents do have to respond to two different set of requirements, one local and the other international.

There was a question in relation to corporate staff turnover and how companies can manage this issue and spoke of a colleague who had been working in Kazakhstan and spoke fluent Kazakh; however, the company had a staff development policy which moved him to Ethiopia to provide different experiences. A mining consultant advised that social license to operate is all about relationships and the quality of those relationships. This can relate to a stakeholder's perspective of "fairness" and so it is important to understand stakeholder perspectives on whether they will perceive that they are being treated fairly. The representative advised that the manner of interaction is more significant than the level of expenditure. He also advised to review issues over longer periods of time, for example, provide perspectives for ten or 20 years to understand whether there are any improvements in quality of life.

The panel reflected that industry practice was improving and the mining company thinks that it is moving in the right direction. A financing institution suggested that progress is patchy, and this may be due to the fact that impact assessment has changed and adapted to incorporate human rights issues. Language may be imprecise; however, some areas are well understood and other aspects are less mature. An NGO reflected that knowledgeable and informed consultation demonstrates respect to stakeholders. An environmental consultant reflected on the need for industry to respond effectively to the range of stakeholders, as well as respond effectively to social media tools. A mining company reflected on the need to manage the security of the supply chain and referenced the dark web and advised developing tools on the use of social media for outreach and on communications. An NGO reflected on the problem of misinformation and reiterated the need for informed communications. If the company is not transparent, then it is easy for spoilers to manipulate perceptions. ***There are a few examples where "Rent-a-Mobs" who have been paid to protest have resulted in projects stalling. Guidance on how to manage this on social media should be developed.***

The panel also reflected on the discussion around conflicts of interest and stated that they were happy to see the discussion circle back to the competing agendas within companies. Divergence is often among community members and the use of social media can be helpful in determining and tracking the social landscape through a review on social media. Companies should invest time and resource in capabilities to manage social media and information tracking.

Session 5 | Innovation and technology in impact assessment and the permitting process

Chairs: *James McNally, SLR Consulting*
Jeff Jeter, European Bank for Reconstruction and Development

Participants: *Joe Crummy, Euromax Resources*
David Hamilton, Oyu Tolgoi, Rio Tinto
Gary Krieger, Newfields
Tomazs Wlodarczyk, SLR Consulting

Session goal and purpose

The evolution of ESIAs has been driven in part by the increased complexity of mining operations and the need for multi-faceted decision making, as well as increasing stakeholder demands for transparency and informed decision making. The session examined the innovation and technological advancements in ESIA which support decision making and communication with varied stakeholders.

Summary of discussions

The session chair introduced the fact that innovations and technology in impact assessment were developing tools which facilitated processes and information management. SLR Consulting commented on the significant evolution of EIA from the 1970s and how there was a lack of oversight and enforcement by both practitioners and authorities. This is due to the fact that initially EIAs were designed to mitigate significant environmental impacts; they were paid for by the developer and lacked stakeholder engagement. There was a tightening of regulations in 1999 (1999 EIA Regulations) and this saw an increase in the number of EIAs, which led to a couple of legal challenges, which led in turn to a strengthening in the scope of the EIA. As a result of 40 years of learning, EIA has become more open and transparent and is now undertaken by respected and independent organizations.

The ESIA field is constantly evolving, and the last decade has seen an increasing interest in Human Rights and ecosystems concerns. However, this inclusion of new areas has led directly to ESIA documents being bulky and not very user-friendly. Their influence to inform decision making is correspondingly much reduced.

In addition, there are new influences. These were summarized as:

- Social media and engagement with stakeholders.
- Climate change, water supply usage and impacts on quality.
- Mining in more remote locations and so focus on different sources of energy supply.
- Post-mine legacy issues.
- Pressure for continued improvement.
- Increased regulatory requirements.

The session chair stated that these new areas required effective communications.

Euromax Resources (Euromax) presented a case study where use of simple methodologies to test for acid rock drainage (ARD) provided a comprehensive review of the potential for ARD at the mine site. Euromax Resources took a geological approach to investigating ARD and therefore used old weathered rock core. Euromax provided an overview of simple observations which could be made in order to provide a relatively confident prediction of the mineral composition of the rock[9] and the reactive nature of the core. This can be verified through a simple, mobile (and cheap) pH test to provide an identification of ARD potential. This methodology can also help identify where reactive and non-reactive rock may be located within the core[10] and mapped against the primary geology data in order to provide a model of the 3D reactivity of the rock face[11]. This process can also provide indicators for the next phase of investigations and provide a drill hole database for mining engineers, measured according to reactivity. This process can be undertaken for all areas of the mine site, including waste sites, and can measure the waste pit tonnage breakdown. This data should be integrated into the mine plan and affect scheduling and mine closure plans.

The significance of not understanding ARD has led to a large proportion of tailings dam failures.

Rio Tinto (RT) presented a case study of a mine in Southern Mongolia focusing on water conservation in an arid environment on the outskirts of the Gobi dessert. Water was critical to the mine success and therefore a hydrogeological exploration program was undertaken during the geological exploration phases. This program identified that the nearest well was 60-90km from the mine site. RT identified that there were lots of ground water bores which supplied a feeder pipe to the site; however, in order to supply the site, there were many measures required to mitigate impacts on roads and power lines. Early engagement also identified potential impacts to herder communities who use the wells.

RT undertook a comprehensive water survey of the area and identified very deep wells which, if the mine drew water from these, would not affect the herder water supplies. Superficial aquifers were replenished by rain water. The rain water levels were unpredictable[12] and therefore RT sought to understand the water pumping rate and established inflow monitoring at each pumping station, sharing the results with the water authority. A range of parameters is used to monitor the water on a monthly basis[13]. In addition, the ESIA committed the project to zero discharge of water and therefore the site seeks to re-use water wherever possible and measures their water efficiency per ton of ore reviewed against world average use[14]. The program has resulted in water level and water quality monitoring at 389 points and use three in-country laboratories to undertake the testing.

This data is building a picture of regional water supplies and therefore the project has developed a partnership with local community partners to undertake participatory monitoring, in order to enhance trust in the data. RT provides the data to the Water Basin Authority. The process of engagement and the identification of additional water sources has resulted in the creation of four additional boreholes for community uses, which have recently been handed over the authorities to manage.

Newfields presented a case study on use of remote sensing and virtual technology to understand environmental health issues on a project located in Brazil. Newfields recognized that there may be potential health impacts on a community and therefore wanted to understand the health context and resources which were available in the area. Newfields used a variety of approaches to source data to enable the development of this health picture. These included non-contact tools such as satellites, cameras on fixed-wing planes, and Z boats to gather data. The data collected was provided to the engineers in order to overlay this information onto mine plans. The data also enabled the development of Virtual Reality (VR) and Augmented Reality (AR) visualization tools which were key during stakeholder engagement processes. The information could be presented in a variety of formats and visualization, which meant that the content and messaging could be adapted for different audiences, based on their area of interest or level of understanding.

Newfields suggested that VR is replacing charts and reports; however, stated that documented evidence is still required for legal and permitting purposes. VR can help develop simple messages and information does not need to be complicated in order for it to be useful. Mixed Reality (MR) is sometimes helpful in a stakeholder context. MR projects imagery onto real environments which enhances accuracy for visualization purposes. VR, on the other hand, is a created view and nothing is anchored in the real world, although it does enable a 360° view. Newfields advised that companies adopt simple platforms that can be accessed from mobile or tablet technology. This reduces costs due to the fact that other tools can be expensive to replace and/or repair. Mobile technology also enables the use of applications which can provide real-time updates. The advantage is that it enables a form of visualization of the future mine site, while practitioners are in the field and during engagement with stakeholders. There are other mechanisms to enable this form of visualization, including drone footage which can be adapted to view in 3D, which can project images whilst in the field. However, this software is expensive. There are several applications of this technology, and it is useful for helping PAPs to understand specific impacts[15].

Mine visualization, Ontario

The case study described a mine, which was located in a forest with several water courses. The VR tool enabled stakeholders to see the development of the site over the construction period and show the size and scale of the mine and auxiliary buildings. The VR also enabled the visualization of the infrastructure (water courses alignment and dams), as it would develop over the Life of the Mine and helped communicate complex messaging around the water bodies that would be de-watered.

