



15th AGM of the Intergovernmental Forum on Mining, Metals, Minerals and Sustainable Development

The 15th Annual General Meeting (AGM) of the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) took place in Geneva, Switzerland, from 8-10 October 2019, on the theme of “Mining in a Changing Climate.” More than 500 participants from 80 countries attended the three-day meeting, which was organized by the IGF Secretariat and hosted by the UN Conference on Trade and Development (UNCTAD) at the Palais des Nations, Geneva, Switzerland.

Delegates discussed ways that mining companies are starting to mitigate greenhouse gases emitted from mining operations, as well as how they are learning to adapt to changes in climate and the environment, water scarcity, and increased risk of natural disasters. They also considered what mining will look like in the future as digital technology changes the way that work is done, the digital economy changes the way that resources may be taxed, and consumers increasingly seek out ethically-sourced products.

Some of the main issues discussed at the meeting were:

- “Climate-smart” mining and “green mines” that use renewable energy, avoid waste generation, and restore degraded land, for example, by reprocessing mine tailings, and capping old tailings mounds to grow vegetables;
- Concerns whether producer countries, especially African countries, will be able to derive long-term benefits from the huge increase in global demand for minerals used in renewable energy technology, and what can be done to promote ownership models that benefit local communities;
- Post-mining transition strategies, including for coal regions, which would restore environments damaged by mining activities and provide alternative employment for people in local communities;
- Gender equality issues, including whether women have opportunities to be involved in national and local-level debates around the impacts of mining, whether they benefit from mining activities, and whether they have avenues to report mining-related problems, including problems of gender-based violence;
- Development of common standards for responsible mining, including the current Global Tailings Review consultation, which seeks to avoid further disasters such as the collapse of the Brumadinho tailings dam in Brazil in early 2019;

- The Organisation for Economic Co-Operation and Development (OECD) Inclusive Framework on base erosion and profit shifting (BEPS), which may allocate “market-facing countries” the right to tax transactions, potentially reducing the revenue received by producer countries; and
- Efforts to formalize the artisanal and small-scale mining (ASM) sector, especially from the perspective of eliminating child labor, promoting decent work, and avoiding mercury emissions from artisanal and small-scale gold mining (ASGM).

On the direction of member countries, the IGF Secretariat regularly produces guidance on a range of topics relevant to optimizing the benefits of mining to achieve sustainable development. This AGM presented a draft version of the IGF guidance on environmental and social impact assessment (ESIA) for comment, prior to its planned release in February 2020. The IGF Council voted for the next guidance document to address environmental management.

This summary report provides a brief history of the IGF and a report of the three-day AGM.

A Brief History of the IGF

The IGF serves as a global venue for dialogue among 74 member country governments, as well as mining companies and industry associations. The IGF was created following the 2002 World Summit on Sustainable Development (WSSD), a global intergovernmental meeting that met in Johannesburg, South Africa, to assess progress since the 1992 UN Conference on Environment and Development (UNCED, or Earth Summit), including the role of the UN Commission on Sustainable Development (CSD). Delegates at the WSSD adopted the Johannesburg Plan of Implementation, which called for, *inter alia*, support for “efforts to address the environmental, economic,

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health and social impacts and benefits of mining, minerals and metals throughout their life cycle, including workers' health and safety, and use a range of partnerships, furthering existing activities at the national and international levels, among interested Governments, intergovernmental organizations, mining companies and workers, and other stakeholders, to promote transparency and accountability for sustainable mining and minerals development.”

The WSSD also encouraged governments, civil society and private sector actors to enter into voluntary partnerships focused on sustainable development objectives. The Governments of Canada and South Africa were instrumental in the establishment of the IGF, which was announced in February 2005 as a voluntary initiative for national governments interested in promoting good governance in the management of mineral resources.