The tool was also able to simulate mine tailings dam failures and demonstrate any potential influences on the mine to inform decision making.

SLR provided a presentation on the value of visualization in impact assessment and identified that after nearly 30 years of undertaking social impact assessment and community engagement, there was a need to be able to communicate effectively about what the mine site will look like. SLR spoke of a new Act which will be introduced in Canada in 2019, which requires companies to demonstrate their engagement, that it was timely and that it considered aboriginal interests, alternatives, and traditional knowledge, as well as considered social, gender, and sustainability impacts. This Act is significant, as approvals will be based on "Public Interest" criteria. In addition, the field of ESIA requires communicating with different sized audiences, and communicating mine plans and changes over time. These expectations include the visual and aesthetic changes and landscape impacts over time; thus visual maps which enable the viewer to see how the site will evolve over the project life cycle are useful tools. The visualization also supports stakeholder engagement for key messaging and provides for a range of communication techniques and tools. The advantage of enhanced visual tools is the fact that they are adaptable and can be updated to communicate in an appropriate language and cultural format. Stakeholders could also download an app on their mobile phones so that they could see the plans. Geographic Information Systems (GIS) tools can communicate scale and context; however, SLR argued that these were static in time and therefore provided the same value as artistic renderings.

To implement VR or AR, practitioners need to source qualitative and quantitative data. This data can support the creation of 3D printing and GIS, which can provide scale and context. The ability to obtain information including geotechnical, water quality, and visual simulation should support transparent stakeholder engagement and enable PAPs to make informed inputs into consultations processes and enable institutional representatives to make informed decisions.

Plenary discussion

A social practitioner asked about human rights in relation to access to information and data management, asking whether when a company controls the information that is presented to PAPs, is it sharing the information in a neutral manner or is it telling the story that the company wants to tell. How do companies help people to understand mine impacts, especially when the PAPs may not trust what you have to say?

A mining company representative proposed that companies should engage with PAPs prior to the technical presentations. Educating people about a mine and potential impacts should be a long-term process, evolve over time, and involve frequent communication and meetings. The participatory monitoring that they had established for their projects has helped to build trust and PAPs trust the data which is presented. The company representative suggested inviting credible independent PAPs to review the monitoring data. The company has coupled this approach with ground-truthing with PAPs. The financing institution agreed that trust can only be developed over time and through the presentation of credible information. Information must be presented to PAPs honestly and with respect. The company representative cited the situation when local PAPs had raised concerns over the potential risk of mixing the aquifers and would not permit the ground crews to touch the drilling. Once the PAPs had seen a video which illustrated what happens underground when the company drills and demonstrated the geology underground and the impossibility of an impact on the aquifers, the company was able to proceed with drilling. The company representative also shared their experience on visual mapping social inward migration and potential impacts on health issues. The visualization of influx in Ghana was shared with PAPs which could then be replayed instantly and in response to request. These actions all built trust and enhanced relationship building.

An environmental consulting company asked whether the collection of health data involved the use of cell phones and how it was implemented. Were forms sent out and then the responses reviewed and processed? The panel responded that there are clearly issues around privacy which require management. Sometimes there are questions around the reliability of data; however, in the large part, it is effective. The panel advised that

practitioners should not assume that everyone has access to a mobile phone. In particular, vulnerable or elderly PAPs and therefore engagement processes require a variety of mechanisms to enable and facilitate inputs, which may include older technologies.

A human rights organization[16] stated that their experiences of projects is that water is a huge risk which requires management and there are a significant number of cases where this has been mismanaged. In addition, PAPs are fearful when their landscape may be affected and they will suffer impacts on a daily basis. If a well has dried up, then the community will recognize the impacts from the mine, and it is unclear whether VR would have helped. The trouble is that mining has a bad reputation and so it may be difficult for mining companies to engage. Despite this, it would be helpful for communities to be able to visualize the project in the future so that they can see what the mine will look like in five, ten, or 20 years. The mining company responded that in the case study presented, it found that projections of future water impacts was essential during engagement with the community. It was also important that this data could be trusted and verified and therefore initiated the community monitoring, which verifies annually whether the aquifer is responding as predicted within the water modelling.

The panel concluded that building trust must be built over time and learning how to communicate with the local PAPs is essential as is the recognition that tools and techniques to communicate may need to be adapted over time and to share information with different audiences. The panel also reminded the audience that engagement should be implemented throughout the life of the mine and throughout closure.

Guidance and available resources

Grey, E. 27 June 2016. Mining Technology. Reality Check: Augmented and virtual technology in the mining industry

Lai, P.C., Kwong, K. and Mak, S.H. 2010. Assessing the Applicability and Effectiveness of 3D visualisation in Environmental Impact Assessment. *Environment and Planning B: Urban Analytics and City Science*. 37(2): 221-233.

Visualisation software Infraworks360

The most relevant resources identified through the session and during discussions were the technical guidance available from the following organizations:

International Association for Impact Assessment (IAIA) Resources

International Council on Mining and Metals (ICMM)

International Mining

Mining Journal

CMIC Global

Mining Weekly

Session 6 | Integrating new approaches to gender in mining

Chair: *Greg Radford, Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF)*

Participants: *Gillian Davidson, Sustainability Executive & Board Member*
Maria Ezpeleta, Oxfam America
Katherine Heller, International Finance Corporation

Session goal and purpose

This session aimed to discuss how mining can positively contribute to gender equality. Programs and activities which support gender equality in the mining sector must go hand in hand with measurement and monitoring of these programs. The session discussed the gender-differentiated impacts that a mining company can have on communities and presented new tools which are available for companies to address and measure impacts on gender.

Summary of panel discussions

The chair introduced the IGF, which has membership of 70 countries, many of which have significant extractive industries. IGF is therefore working on issues including women in small-scale mining. The chair highlighted that women's access to finance continues to be a significant barrier. In addition, access to technical advice and support as well as access to co-operatives is lacking.

Gillian Davidson (GD) provided an overview of the big picture to frame the discussion around gender in mining. BHP has put a marker in the sand for a target for gender balance by 2025. After the introduction of this target, BHP has made more progress in one year than in the last decade. Currently, BHP has 20% female workforce. In addition, McKinsey has completed a study which demonstrated that companies which have boards that represent the workforce were more successful. In addition, the study highlighted that when women were on boards, the safety statistics improved 84%.

The World Economic Forum produced a report in 2017, which identified that with the current progression in gender equality, parity will be reached in 117 years. However, if people are asked, the response is typically 5-10 years, which suggests that psychologically, people believe we are close to gender parity. It is key, therefore, that companies collect gender-based data in order to reflect the reality rather than the perception on gender equality. In addition, many successes are reported anecdotally and lack evidence-based data to support statements.

GD reflected on key lessons for practitioners. These are summarized below:

- **Progress needs champions** and GD identified BHP as a leader in the area of gender; however, a lot of efforts are being undertaken by different companies, and many leaders are influencing various spheres. As Sustainable Development Goal 5 pertains to gender equality, one approach may be to hold a mirror up to a company and ask how this SDG is being achieved. Industry leaders tend to have a multiplier effect and encourage other actors to follow suit by making demands of project proponents. GD also recommended that as the SDG required government responsibility, impact assessment had an opportunity to support the delivery of the SDGs, including potentially other SDGs (such as peace, economic development, security, etc.).
- There is a need to **engage with youth, as well as gender representatives**, in particular on the issue of natural resource management.

- There is significant value in talking to various project proponents about gender, and companies may be required to adopt different strategies to enable this discussion. For example, it might be worth speaking around human rights (rather than gender specifically) with suppliers.
- The pace of change is increasing and therefore it is **important that companies capture the advantages of technologies which are available. ICT is the key space to embrace innovation, and having a diverse workforce tends to unlock innovation.** If mining companies want to engage talent for the future, mines should look at impacts on gender to plan and adapt for these changes. GD also spoke of companies that had reduced their costs, due to the ability to locate logistics departments out of town, thanks to remote working and ICT. GD also advised that companies initiate partnerships in order to undertake community visioning.