The IGF is focused on improving resource governance and decision making by governments working in the sector, and its work is largely framed by its flagship policy guidance and assessment tool, the Mining Policy Framework (MPF). The MPF identifies best practices in six pillars of mining policy and law: the legal and policy environment; financial benefit optimization; socio-economic benefit optimization; environmental management; mine closure and post-mining transitions; and ASM. The Framework was presented at the nineteenth session of the CSD, in 2011.

In 2012, the UN Conference on Sustainable Development (UNCSD, or Rio+20) convened to assess global sustainable development policy and adopted an outcome titled, “The Future We Want.” Besides calling on the international community to negotiate a set of Sustainable Development Goals (SDGs), the Rio+20 Outcome urged governments and businesses to promote the continuous improvement of accountability and transparency, as well as the effectiveness of relevant existing mechanisms to prevent the illicit financial flows from mining activities.

In October 2015, the International Institute for Sustainable Development (IISD) replaced the Government of Canada's Department of Foreign Affairs, Trade and Development, as the Forum's Secretariat.

Previous IGF AGMs have discussed topics relating to the MPF, including: fiscal and legislative frameworks as they relate to investment decisions, revenue sharing, mine closure and abandoned mines; social benefits and engagement, including community engagement, local revenue management, operational security and human rights, education and the role of women in the mining sector; and post-mining transition and environmental management.

In 2017, the 12th AGM produced the IGF Guidance for Governments on Managing ASM. The 13th AGM, held in 2018, addressed modern mining law and policy, highlighting the impacts of increased global lithium demand and the contribution of ESAs, tax reform, and community engagement to sustainable mining.



Isabelle Durant, Deputy Secretary-General, UN Conference on Trade and Development (UNCTAD)

Report of the Meeting

Session 1: Opening Plenary

In opening remarks, Isabelle Durant, Deputy Secretary-General, UNCTAD, underscored not only the climate impacts of mining, but also the sector's impacts on local communities and the environment, its role in trade and sustainable development, and in providing materials for energy technologies.

Alexander Medina, Chair, IGF Executive Committee, highlighted that the AGM agenda addresses how the mining sector can reduce its climate footprint while mitigating and adapting to climate change impacts. He hailed IGF's work and said that his country, the Dominican Republic, has benefited greatly from its IGF membership.

Nathalie Bernasconi, IISD, underscored that the AGM's theme conveys a sense of urgency. She noted that more mining companies are investing in adaptation and mitigation through increasing their use of renewable energy and increasing efficiency of mining operations. She called for better understanding challenges so that governments and the mining sector are adequately prepared for the realities of climate change.

Steve D'Esposito, President and CEO, RESOLVE, discussed future opportunities and challenges for the mining industry. He said companies are entering an era of shared governance and suggested there is opportunity for “a new wave of innovators” to seize opportunities and act as centers of expertise on climate change and mining. He stressed that climate-smart mines should also be “community-smart mines,” and that just transitions will be key to ensuring this.

Session 2: Impacts and Policies of Mining in a Changing Climate

Moderator Greg Radford, Director, IGF Secretariat, explained that the session sets the context for the AGM theme from three angles: how mining impacts climate change, how climate change impacts mining, and how mining can be a part of the solution.

Kirsten Hund, World Bank, emphasized that growing mineral demand for clean technologies presents both an opportunity and a responsibility. She encouraged participants to become more involved in discussions on national climate change policies. Presenting the building blocks of the Bank's climate-smart mining framework, she stressed that relevant measures are country- and context-specific.

Jan Kosmol, German Environment Agency, presented an assessment of climate risk in the mining sector, based on case studies from Australia, Canada, Chile, Indonesia and South Africa, highlighting extreme weather events as a principal risk. He observed that mine site rehabilitation efforts and local communities are potentially impacted by all climate hazards analyzed. As a first step to identify climate risks that mine sites face, he recommended conducting regional climate impact assessments.