> "Work on Cobalt in DRC has opened up avenues to speak to Tesla and Electric Vehicle suppliers about gender equality in DRC."
>
> *Gillian Davidson, Sustainability Executive & Board Member*
> *IAIA Mining Symposium 2018*

IFC presented a toolkit for examining gender in oil and gas, and mining sectors. IFC argued that there were three main areas that demonstrating gender equality is good for business:

- Women as leaders and employees.
- Women as suppliers.
- Women as community members, including issues around gender-based violence.

IFC also argued that having women on company boards improved performance that this is a huge potential market opportunity, in as much as 30% of small and medium enterprises in emerging markets are run by women, which represents a $1.5 trillion financing gap. IFC also described how there are tangible costs for companies who do not address gender imbalances, including:

- Women's exclusion from participation processes leads directly to a loss in credibility.
- Gender-based violence (GBV) leads to costs through absenteeism, loss of work, and staff turnover.
- Gender toolkits can help business to evaluate and present the business case for gender equality and enables companies to take concrete actions and implement appropriate monitoring.

IFC stated that **the process to measure gender equality required the involvement of all departments** in order to capture feedback from all relevant inputs; however, the tool does enable the separation of processes in order to capture inputs and develop advice for specific stakeholders. The IFC guidance provides guidelines for a gender audit for a company, as well as assessment of board diversity, pay gap study terms of reference, and how to develop a business case, as well as guidelines for recruitment, policies, monitoring, and sustaining processes.

IFC advocated assessing the supply chain in order to provide an opportunity for companies to support women in businesses within their affected communities. The toolkit provides guidance on engagement of women in the development of baseline studies, how to integrate gender perspectives into ESIA and baseline processes, and what type and sources of data collection, as well as steps for verification purposes to ensure that the inputs are representative. IFC shared details of the types of information collected which can provide information for assessment and monitoring purposes. IFC argued that what gets measured, gets done.

Types of guidance in the IFC toolkit

- Terms of reference for external experts to complete a gender assessment
- Guidelines for deadling with Gender-Based Violoence (GBV) among the workforce
- Guidelines for dealing ith GBV in the community

Oxfam America presented the Oxfam Gender Impact Assessment Toolkit which is the result of over twenty years of working with the mining sector and witnessing how mining affects stakeholders. This experience suggests that **women feel the impacts of mining more disproportionately than men; however, women tend to enjoy fewer of the benefits than men**. Mining therefore can reinforce gender gaps and exacerbate existing inequalities. Oxfam America argued that a gender perspective can identify negative impacts and increase the potential for benefits to be distributed. Oxfam America commented that there seemed to be a willingness to identify the gender dimensions of projects, led in part by lenders such as the EBRD requesting a gender perspective.

Oxfam America explained that the gender tool could be implemented in partnership with local communities and can be undertaken at any point in the life of the mine, although it is best to initiate the process at the start of the project and when early decision making can be influenced. The tool can support the addressing of power imbalances.

Additional advantages of undertaking a gender approach to decision making is that it helps to drive impact assessment from the perspective of the communities and reflect reality on the ground. Undertaking this process can also enhance participation and has the potential to increase transparency with the company and therefore provides a mechanism to enable trust building.

A gender impact assessment maps the roles and relationships among communities and enables understanding on identity in particular, when there may be a lack of homogeneity among communities. The Toolkit recommends undertaking four steps:

1) Baseline—undertake a gender analysis, understand the division of labor in the workplace and home, and understand control and access to resources, including financial resources.

2) Hypothesize—propose likely impacts and identify significantly-affected PAPs and develop mitigation, management, and enhancement measures.

3) Information—collect data; develop protocols and frameworks[17].

4) Publish the Gender Impact Assessment (GIA) and related plans and undertake ongoing monitoring and evaluation.

Oxfam is currently developing a mobile phone app, which is now being tested and will soon be available for rollout. There is still some nuanced guidance to develop, including how to collect GBV data without exacerbating tensions.

The panel agreed that there is value in understanding what gaps in information there are in relation to gender dynamics and recommended that companies should "know what they don't know." Companies should also

understand what feedback mechanisms may be appropriate, as well as research methodologies which are likely to be successful. Oxfam suggested that companies bring in technical experts to undertake the gender work, and to review again secondary data (e.g., statistics published by health centers, crisis centers, or community support groups). Oxfam also advised using local and existing channels to communicate with PAPs and using local organizations to support the implementation work.

Oxfam argued that some aspects of gender discussion should be treated with sensitivity, in particular, relating to gender and sexual violence. Companies should work with appropriate local organizations in order to enable the sharing of information and to enable collaboration. This may require engagement with all bodies working on the issue of gender violence (e.g., police, judiciary, medical bodies) to establish a process where women only needed to relive their GBV experiences once. Companies can provide financial and technical resources to enable these processes.

Oxfam suggested that companies should be sensitive to the issues of GBV and establish a dialogue which is based on trust, rather than extraction of information. Building trust requires time and resources. Oxfam highlighted that potential project-related impacts are initiated well before permitting procedures. The GIA toolkit provides guidance on how to undertake these preliminary stages of research in an appropriate manner, which can further inform studies and approaches.

The IFC has developed a toolkit on integrating a gender perspective into other studies. The guidance document can be downloaded from the IFC web site and the suite of tools is available to download from the CommDev web site. These tools can be cherry-picked to adapt a process so that it is built specifically for, and relevant to, the mine site. IFC has a pilot project underway; however, they would be keen to hear from potential partners to trial the toolkit in a variety of locations. Spanish and French translations will be available from the IFC web site.

IGF hypothesized about the difference in gender equality in different countries. In reality, there is no real difference due to the fact that women face obstacles in all IGF member countries; it is just that the struggles manifest themselves in a variety of ways[18]. However, IGF argued that learning from other experiences in other countries was valuable and can help proponents to plan appropriate responses. IGF raised a word of caution for the conference participants and reminded the audience not to enforce their own agenda. Practitioners must be respectful and the approach must be based on rights-based principles. IGF proposed the question whether practitioners should develop culturally acceptable approaches to understanding gender.

The panel concluded that there were lots of reasons to be optimistic and there were an increasing number of mechanisms to improve access for women (e.g., for jobs: training programs, mentorship, job adverts). However, the culture within organizations is key to enabling gender equality. The situation will change when men collaborate to facilitate this, and the culture needs to be embedded from the top-down. The CEO needs to commit to the process of gender equality, and to apply sufficient resources to enable this to happen. In addition, there needs to be appetite from the bottom up and therefore companies should provide avenues to enable gender issues to be raised.

Plenary discussion

A social practitioner raised the fact that there was a huge diversity in understanding gender issues and although there are some companies that have put in place good initiatives, there is no comprehensive overview of gender. When gender has been raised as an issue on the sites where the practitioner has worked, the response has been rather timid and lacked ambition in terms of changing corporate culture. The panel suggested that there needs to be a separation of the issues, e.g., adopting a "Do-No-Harm" approach. That is to say, ask what your company is doing about discrimination. And then introduce measurements, such as assessing project impacts on women.

A health professional shared an experience, dealing with GBV and described a project where they were undertaking a Health Impact Assessment (HIA) on a small remote community. Health care providers were able to demonstrate that GBV was endemic in the community and the company recognized that it needed to develop an appropriate response. The company initiated a discussion and has implemented a program where staff is trained in managing mental health issues, as well as a process of referral should there be a requirement for medical support. The company also initiated a conversation around the vulnerability of men in relation to remote working and long working periods away from home[19]. The panel advised that companies should break down gender-related problems to small and manageable tasks. For example, it is important that companies can take small successful steps rather than be overwhelmed into inertia. The panel advised that companies reflect on where there are some gender success stories and build on these experiences. Skill sets are important to move processes forward, and companies need a proper strategy to address the challenge; however, many don't have the skills in place to move these processes forward. It may be valuable for companies to identify where there is a gap in skills and develop internal resources before seeking external support. Companies may need to identify where support networks exist in order to enable staff to engage.

Another member of the panel agreed and advised that companies should always start with the things that they can control. They advised ensuring the right information and validate the source of information. The IFC toolkit provides guidance on how companies can develop a strategy. A lot of guidance on gender training is already available (e.g., police, health care workers, women's rights advocates). Companies should initially reflect upon where they have gender-sensitive skills and then develop training programs to enhance or add to these skills.

The panel agreed that corporate culture was essential to enable change. The panel were also unanimous that gender analysis must look at impacts on both men and women, although in many cases, women may be disadvantaged. The analysis should understand those roles and the reasons that they exist.

Guidance and available resources

CommDev. Unlocking Opportunities for Women and Business: A Toolkit of Actions and Strategies for the Oil, Gas and Mining Companies

World Bank. 2009. Mainstreaming Gender into Extractive Industries Projects

Oxfam. 2018. Oxfam Gender Impact Assessments in Mining Report

Session 7 | Safeguarding community well-being and health in mining projects

Chairs: *Francesca Viliani, International SOS*
Susan Joyce, On Common Ground

Participants: *Patrick Harris, Centre for Health Policy, Sydney Medical School*
Janis Shandro, University of Victoria and Arrowsmith Gold
Francesca Viliani, acting on behalf of Edouard Swana, International SOS

Session goal and purpose

The mining sector can generate positive as well as negative impacts on community health and well-being. Often these impacts are mediated by changes in the environmental, socio-economic, and governance conditions surrounding the mining investments. Community health and well-being should always be considered using a wide perspective and a comprehensive approach. The session explored how ESHIA, by addressing the wider determinants of health, can promote local sustainable development and stimulate health equity.

Summary of discussions

International SOS introduced the topic by presenting community health and well-being as an integral part of the environmental and social impact assessment process. This, in part, has been led by the International Financing Institutions adoption of performance requirements on community health and safety and security; however, this is not a new subject area and there exists much guidance and experience on community health issues. Several sources of guidance are available on health issues, including studies and reports produced by the ICMM, IFC, International Petroleum Industry Environmental Conservation Association (IPIECA), and the Asian Development Bank (ADB).

The World Health Organization (WHO) has developed a guidance note on health in ESIA (which included a pilot project in Mongolia and Mozambique). The learning identified that proponents must involve governments in order to encourage necessary changes in legislation.

The panel agreed that one of the advantages of looking at a project through the lens of health was that it enabled inputs from varied perspectives but with a common understanding of the purpose.

The Centre for Health Policy (CHP) at Sydney Medical School conducted research into how widely health issues are considered within ESIA in New South Wales in Australia, and the results demonstrated a complete lack of reference to human health in the ESIA documents reviewed. CHP concluded that it was quite difficult to pin down results, as successful inclusion of health issues in the ESIA was the result of several influencing factors, including actors involved, ideas, procedures in place, processes, structures, context, and power. CHP concluded that the power driving the process was key as it enabled the implementation of policy, as well as the dedication of appropriate resources to implement. The leadership is the glue that holds a process together.

CHP provided a case study of two coal seams in the Hunter Valley and Queensland in Australia. The Hunter Valley is located in New South Wales (NSW) and is well populated, and statistics and information on community health were readily available. However, the response from stakeholders was mistrust, and the engagement process identified that there were different perspectives as to why health was not included within the impact assessment process. The process demonstrated that if power provides a framework for consideration of health issues, there is a structural mandate for engagement on these topics. CHP stated that it was the power that defines the discourse.

CHP gave an example of a project in Boulder, where the impact assessment studies identified that the social costs would outweigh the benefits. The company involved spoke to the NSW governor, who then revised legislation in order to enable permits to be given to projects which can demonstrate that the economic benefits outweigh the social costs. This legislation amendment enabled the subsequent permitting of the mine.

CHP concluded by:

- Proposing that practitioners undertake a health review in order to verify whether a detailed health impact assessment should be undertaken.
- Stating that air quality studies rarely consider cumulative impacts and related health consequences.
- Stating that adaptive management is essential, and companies should consider whether they should seek to influence policy makers and institutions.

Janis Shandro (JS) from the University of Victoria and Arrowsmith Gold stated that she viewed engineering as a problem-solving exercise. JS shared some experiences from a 30-year career in health including case studies:

- A gold mine in Eastern Africa which had operated in mercury mining for over 20 years. The local community members protested against the mine due to health impacts and blamed the current site owners, despite the site's operating to international standards. This has resulted in significant protests and trauma, including twenty deaths.
- Mount Polley Tailings dam failure, which resulted in forty First Nations groups being affected. Critical health impacts had been identified during the scoping phase of the project; however, these had not been retained and transferred for further assessment during the impact assessment phase. Critical environmental but not social issues had been assessed.

These case studies provided an opportunity to reflect on the learnings and are summarized below:

- Emotional health needs to be included within the ESIA review and should be linked to health outcomes. Emotional health issues should be identified as key issues, in particular for Indigenous communities to avoid preventable situations and outcomes.
- Healthier communities should be connected in order to best progress change. Macro-level change can and does happen if communities are mobilized.

JS is currently involved in some health initiatives in Asia including the development of a new tool for the ADB which is integrating health issues into industrialized decision making in Special Economic Zones in the Mekong district. JS is also currently supporting the Healthy China 2030 Plan by developing the implementation tool. Health is considered an economic imperative due to the fact that economic losses that have been attributed to non-communicable diseases will cost $23 trillion. JS also stated that there is much discussion around the role of mining in health due to the fact that mining underpins all of development and therefore the mining industry can be health leaders by contributing to SDG Health goals. JS stressed that whilst doctors treat individual ailments, solutions to community health issues are provided by engineers.

JS presented a future vision for health in mining and summarized these as:

- Identifying and managing potential community health impacts from mining. This may require a systematic review in order to identify, create, and implement different tools and mechanisms to collate data. Mining companies need to understand project changes and should undertake constant health monitoring and review throughout the life of the mine.
- Drivers and health outcomes have direct linkages. Assessments need a multi-sectoral team to input into the assessment process and address risks. There needs to be a focus on enabling and reinforcing safe practices.
- Health issues must be integrated throughout the whole management system, which will require investment in personnel, time, and resources.

JS also identified some areas which require careful consideration by companies, including how they can ensure the protection and privacy of data. Companies cannot identify individuals in relation to health issues as this would represent a significant invasion of privacy. Companies should work with health institutions in order to develop capacity, if necessary.

JS advised that practitioners engage with local health institutions and remove project silos. This would enable the consideration of health issues by all practitioners on site.

JS also advised that companies need to understand and seek to address any legacy health issues from the project site as these can influence and affect new and/or existing operations.

International SOS shared case study experiences from the world's largest copper deposit located in the Democratic Republic of Congo (DRC), which has changed ownership. The project is huge, with approximately a quarter of a million people residing in the concession area. The company wanted to understand the burden of disease among the local community and recognized in 2006 that the area was post-conflict and that there was a lack of infrastructure, including community infrastructure.

The project experienced massive influx. The local town was home to 40,000 people in 2006 and now there are 270,000 people. This means that the baseline data collected when the project was approved is no longer relevant, nor the management plans sufficient. The company has adopted an approach of proactive management and, as a signatory to the UN Sustainable Development Goals, has undertaken a Health Impact Assessment. The approach included:

- Biological sampling.
- Questionnaires with health authorities.
- Workshops with stakeholders.

The process of engagement has demonstrated that qualitative data is essential and that statistical data is required in order to enable proper management.

A Health Impact Assessment should also consider worker health, as well as community health. Community health includes all elements of the project and seeks to understand two-way influences and potential changes in the health parameters. Health impact assessment requires constant vigilance, reassessment, and adaptive management strategies.

The community health plan produced for the project comprised elements which were consistent with the local authorities' priorities. District health agencies were essential for implementation of the strategies and therefore it was key to engage them in the planning and subsequent implementation. The community health plan focused on malaria and on outbreak control. Whatever controls were implemented for company employees were also implemented for the communities. The malaria control program included the distribution of nets. In order to outreach with PAPs, the office was located in the center of town for ease of access. The high incidences of malaria had a direct impact on productivity; therefore, the company monitored incidence levels and over ten years was able to demonstrate a 79% drop in prevalence among the workforce, which correlated with a 79% drop in prevalence among community members2[0]. The monitoring demonstrated significant results, and people from outside the area were four times more likely to contract malaria. JS advised that incidences must be tracked in order to demonstrate whether interventions are effective.