Osvaldo Urzúa, Director, Center for Studies on Copper and Mining (CESCO), Chile, described Chile's efforts to develop a climate-smart mining strategy and targets to address water and energy consumption, GHG emissions, and biodiversity. Responding to questions posed, he outlined a public-private coordination process defining a vision for green mining in 20 years and the actions needed to realize this vision, and recent efforts to accelerate climate-related actions in the run-up to the 25th Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC), to be held in Santiago, Chile in December 2019.

In the ensuing discussion, participants debated: whether regulations are needed to supplement and align voluntary mining company initiatives on climate change; whether new governance arrangements need to be developed at the international level; what incentives can push companies to be more ambitious in their climate initiatives; and whether studies already exist on zero-GHG technologies for mining.

Session 3: Partnerships for Change: Fostering Voluntary Sustainability Initiatives

Moderator Gillian Davidson, Global Battery Alliance, noted the proliferation of certification and standards in mining and metals production.

Matthew Wenban-Smith, Executive Director, Responsible Steel, explained the two greatest impacts of steel production are the mining of raw materials, such as iron ore and chromium, and the huge GHG emissions from the production process. He highlighted the organization's role as a global, multi-stakeholder organization for promoting action in four areas: sourcing raw materials; production; efficient use; and recycling, based on recognizing existing standards.

Aimee Boulanger, Executive Director, Initiative for Responsible Mining Assurance (IRMA), noted that IRMA's Standard for Responsible Mining, which defines good practices for responsible mining at the industrial-scale, took 10 years to develop, given its comprehensive nature and the diverse stakeholders, including mining-affected communities, organized labor, purchasers, and companies.

Ben Chalmers, Mining Association of Canada, highlighted the Association's oversight function as a membership group, and the work of mining associations in Canada and abroad in supporting the Towards Sustainable Mining (TSM) standard. He reported that the TSM standard has been adopted by 75% of mines in Canada, explaining that the work on responsible mining begun in response to serious social and environmental issues in the mining industry in the 1990s.

Panelists stressed that voluntary standards complement, rather than replace, government regulation, with Chalmers suggesting that "government standards set a floor, while standards enable continuous improvement." They noted that applying a single standard to all metals would likely be too complex, given the diverse stakeholders involved. They considered that mining companies have become more transparent in response to pressure from consumers and governments, departing from earlier views that the mining supply chain was so complex that companies could not engage directly with stakeholder communities.

They debated whether measures to avoid diluting the impacts of voluntary standards are needed, noting that the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance, comprised of sustainability standard-setting and accreditation bodies, was formed to ensure credible, effective and efficient standards. They also discussed harmonization of standards and how mining standards could affect commodity-based supply chains. Participants queried government's role in driving industry standards; whether voluntary initiatives can drive a mindset change towards responsible mining; and how to ensure accountability for implementation of standards.

Session 4: Risks and Opportunities: Climate Change Adaptation in Mining

Moderator Anne Hammill, IISD, asked panelists to discuss drivers behind mining sector work on adaptation, and responses to such drivers.

On drivers, Sean Capstick, Golder Associates, highlighted: increased awareness; investor interest in how companies handle the issue; disclosure requirements from regulators; and pressure from key professions such as engineering. Nick Cotts, Newmont



Sean Capstick, Golder Associates

Goldcorp, said tangible impacts from recent extreme weather events have forced his company to consider how to plan for such risks, including for closed mines, making mining infrastructure resilient, and addressing water availability.

Geoffrey Omedo, UN Development Programme (UNDP) Kenya, explained that the more frequent occurrence of unpredictable droughts has led Kenya to put in place climate change policies that emphasize mainstreaming climate into planning and budgeting.