> "Without health, there is no responsible mining."
>
> *Janis Shandro, University of Victoria and Arrowsmith Gold*
> *IAIA Mining Symposium 2018*

The same project also contended with the potential for cholera, as well as Ebola, both of which were identified as having the potential to shut down the project. The focus at the initial phases was on outbreak control; however, the company then turned its attention to reducing risks and invested heavily in water infrastructure and sanitation. The company as worked in partnership with the local authorities since 2008 and there are now 90 water pumps in the communities. There was an outbreak in 2009, which prompted a company response. Influx is also high in the area due to DRC conflicts in the Eastern Kivus. These internally displaced peoples can carry Ebola and so risk of an outbreak is very high. The project also experienced an outbreak of cholera in 2017-2018 and again the company worked in partnership with the local authorities. There was a very high turnover of staff and therefore management recognized community health as a key strategic issue which threatened the success of the mine. JS concluded by stating that a good baseline is crucial for effective management of health issues and collaboration with appropriate and responsible authorities is key.

OCG stated that it was important for practitioners to consider how to argue the health benefits. This may require consideration of sanitary issues, and the need to demonstrate that the project is not having a negative impact. Companies always need to invest in health, and therefore there is an opportunity to invest in health resources which can be measured as a positive investment.

OGC also proposed that practitioners should consider the cumulative impacts, in particular in the areas of health and health management, especially if there are Indigenous Peoples communities involved. There is a direct link between health and cultural well-being. However, it is difficult to understand accountability for health impacts. OGC also stated that there were many jurisdictions where health elements were required by legislation and/or international standards, including EBRD and EU legislation. Thailand requires health as part of the ESIA study, and the new ESIA legislation in Ghana includes health considerations.

International SOS commented that often the health practitioners work with the social team, but this means that half of the health considerations from the environmental perspective are missing from analysis. International SOS proposed that this issue could be resolved simply if health considerations were included within scoping.

JS advocated a proactive approach in the absence of health data and companies should put in place management plans to respond to health risks and even when the baseline data is lacking. JS summarized a process when driver safety was a concern due to the cultural practice of not stopping for rests when driving long distances, coupled with high incidences of HIV and AIDS among drivers due to use of prostitutes when away. The

mine implemented an HIV/AIDS testing programme in partnership with the local authorities.

Plenary discussion

A social practitioner spoke to an experience on a project where there were 26 open-cut mines and dust was a significant issue and had a major impact on community health. CIG asked whether there were any studies that had established causality.

A health practitioner spoke to the need for companies to recognize if they are the cause of issues and if so, then they are responsible for responding to it. Testing dust sampling demonstrated that the dust was not toxic; however, the community still distrusted the company due to the lack of transparency over the issue. This incident highlighted the need to local authorities to be responsible for community health issues; however, companies can contribute to finding solutions. Any studies that evaluate health impacts have to be impartial and objective in order to be credible. Epidemiological studies do not review causation; however, they do establish causal factors and then attributable risk can be understood. Very few companies invest in undertaking comprehensive studies in order to prevent attribution. Most companies find out when the problem occurs, which involves a huge investment of time, effort, and financial resources to address. The issue relates to the time and costs involved, due to the fact that any studies would require a control group of circa 50,000 people. However, the practitioner spoke to the risk. In practice, rules and regulations do not enable the provision of data.

The majority of studies take a risk-based approach to health; however, there are problems when the ownership of the mine changes, which can present challenges for the implementation of any plans. However, a health and security risk adviser stated that in their experience of new ownership, there had been no change in practice in the day-to-day management of the mine. More important was to have in place well-documented processes and robust partnerships with delivery. When the local communities and authorities receive a health program, there is an incentive to continue the work when new ownership arrives. However, there are always challenges in implementation and varied capacity and capabilities.

An environmental adviser raised the issue of the importance of communications and data and requested guidance on how to raise health issues with company leadership and policy makers. The advisor asked the panel to share experiences of what had been successful. The panel responded with varied answers.

The health practitioner wonders why practitioners and companies are having the same conversations that were being discussed a decade ago. The practitioners experience has been more successful when engaging directly with the mining engineers who understand the link to health issues. The representative of a University responded that IAIA, ICMM, and IPIECA are taking the lead in developing standards, and when these are advocated by industry bodies, they are adopted by the mining industry.

The health and security advisor suggested that if practitioners adopt a broader view of health issues, then it can help the site to respond to health concerns. Industry bodies are leading the charge on approaches and best practice, however, the international financing institutions have a role to ensure that safeguards and standards are properly applied.

A large mining company raised the question of scope and how mining companies can think about the project's area of influence. There are several studies which try to define the term "local," and these result in different viewpoints. From the HIA perspective, are we talking about different parameters? Do health issues mean that we are coming up against the limits of ESIAs?

A health practitioner responded that scope is important as the project needs to consider indirect impacts, as well as use of local health institutions. For example, doctors treating project illnesses and injuries have reduced time and capacity for their local community. A health and security adviser agreed that this is a significant issue and therefore advised that companies have these conversations at the start of studies and the decision-making process and if necessary, supplement the health facility with additional resources.

EBRD closed the session and thanked the participants for proposing that the banks up their game. EBRD requested that all participants contribute to the EBRD Performance Requirements (PR) review which is underway, and a revised version will be presented in January 2019. Any inputs on PR 4[21] is welcomed.

Guidance and available resources

ADB. 2018. Health Impact Assessment: A Good Practice Sourcebook

ICMM Guidance on Health and Well-being in Mining

IFC. 2012. Guidance on Health Impact Assessments (Guidance Note 1 Assessment and Management of Environmental and Social Risks and Impacts

IPIECA Guidance on health assessment

IPIECA. 2017. Mapping the oil and gas industry to the Sustainable Development Goals: An Atlas

Public Health England. 2018. Health matters: community-centred approaches for health and wellbeing

Session 8 | Innovations in social closure

Chair: *Gary MacDonald, Monkey Forest Consulting (in place of Caroline Rossignol, Lundin Mining)*

Participants: *Dawn Brock, ICMM*
Ed O'Keefe, Synergy Global Consulting (SGC)
Gordon Harris, SFU Community Trust (SFU-CT)

Session goal and purpose

This session focussed on how practitioners can integrate thinking around closure into their mine planning. The panel included speakers who shared best practices and case studies which provided examples of how closure should encompass a holistic view, including socio-economic impact assessment, multi-stakeholder land use, investments in economic diversification, and sustainable development.

Summary of panel discussions

The session chair apologized on behalf of Lundin Mining, who unfortunately could not attend due to ill health; however, he had been involved in the discussions in the preparation of the event and reflected on his journey to join the mining symposium. As the session chair lives in France, he had to pass through the "*Gillets jaunes*" and reminded the practitioners that bad things can happen when you don't listen to people.

The session chair introduced the subject of closure and identified that one of the biggest challenges for a mine is actually getting to closure.

In a room of 127 practitioners, less than ten had been through a closure process. The session chair's experiences included a company that was keen to implement closure effectively; however, they thought that they could prepare for this without consulting with communities about what would happen after closure, while another person from the company asked why on earth the company would want to look at closure.

The panel discussions were initiated by ICMM, which stated that closure required partnership. Synergy Global Consulting was pulled into social performance when EBRD asked for their support after an EBRD-funded project had dumped waste into the community. The SFU-CT representative has experience through participation in a sustainable community land trust in Burnaby, Canada.

ICMM represents twenty-seven member companies, which have 900 sites in sixty countries. The ICMM representative has worked on the development of the Closure Toolkit and Good Practice Guide, which will be launched at Indaba 2019. There are tools within the back of the document, which will support workshops and the development of closure plans.

ICMM stated that there were key steps for closure; however, these were not necessarily time-bound and therefore companies need to be prepared to implement an iterative process and ensure that feedback loops are effective and responsive. ICMM has also **moved away from using the term "social closure" as key stakeholders disliked the term and instead are using the term "social transitioning" to capture the fact that the mine is closing but that there are alternatives in place** which will enable the community to continue.

ICMM summarized the key social impacts from mine closure:

- Can be real and/or perceived
- Are distinct from social impacts of construction and operations.
- Not always social in nature.
- Positive benefits don't necessarily offset the negative impacts.

There are many ways in which a community experiences the closure of a mine, for example, through loss of employment and business opportunities, changes in community dynamics, social programs and services being stopped and/or disrupted, security, infrastructure, environmental impacts, and land use and land access.

Governments tend to have limited capacity and resources to manage closure and tend to have the same expectations as the communities. ICMM suggested that companies should undertake a lot of work on designing re-purposing options. For example, if infrastructure has been developed, can this be re-purposed for community uses?

ICMM advocates using the term "social transitioning" in order to message to communities that the process will aim to support stakeholders. This would facilitate a stronger social license to operate, relinquish their responsibilities for the site, as well as manage potential future liability and costs. ICMM also proposed that companies should proactively manage the process. This will require an integrated and iterative process. The process should have links to technical knowledge and expertise which understands the localized economic and social dependence on mining operations. Good closure planning may include enabling access to finance and helping communities to define goals and aspirations for the site.

Effective and successful transitioning has the following outcomes:

- Prepares stakeholders.
- Develops the social license to operate.
- Enhances company reputations.
- Relinquishes the company of responsibility for the site.
- Reduces company liabilities and costs.
- Enables safety and environmental protection mechanisms to be put in place.

ICMM suggested that companies should undertake to understand goals and aspirations of the community. This can support mine closure planning at the start of the life of the mine. This commitment can also support relationship building and correspondingly identify the skills and capacity development required for successful transition.

ICMM commented that there were different outcomes when social investment strategies during the mine life are strategic and have a long-term focus and consider skills development needs when the mine transitions. ICMM advocated that sustainable mine closure planning required collaboration between companies, communities, and government.

ICMM also provided some key takeaways:

- Start early in the planning and take an iterative approach.;
- Recognize risks early on and consequently create opportunities.
- Enable collaboration with appropriate partners including government and communities.

Synergy Global Consulting (SGC) noted the existence of the Social Practice Forum, which is comprised of a membership of practitioners and provides leadership in social performance. SGC sees closure as the acid test for mining as it responds to the question, "**How can we extract resources today which will improve conditions and opportunities for future generations?**"

SGC identified that the state of the art in mine social transitioning is still early in development and that a limited number of good practice case studies are available to build upon. This relates to the impact assessment process, which has some inherent limitations on how it can help mines to address closure/transition planning. Other problems related to the fact that companies seem to adopt a compliance approach and adhere to the limited available legislation on closure. Mines also tend to focus on the biophysical aspects and therefore there is a lack of clarity and understanding on what this means for communities. Companies struggle also from a lack of internal alignment in prioritization among departments and offices. In the majority of mines, closure planning has been left too late and is not considered when permits are being sought. Key issues can be summarized as:

- Weak integration of social issues throughout the mine closure process.
- Social closure issues considered late in the process.
- Limited financial and legal incentives to adequately consider social issues in closure.
- High levels of uncertainty in predicting and planning management of closure.
- Limited international company and wider stakeholder collaboration in addressing social closure issues.

The status quo has resulted in a lack of trust from stakeholders, as well as a long list of unresolved legacies. This is further perpetuated by the abandonment or disposal of near-end of life mines to junior mining companies, which don't have the capacity or resources to plan and implement robust closure planning.

SGC commented that there were some common elements in cases where there had been successful mine closure/social transitioning. However, a lot

of learning can be gained from experiences where performance in social closure can be improved. Successful case studies displayed the following common elements:

- Early consideration of social closure/transitioning.
- Integration of social issues into closure planning.
- Assessment and management of social closure risks and impacts.
- Developing the business case for social closure/transitioning.
- Developing social closure/transition plans.
- Effective communication with stakeholders.

SGC has gathered some good practices from closure processes at site around the world. These include:

- Daybreak, Utah, USA
- San Cristobel, Bolivia
- Sullivan, Canada
- Waihi, New Zealand
- Mantserre, South Africa
- Kelian, Indonesia

The common themes which enabled successful closure and transition included: 1) passionate and principled leadership; 2) a large long-term mine which is operating near other thriving communities; 3) strong and effective local government; 4) operating in a challenging social context and/or messing things up really badly.

SGC presented the Eden project in Cornwall, UK, as an example of social closure and transitioning and planning which stemmed from a desire to manage the biophysical elements right from the beginning. However, there is a need for practitioners to question their assumptions. Are risks and impacts predictable? Even with a robust impact assessment and good project understanding, it would be difficult to predict some elements.

Another challenge for companies, highlighted by SCG, was the difficulty in planning for social transitioning and whether mining companies are indeed responsible for the land after operations. The most successful example of closure planning in the UK is the Eden project, which had nothing to do with the project proponents and closure planning. Instead, the site was purchased with a view to developing biophysical spheres for tourism purposes. Therefore, **social entrepreneurs and planners with a long-term vision are driving new innovations in social closure/transitioning**.

There are various assumptions when social closure planning is required. SCG summarized these as:

- Social risks and impact are predictable.
- There is a strong case for social closure.
- Social closure can be planned in advance.
- Mining companies are responsible for managing social closure.
- Communities have an interest in engaging in consultation.
- Companies know what they are doing!

SGC suggested putting a human-rights focus when planning social closure and transitioning. Putting communities at the heart of decision making can enable different outcomes. San Cristóbal was successful due to the prioritization of people being at the heart of decision making. Adopting this approach would enable control to be handed back to the local community, which would facilitate a sense of community ownership over the site. Companies can support this process by enabling community dialogue on visioning and answering the question "What do we want our children to grow up with and benefit from?" These discussions may identify community disagreements but can lead to consensus building. SGC advised finding the tools which would enable this discussion.

The next IAIA annual conference theme is on "evolution or revolution" and therefore this December 2018 symposium is a call to arms! SGC **challenged the participants to share lessons and develop case studies in order to source ideas on collaborative efforts between companies and local authorities, and in particular those case studies that empower local governments to lead**. Communities, mines, and local authorities need innovative financing structures so that communities are not dependent on the mine. International Standards Organization has developed guidance on closure; however, there is a need for more standards and experiences on producing successful closure plans.

Gordon Harris, SFU Community Trust (SFU-CT), has a range of experiences in planning land use changes and noted that the successful and worthwhile programmes were the projects which established a "win-win" situation. Therefore, proponents should start with a fundamental question regarding the land of the site. From the start of the process, proponents should ask the questions, "Who will get to use the land when we are gone? Who will have access to the land when the mine has been closed?" Successful initiatives start with good planning. SFU-CT argued that the benefits of good closure planning results in a satisfied and happy community, which will reduce the potential future liabilities. The benefits for the community mean that they have control and that they feel empowered.

SFU-CT shared some experiences of closure planning in Canada, including closure planning with the Matai on the Oil Sands project, the Sullivan Mine in Kimberley, and Frazer City university town in Canada. These experiences highlighted some key lessons learned from these processes and demonstrated the value of a structured approach to land use planning after closure. This approach can be summarized in 6 steps:

1. Collect data and information in order to fully understand the context.
2. Map and analyze the information in order to enable meaningful community engagement.
3. Set goals for the long term and work with the community to secure these insights.
4. Identify choices and alternative options through engagement—this will provide practical options.
5. Make a plan—translate these inputs into actions, identify constraints and opportunities, identify roles, responsibilities and activities and steps to create an action plan.
6. Monitor and review regularly. Monitoring should continue well beyond the plan and should adapt to reflect different stages including immediate transitioning and longer term opportunities.

The **Matai** (mixed race of First Nations and Europeans) **in Alberta** did not have formal land claim of their ancestors' land. The Oil Sands project recognized that it may have a negative impact on the Matai and therefore worked with communities and provided land and clarification over land title. The project gave long-term responsibility for the land to the community and provided accompaniment and skills training, as well as secured access to financing.

These six steps need the commitment and buy-in from the highest level of the company and efforts from all partners to implement.

Successful closure planning requires thoughtful consideration decades in advance and requires significant commitment on behalf of the parties involved. However, if stakeholders involved have an interest in the success of a process, then they will apply the required dedication and effort. **Success is also dependent on managing the riskiest stage of the closure process, which is when the company departs.** The target for the point of departure should be when communities are already self-sustaining.