On responses, Cotts outlined Newmont Goldcorp's recent adaptation work, including risk assessments, the development of risk and adaptation guidelines, and work to align with the Task Force for Climate-related Financial Disclosures recommendations. Omedo noted that Kenya's National Adaptation Plan recognizes mining as an important area for action. Capstick noted the work of the International Council on Mining and Minerals (ICMM) on a decision-making framework with three elements: climate risk assessment; decision analysis; and development of adaptive management plans. He noted that the challenge is not future climate impacts per se, but rather how uncertainty can be taken into account in the decision-making process.

Panelists also addressed community engagement and opportunities arising from coupling climate adaptation planning with local priorities, including, for example, renewable energy development, fire management, health, improving reclamation and reforestation performance, and raising adaptation finance. The subsequent discussion addressed specifics of financial risk modelling and trade-offs in decision making under uncertainty, long-term custody of abandoned mining sites in a changing climate, and viable partnerships with local communities and governments.

Wrapping up, Omedo challenged delegates to "go read your Nationally Determined Contributions" (NDCs) and support efforts to mainstream climate change in the mining sector, Cotts highlighted the importance of collaborative policymaking, "going slow before you go fast" and not trying to reinvent the wheel, while Capstick called on delegates to empower practitioners and learn through dialogue and from international experience.

Session 5: Strengthening Environmental and Social Impact Assessment (ESIA)

Clémence Naré, IGF Secretariat, invited participants to take part in a live poll about ESIA in their respective countries. Out of 46 responses, 29 people, or 70%, responded that legal or regulatory frameworks on ESIA in their countries do not require a climate change impact assessment. Participants later polled their responses about requirements for human rights and gender impact assessments, with similar results. The majority of respondents said they would advocate for the integration of gender, human rights and climate change issues in a single ESIA process.

Katherine Matos Meza, Ministry of Energy and Mines, Peru, noted current development of relevant regulation in Peru. Martha Ly, Golder Associates, drew attention to difficulties in accessing relevant data for assessments, and the need to develop suitable reporting formats for mining companies. Kristi Disney Bruckner, Executive Director, Sustainable Development Strategies Group, recommended stakeholders work with governments at national and sub-national levels to encourage immediate action.

Participants noted that countries do have national plans for managing the impacts of climate change that are not specific to the mining sector, and that the mining sector may only account for a small share of GHG emissions in some countries. One participant suggested that strategic environmental assessment may be more relevant for assessing the impacts of climate change. Another commented that comparability of assessment approaches is problematic, as tools for conducting assessments differ, and social and environmental impacts can often not be separated. In further discussion, the panelists stated that: high rates of illiteracy in some communities can impede ESIA; land rights are often closely linked to human rights; and biodiversity issues should also be considered in ESIA.

Session 6: Renewable Energy and Effective Policy Frameworks

Mark Richards, Rio Tinto, moderated the session. Thomas Koch Blank, Rocky Mountain Institute, suggested policies should incentivize mining operations to increase investment in renewable energy.



L-R: Clémence Naré, IGF Secretariat; Katherine Matos Meza, Peru; Martha Ly, Golder Associates; and Kristi Disney Bruckner, Executive Director, Sustainable Development Strategies Group

Oswaldo Urzúa, Director, CESCO, recalled that, as a result of the Chilean energy crisis in the 1990s, mining companies have entered into complex, long-term power purchase agreements (PPAs) with energy suppliers. He observed that the Chilean mining industry is moving towards carbon-neutral operations, meaning the PPAs are being renegotiated. He said the efficiency and penetration of renewable energy is still a challenge for the mining industry.

Loreto Maturana, Anglo American, presented her company's strategy towards 100% renewable energy in Chile as part of a broader plan to "rethink mining." She noted the company's energy strategy rests on four pillars: culture and awareness, security and sustainability, innovation and technology, and advanced energy and GHG management plans at all operation sites. She highlighted the need to work together across the mining sector, and with governments and energy producers.

The ensuing discussions addressed carbon accounting and certification of renewable energy contracts, coordinated planning for desalination, the potential to electrify the transport fleet, substantive carbon price signals to incentivize investment, and the need for converging, not competing, protocols for monitoring industry emissions.

Session 7: ASM Strategy Marketplace

Rachel Perks, World Bank, introduced the DELVE database project, which is collating data and promoting their use to illuminate the contribution of ASM to the mining sector. She said recent research suggests there are more than 39 million ASM workers globally. She highlighted the project's move to align the ASM agenda to the SDGs, and its current focus on SDG 8 on decent work. She invited participants active in the areas of promoting decent work and eliminating child labor from mines to contribute to the DELVE 2020 Annual Report.

Delegates took part in a round of "marketplace presentations" from Brazil, Burkina Faso, Ghana, Honduras, Mali and Nigeria. Participants discussed: whether and how ASM is licensed and regulated; how to monitor ASM and take a census of miners; problems in dealing with unorganized individual miners; efforts to form mining cooperatives; ASM in frontier zones with adjoining countries; efforts to control and reduce mercury emissions from ASGM; and issues involving conflicting levels of jurisdictional control.

Session 8: Government Strategies for Low-Carbon Minerals

Claudine Sigam, UNCTAD, discussed how commodity-dependent countries can use mining to promote sustainable development. She described efforts by the Democratic Republic of Congo (DRC), which holds 55-65% of global cobalt reserves, to address child labor in its ASM sector. She cited positive examples of countries benefiting from mining and minerals, such as Rwanda's launch of the first "made in Africa" smartphone, and Canada's flow-through shares, an ownership model that attracts investment in mining exploration, with consequent benefits to local Canadian investors.



Claudine Sigam, UNCTAD

Moderator Daniele La Porta, World Bank, noted that mineral recycling is important but insufficient to meet expected demand, and the large data gap on mineral resources in Africa needs to be addressed for African countries to benefit from the global renewable energy transition.

Hilary Morgan, Natural Resources Canada, stated Canada is actively trying to decarbonize mining and exploration, and play a strategic role in the green energy transition.

Roberto Sarudiansky, Mining Policy Secretariat, Argentina, highlighted the political challenges due to Argentina's federal governance system. He noted collaboration with MAC to implement the TSM standards.

Participants suggested that while policy development is often successful, implementation and monitoring can be lacking.

Session 9: The Value of Planning: Mine Closure and Post-Mining Transition

Moderator Eibhlin Doyle, Mining and Exploration Division, Ireland, opened the session with a video showcasing the repurposing of an Australian mine site to a pumped hydro storage facility.

Noting that the 1992 Mining Act did not provide for mine closure, Jerry Garry, Managing Director, Mineral Resource Authority, Papua New Guinea (PNG), outlined how PNG has identified current governance gaps using the Asia-Pacific Economic Cooperation Mine Closure Checklist for Governments to develop its own Mining Project Rehabilitation and Closure Guidelines, which will factor into its upcoming Mine Closure Policy, legislation and regulations.

Doyle noted that one of the first documents mine operators must submit to the Irish Government is a mine closure plan, and operators must also establish a protected bond for mine closure. She offered the example of the closed Lisheen mine site, which is now a biorefinery turning agricultural waste into biodegradable plastics.

Tom Butler, CEO, ICMM, discussed the updated ICMM integrated closure toolkit, released in 2019, covering critical elements such as early definition of the closure vision, progressive closure, strategies for relinquishment, and social

transition planning. He stressed that closure is “a shared endeavor” with opportunities for partnership with authorities and the local community.

The panel concurred that the industry had sullied its name regarding closure and rehabilitation, and called for better working methods. Butler stressed that ICMM members anticipate around 80 mine closures in the next decade, and are committed to leading by example.

Delegates shared national perspectives on upcoming mine closures, rehabilitating old mining sites and related legal requirements and practices. They asked about concrete mechanisms to forecast, calculate and assure finance for closure and remediation, mitigate financial risk, and how to balance economic, environmental and social interests.