The session chair posed the question of how long companies should provide to enable sufficient closure planning. Is a ten-year time frame sufficient? Compared to the fact that some Indigenous communities consider seven generations as short term, companies must consider the long term.

Plenary discussion

A social advisor asked whether mine closure should be focused on health and social conditions for the long term. The panel agreed but clarified that impact assessment only focuses on the impacts of the mine, and therefore companies should develop a vision in partnership with local authorities and communities and facilitate contributions from all parties.

Sullivan Mine, Kimberley

Closure planning for the Sullivan Mine began forty years prior to closure. This process gave an opportunity for the mine to rebrand itself. The mine recognized that the community needed economic diversification and therefore undertook visioning and planning with the local community members and selected to develop the "Kimberley Sun Mine" which created a solar project on the mine site. The sun mine was later successfully sold to Teck Resources.

ICMM agreed and noted that in locations where there are several mine sites, there is value in creating a vision for the whole area and undertaking some regional planning and visioning. A mining company advised that companies need to invest time, as it can take three to five years in planning, and that departments such as Human Resources are involved in order to discuss skills development, training, and transition. It also clarified that there is a difference when sites are in maintenance (rather than closed) and when no viable communities are located near the site. These scenarios require nuanced responses. In Mongolia, the mining company worked with local communities in order to undertake a "visioning" process and tried to tackle some of the community health issues in the area. University agreed that proponents should consider vulnerable groups and prioritize public health in their planning, as public health concerns are informing planning and permitting decision making.

The session chair asked the health professionals in the audience how long was sufficient in order to undertake closure planning and consider health issues. They responded that this may depend on the developer; however, one company was thinking about closure at the start of a fifty-year mine plan. However, in other cases, a decade was not sufficient time for some local authorities to plan, agree, and finance the elements that would need to be in place for successful closure planning. The University shared an experience when they had undertaken a study on the health impacts of closure at 35 sites in Vancouver and identified that **mental health issues including stress and disorders arose in the event of closure and where there was a lack of planning and community engagement**.

The session chair asked the mining companies in the audience about their closure plans and corresponding time frames. A mining company provided a response stating that there was a need to be site-specific and advised companies to adopt a risks-based approach which identifies the costs and opportunities relating to closure. Water management was a significant issue at one site and therefore this consideration is fully integrated into closure plans. It advised bringing in other departments who can support the planning for closure including the Human Resources department, which is key for providing insights into skills development and training needs. The mining company also commented on the need to understand the resilience of households to move.

Burnaby University Sustainable Community

In 2007, it was determined to build a sustainable community on Burnaby Mountain to create a functional city to accompany and support Frazer University. The objective was to monetize the land and therefore this required a process of careful planning and engagement with regulators, local authorities, and potential residents in order to develop the services and functions which are the fundamental support structures for a town. This meant that multiple interests were represented in the discussions; however, the process and project should reflect the interests of the community.

The project was also tasked with implementing a process to international standards and acclaim. The long-term approach and integration of views of relevant stakeholders means that the town has been successfully built and is currently home to 5,000 people. Plans are to increase the town to 10,000 in the next couple of years. Most of the residents are university employees.

A large institutional lender raised the issue of corporate interest in closure and suggested that, as closure planning takes a lot of time and effort and the reality that a mine can change ownership several times over its life, there is little incentive for companies to invest in the development of closure plans. ICMM suggested that an asset actually has significantly more value if closure plans have been considered and developed. This is not only due to the fact that there is a return on the planning, but also because there is identified liability.

The session chair raised the issue of alternatives planning and whether alternatives analysis should also identify and include the real costs relating to closure. This would also enable thinking and a discussion around the party who would bear the costs of closure.

A panel member suggested that the discourse on closure is limited by the very few examples and experiences of successful closure planning. A mining consultant who was involved in the development of closure plans at San Cristóbal and this project had standards for closure and reclamation in place. However, there was no reference to the social needs during the transition. If there were issues, the community were offered compensation. There was some pushback on the content of the closure plans and therefore hopes that revisions will include social aspects. San Cristóbal is also a distinctive case due to the fact that there was a community located in the area prior to the existence of the mine and therefore alternative jobs, income sources, land uses, and supplies already existed. In addition, many of the workers used their income to purchase property in other locations. Therefore, **it is important that a company understands the resilience of a community to respond to the closure of the mine**.

A mining consultant questioned the assumption presented within the curve in the presentation from ICMM due to the fact that many people who are involved in construction lose their job at the end of the construction period. It also stated that there were varied experiences but only the

experience of a mine manager who has gone through a closure process understands its complexity. Consistently, there is always a lack of money and a lack of planning and a vision. In addition, should a mine consider the influx to the mine within its closure plans? The session chair proposed that one option is to finance the development of a community development plan, which looks to the longer term, and to develop a broader range of activities. A representative from a university advised that there are two elements which are critical in closure planning. These are 1) reliable clean water, and 2) female educational attainment. These demonstrated to be critical issues due to the fact that the clean water source needed resolution while there was income from the mine and the second was required in order to develop opportunities for income development and the diversification of the economy. The panel agreed that closure discussions need to be initiated at the start of the planning process and need to include the question: what is the alternative to mining?

Guidane and available resources

Pearman, Georgina. 2009. *101 Things to Do with a Hole in the Ground*. Eden Project. Cornwall, United Kingdom.

World Bank and IFI. 2002. It's Not Over When It's Over: Mine Closure Around the World

Closing plenary

Moderator: *Peter Moore, EBRD*

Panelists: *Kevin D'Souza, Centerra Gold*
Pippa Howard, Fauna & Flora International
Susan Joyce, On Common Ground Consultants / IAIA Board Member

EBRD thanked the Steering Committee for all of their efforts in developing a high level, technical, and fruitful agenda which enabled discussion on key topics. The event fulfilled the ambitions of having a discussion specifically on the mining industry and the challenges it faces in managing environmental and social issues. EBRD thanked all of the team members including the AV team, security, catering, and entertainment and gave a heartfelt thank you to the internal EBRD administration team and recognized that without their efforts and hard work, the event would not have been possible.

EBRD stated that it was quite a challenge to bring concluding remarks to such a varied set of presentations and discussions. The participants heard some inspiring and some depressing stories and all shared their lessons learnt.

EBRD was heartened by the community of practitioners in the room and believes that there are real opportunities to be more innovative in the approaches to impact assessment. Panel members had spoken to the need to be proportional in our approach to impact assessment, and although we may be scared to screen out risks at the start, practitioners needed to do this more effectively and international development banks also have a responsibility to screen out non-relevant issues. The panel and partners involved in the discussion on gender demonstrated that mining companies and practitioners still have a long way to go to mainstream gender in investments; however, they appreciated the discussion on how this can be moved forward. EBRD appreciated the comments from the large mining companies in the room, stating that perhaps practitioners need to "fail in a safe-space" in order to learn the most valuable lessons. EBRD requested some feedback from the panel members in order to share their key takeaways from the two days.

A mining company thanked EBRD on behalf of the participants, for all of their efforts in hosting the event which he described as "really valuable." The company was of the view that current impact assessments are not fit-for-purpose and urged practitioners not to accept this as the status quo. The two days had enabled the mining company to reflect on proportionality and the need to be targeted. He advised that Prospectors & Developers Association of Canada had some helpful toolkits and suggested that practitioners should use the good guidance that is already available. They advised that financers and consultants should not constrain the junior mining companies who don't have the resources or capacity to undertake processes to international standards. The mining company representative also commented on the plethora of standards which is available and noted that sometimes mining companies did not know which standards to adhere to. Their advice for mining companies was to take the good practice and guidance that is most relevant and apply it to your operations. In essence, do a good job. The company also suggested that a stage-gate process which identifies what studies should be produced and would be valuable and requested that IAIA consider producing this guidance for companies. It also spoke to the need for companies to meet their other timeline commitments and targets which de-risks a project and suggested that financing bodies could include other milestones and targets. The future trend of practice must focus on continuous improvement. The mining company also advised having an honest dialogue with the Chief Executive Officer and requested that practitioners stop confusing jargon, keep management and mitigation measures simple so that they can be effective, and need to ensure the results of ESIA processes actually improve practice. The mining company representative rallied the participants and suggested that they should be "agents of change." An NGO proposed that practitioners should remember why they conduct impact assessment, as there are always competing agendas and so it is important that practitioners remember to identify the key issues and opportunities to enable sustainable development over the long term, and result in community and environmental actions that result in zero harm. **The NGO representative advised that practitioners ensure the integrity of their processes and that promises made are kept and achieved over time.** The discussion on social closure identified the need for companies to view themselves as part of the landscape. Despite the challenges of a lack of a full understanding of the potential issues in relation to closure, it is clear that land tenure is a key issue as this has cropped up several time over the last two days and that there is a need to understand induced impacts. Planning and implementation can be challenging when roles and responsibilities (especially of the local authority) are unclear. There is also a lack of meaningful consideration of cumulative impacts and of alternatives analysis. It is important also to recognize impact assessment as an ongoing and iterative process that needs continual management, rather than a process to secure approvals. This continual management requires inputs from all relevant departments and collaboration provides more opportunities for success. Companies need to adopt processes that stakeholders have a high level of confidence in and are robust. The only way to achieve this is by inviting people to participate in the process at the early stages.