Session 10: Supporting Transition in Coal Regions

Moderator Michael Stanley, World Bank, presented the Bank’s recent activities supporting regions affected by disruption in the coal sector worldwide, highlighting the importance of communities and workers, environmental reclamation and asset repurposing, and ensuring consultative multi-stakeholder planning processes to build consensus.

Catharina Sikow, European Commission, introduced the Commission’s Coal Regions in Transition Initiative and Platform to facilitate exchange of experiences, multi-stakeholder and high-level political dialogue, monitoring of progress, and financial support.

Anna Zvolikevych, DTEK, noted that the Ukrainian government’s restructuring plan for coal mines is a response to business realities such as aging infrastructure and harder-to-mine coal seams. She highlighted her company’s rising investment in renewable energy, and the need for job creation in coal regions.

Michael Weberink, CEO, German Hard Coal Association, said German hard coal production ceased in 2018. As part of the mine closure process, Weberink said miners were offered early retirement or placed in other industries, and profits were placed with the RAG-Foundation to finance future costs arising out of coal mining activities.

Jhon Olivares, Ministry of Mines and Energy, Colombia, cautioned that coal is the sole income source for 350,000 households in Colombia, and that a transition should include diversifying mineral production, and improving mining industry standards.

Participants called for considering the affordability of renewable technology and future carbon costs when transitioning away from coal. They called for putting in place measures to avoid “dead cities” occurring as a result of mine closures.

Session 11: Transformative Tools for Promoting Gender Equality in Mining Governance

Moderator Sohinee Mazumdar, UNDP, noted that the top impacts identified in gender equality and mining are: lack of voice and participation in decision making; access to employment and education; increased risk of gender-based violence; and exposure to environmental contaminants and health risks.



Ayasgalan Molor, Mongolia

Boujke Theeuwes, Solidaridad, underscored the central role of economic empowerment in realizing women’s rights.

Fernanda Benavides, Ministry of Mines and Energy, Colombia, discussed her Ministry’s efforts to develop a baseline of information on the status of women in mining. She also highlighted her Ministry’s development of a gender policy for mining, to be presented by year-end and implemented in 2020, with an initial focus on voluntary compliance.

Ayasgalan Molor, Ministry of Mining and Heavy Industry, Mongolia, discussed the assessment behind the Ministry’s 2019-2026 Gender-Responsive Policy in Geology, Mining, Petroleum and Heavy Industrial Sector, noting authorities, communities, companies, research institutes and scientific organizations had been involved in identifying the main issues and challenges. Their assessment had identified the need for women to have a greater voice in decision making, balanced working hours, and training opportunities.

In breakout groups, participants shared information about concrete actions and platforms available in their countries. Some cited women’s associations and faith organizations as channels for reporting of problems.

Session 12: ASM Minerals for Climate Resiliency

Moderator Caroline Ngonze, UNDP, introduced the ACP-EU Development Minerals Programme to build capacity in Africa, the Caribbean and the Pacific (ACP), which concerns minerals and materials that are mined, processed and used locally in construction, manufacturing and agriculture. She highlighted the significance of those assets and activities in post-disaster reconstruction.

ACP country representatives cited various improvements and developments that were enabled through the programme. Rajjeli Taga, Ministry of Lands and Mineral Resources, Fiji, mentioned improvement of legal frameworks and the national disaster database. Roy Nicholson, Commissioner of Mines, Jamaica, described developing a nationwide mining register that will enable the government to locate post-disaster reconstruction materials when needed, as well as capacity building and joint training programs with quarry operators and the development of mineral legislation.



L-R: Tom Butler, CEO, ICMM; Bruno Oberle, Chair, Global Tailings Review; Elisa Tonda, UN Environment; Susan Joyce, On Common Ground Consultants; and Adam Matthews, Church of England

Regina Asariotis, UNCTAD, discussed small island developing States' need for construction materials in making transport resilient and for marine aggregate in beach replenishment to counter coastal erosion.

Jeanne Pascale Folifack épouse Dongmo, Ministry of Mines, Cameroon, presented Cameroon's action plan on construction materials, training and capacity building activities, and a special project in Bora for the construction of more resilient houses using modern manufacturing methods for soil bricks.

Panelists highlighted: the importance of industrial aggregates for rebuilding road networks; the utility of national mapping of development minerals; the need to ensure that the minerals and material sector is integrated into national post-disaster needs assessments; and consideration of how tariffs and non-tariff barriers might affect access to construction materials during post-disaster reconstruction.

Session 13: Global Tailings Review Consultation

Moderator Bruno Oberle, Chair, Global Tailings Review, introduced the process toward creating a standard for fair, safe and sustainable management of mine tailings. He outlined the multi-stakeholder process, saying trust and willingness to compromise are essential.

Elisa Tonda, UN Environment Programme (UNEP), outlined focus areas, including: better governance of tailings dams; awareness raising and assessing current standards and good practices; and information gathering on where tailings dams are sited. She noted the launch of a portal to gather the above information.

Tom Butler, CEO, ICMM, said the Review provides a common norm and language, and expressed hope that the standards will be taken up by governments and integrated into formal codes.

Adam Matthews, Church of England, said the Church's GBP 3 billion pension fund invests in mining companies, and finds the lack of consistent standards to be problematic. He highlighted issues of concern, including an increase in tailings accidents, failure to implement past recommendations, and treating mine waste as an economic externality.

Susan Joyce, On Common Ground Consultants, explained the draft standard has five areas of focus: knowledge base; affected communities; design, consultation, operation and monitoring of tailings facilities; management and governance; and emergency response and long-term recovery.

Panelists anticipated forthcoming challenges will include implementing the standards for tailings management, networking to manage ecosystems around the mines, and meeting the global investor network's expectations of transparency.

Session 14: European Partnerships for Responsible Minerals (EPRM)

Jan Pieter Barendse, Ministry of Foreign Affairs, Netherlands, moderated the session. Boukje Theeuwes, EPRM Chair, explained that the multi-stakeholder partnership seeks to improve socioeconomic conditions for mine workers and mining communities, focusing on conflict-affected and high-risk areas.

Louis Maréchal, OECD, emphasized extractives' importance for conflict-affected states, acknowledging the risks of human rights violations and terrorism financing. He stated the private sector "has leverage" and can be a force for change.

Virginie Bahon, Valcambi, presented the CAPAZ project, which developed the Code of Risk Mitigation for ASM Engaging in Formal Trade ("CRAFT Code"), a code of progressive compliance for ASGM producers. She explained the Code is being revised, and, after a pilot in Colombia, is being scaled up with Burkina Faso, Costa Rica and Ghana next in line.

Jhon Olivares explained that Colombia needs to ensure traceability of its mined gold as it is becoming an OECD member. He discussed a draft law on illegal mining, and technical assistance for small producers to bring them into legal and responsible production.

Lotte Hoex, International Peace Information Service, Belgium, discussed an EPRM-backed project in the DRC focused on ASGM with two components: building capacity in mining cooperatives, and creating an incident monitoring and reporting system.

In discussion, participants raised: how EPRM can raise producer awareness of the EU Conflict Minerals Regulation; how conflict mineral rules have shifted the supply chain from large

companies to “murkier” middle men making traceability difficult; the adaptability of the CRAFT Code for other minerals; whether EPRM will handle other responsible mining issues such as decent wages; and whether conflict mineral rules are making mining sector formalization more difficult.

Session 15: Stranded Mineral Assets and the Future of Mining: Evidence and Practice

Moderator Vanessa Ushie, African Development Bank, introduced a video on “stranded assets,” relating the concept to projected downturns in markets for coal, oil, gas and other assets. Mario Jales, UNCTAD, presented the 2019 UNCTAD commodities and development report that focuses on transition risk in commodity-dependent countries, warning that stranded assets may lead to “stranded countries.”