Drivers for mining companies include the lending community, which demands high standards; however, companies need to own and drive these processes forward. Therefore, there is a need to provide stage-gate actions in order to provide achievable actions for junior mining companies. EBRD responded that lenders are doing a better job at harmonizing standards and accepted the challenge to produce a Good Practice Note (GPN) on an agreed set of standards. An NGO recognized that environmental and social processes suffer when a site changes ownership and multiple companies are involved in a site's development. There are safety, health, environmental, and community checklists to help guide early stage investigations. The risks are highest when there is transition on the project due to the potential loss of data and knowledge and related loss of corporate memory. There is huge value in early stage investment in understanding the social

context in order to keep risks and corresponding management plans and mitigation measures at a manageable level.

A social consultant reflected that companies that had experienced issues tend to understand the need for robust management of social issues. Incentives can be provided through the financing industry. The consultant also reflected on the need to ensure that decision making and leadership is informed by integrated perspectives. **There is value in training the engineers to request that environmental and social practitioners are involved in the early stage discussions and decision making.** An environmental consultant reflected that engagement with the engineers is possibly one of the most effective mechanisms to ensure that awareness of potential risks and issues is incorporated into decision making. A junior mining company reflected on the fact that some sites receive permits, but that this does not de-risk the project. Companies should also demonstrate to governments that ESIA adds real value in developing management systems for the project. A representative of a university raised a concern over the need to implement ESHIA commitments over the life of the Project, however, companies also needed to implement these commitments in line with community expectations. A gold mining company identified that mining engineers have increasing awareness on the need to consider broader social and environmental issues. It advised that practitioners must learn to speak to engineers and how to influence them. It advised training the board and general manager and providing regular quarterly training so that they understand the implications of managing environmental and social issues effectively; for example, what it means in practice to apply the Voluntary Principles for Security and Human Rights.

EBRD reflected on the fact that having an environmental, social, and health management plan in place did not necessarily mean that there was social license to operate and reminded practitioners that the ESHIA is a risk management tool that required work to implement effectively.

An NGO reminded practitioners that the process of ESHIA needed to be reiterative and it is only useful if actions are taken forward. She also recognised that companies are under scrutiny and have thousands of requirements and therefore decision making should be risk-focused. Studies and documents should support this risk-based decision making.

A social consultant advised that the ESHIA process is a regulatory process that starts at a certain point in time; however, management to de-risk and effectively address risks is an ongoing process. Impact assessment should always seek to establish and guide the management of the project throughout its life.

EBRD closed the session by thanking the participants for the full, free, and frank discussions and appreciated the variety of inputs into the discussions.

The new Executive Director of IAIA thanked all the participants for the warm reception and noted that the event has been impressive and full of rich content. He recognized the value in bringing all different disciplines (mining, technical, financial, social, environmental, and health specialists) together, and hoped the participants found the symposium useful. The next IAIA conference will be held in Brisbane, Australia, from 29 April–2 May 2019 and will focus on the question "Evolution or revolution: Where next for Impact Assessment?"

For impact assessment practitioners

- Ensure that the preliminary ESHIA work is scoped properly and with full consideration of potential social, health and biodiversity issues.
- Impact Assessment must be proportionate; hence, advise clients of relevant issues or scope issues out when not relevant.
- Mining companies are under scrutiny, and human rights, gender, health, and biodiversity are areas which require appropriately robust responses. This will require time and detailed specialist studies.
- Develop and provide guidance on appropriate levels and types of engagement for different stages of project development for different proponents.

For policy makers and financial bodies

- Relate impact assessment to regional plans and the Sustainable Development Goals and evaluate the project's contribution to these goals.
- Impact Assessment is a risk-based management tool and therefore studies should be proportional to the level and type of project related risks.
- Ensure that programs to develop closure plans are appropriately considered and outlined before financing sign-off.
- Ask for a handover manual to be developed in preparation of handover in ownership.

For companies

- Develop long-term panning objectives and invest time in "site envisioning" with local communities.
- Be transparent and report on investigations, assessments, decision making, and outcomes.
- Create a structure which establishes processes to manage community, health, and biodiversity issues, which can be easily transferred to and adopted by new owners.
- Planning should put communities at the heart of decision making and respond to the question, "What kind of mine do we want to see?"
- Seek to avoid impacts altogether, and when unavoidable, seek creative solutions which mean that the site minimizes its environmental and social impacts.
- Stakeholder engagement that is respectful and meaningful is key to success.
- Consider a holistic view of quality of life, which includes health, psycho-social, and landscape effects on the local communities.

For communities and/or civil society

- Engage with companies in the assessment process to highlight key community resources, activities, and perspectives which must be respected.
- Take ownership on mitigation and management measures, which have additional community benefits.
- Closure can create new opportunities, so engage with companies to best plan and decide these options.
- Hold companies to account, participate in monitoring fora, and advise companies when something has gone wrong/is not working—use the mechanisms that the company has established to ensure that these concerns are documented.

Notes

1 45% of whom are based in Africa.

2 Some impacts have significant consequences, such as families that have stopped planting crops due to miscommunication on when the resettlement process is likely to start, influx of opportunistic job seekers, etc.

3 Companies should undertake a form of socio-economic assessments that maps the skills and business and the presence of a relvant training ecosystem such as schools, universities, technocal colleges, business service development partners, access to finance, access to markets, adequate labor conditions, credible partners.

4 Approval authority.

5 Biodiversity Conservation and Sustinable Management of Living Natural Resources

6 ESIA, permits and llicenses, lender monitoring.

7 F&FI adopted Hudsons Forests definition.

8 Private or state-owned land tends to be protected; however, communal lands are often badly damaged.

9 Brown weathered material demonstrates that the rock contains sulphite minerals and carbonite minerals, exposure to weathering characteristics.

10 Advised testing the core evry 0.5. or every third of a meter to understand the variation in the rock deposit.

11 This can help identify where reactive materials are and which require removal, as well as model the reactivity of the put walls.

12 The area experiences both droughts and excessive rainfall.

13 E.g., raw water is measured against permit levels, and state targets and natural springs are monitored.

14 Water recycling rates aim for 80% efficiency of reuse of water. All water from the sewage plant is recycled.

15 Explaining the zone of receoption area for 50dB noise level.

16 An NGO operating int he Atacama desert.

17 Such as Researcher Code of Conducts and Community Benefits Agreements (CBAs).

18 E.g., land title, education, access to finance.

19 30 days working and then 10 days off.

20 Measurements through school children from 2007-2017.

21 EBRD Performance Requirement 4: Health and Safety.

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ABOUT IAIA

IAIA is the I**nternational Association for Impact Assessment**, organised in 1980 to bring together researchers, practitioners, and users of various types of impact assessment from all parts of the world. IAIA involves people from many disciplines and professions. Our members include corporate planners and managers, public interest advocates, government planners and administrators, private consultants and policy analysts, university and college teachers and their students. IAIA has members from over 120 nations. For 38 years IAIA has been holding annual conferences and events all over the world to promote best practices in impact assessment.

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