Nicolas Maennling, Columbia Center on Sustainable Investment, noted future reduction in coal demand, and said that more flexible timeframes for decarbonization, or financial support for the energy transition, could address equity concerns.

Richard Morgan, Anglo American, underscored that stranded assets are a lesser threat for diversified companies than for resource dependent countries. He highlighted steps his company is taking to reduce their carbon footprint, including by developing solar hydrogen.

Vincent Kedi, Ministry of Energy and Mineral Development, Uganda, noted that stranded assets are a threat to developing countries. He stressed Uganda’s vulnerability to climate change, and highlighted funds and support available through multilateral institutions, funds and donors.

Carolina Sánchez, National Mining Secretary, Argentina, said the anticipated increase in lithium demand provides both benefits and challenges, with the latter involving management of social expectations, price volatility, and world trade tensions.

In the ensuing discussion, participants debated incentivizing change using carbon pricing, economic diversification in the face of climate change, coordination across government agencies to meet NDCs, and ensuring benefits accrue to local communities.

Session 16: IGF General Council

Council members met in a closed session on Thursday morning.

Session 17: The Future of Work

Casper Edmonds, International Labour Organization (ILO), and Aaron Cosbey, IGF Secretariat, moderated this joint ILO-IGF session on Wednesday. Edmonds recalled the recent ILO centennial declaration on the future of work and stressed that, “we can shape the future of work we want.” Jörgen Sandström, World Economic Forum, stated that, “the future is already here,” and the 4th Industrial Revolution requires discussion across borders and industries. Zainab Usman, World Bank, outlined three challenges specific for Africa: the demographic transition

and fast-growing labor force; the extractive sector’s strong footprint in Africa’s formal economies; and the deepening link of the mining sector to the broader economy.

Kemal Özkan, IndustriALL, called for a global dialogue on work transformation that would include workers and be rights-based, including “the right to know” and the right to education and training. Nicky Black, ICMM, said ICMM members see technological transformation as a complex challenge requiring everyone to work together, but also an opportunity to create a greener, safer workplace.

Responding to questions from the moderators, Sandström recommended acting immediately and proactively planning for change, as the windows of opportunity are closing. Usman suggested four pathways to address work transformation: active labor market policies; resource dividend schemes in support of the underlying social contract; enterprise development support; and leveraging new technologies to create new industries or expand existing ones.

Özkan emphasized dialogue and communication for involving workers in the just transition. He underscored the value of reskilling. Black said that the public and private sectors need to work together and understand what skills are required for “economic transformation 2.0.”

Participants suggested mine closure planning be a part of the mine permitting process so the economic and social transition is funded from the start of the mine’s life. They queried how to: reinvest a portion of the resource dividends back into biodiversity; finance job creation; and define just work. Edmonds concluded that the just transition includes adopting policies for sustainable economic growth and good work for all. He urged governments to ratify ILO Convention 176 on the Safety and Health in Mines.

Session 18: Green Mine of the Future: Mining and the Restoration Agenda

Moderator Estelle Levin-Nally, founder and CEO, Levin Sources, described “green mine” features, including: reprocessing of mine tailings, land restoration, circularity and efficiency of materials use, and active stakeholder participation.



Victor Santoni, Panasia Fund Management



Steve D'Esposito, President and CEO, RESOLVE

Victor Santoni, Pan Asia Fund Management, presented a North American “green gold” project that is reprocessing 200-year old mine tailings containing high levels of ore, as they were hand-processed without using cyanide and mercury. He noted benefits include conferral of preferential status by governments, and consumer support, citing Deloitte market research indicating 86% of Chinese millennials prefer ethically- sourced products.

Steve D'Esposito, President and CEO, RESOLVE, discussed the Salmon Gold project that aims to reprocess gold mine tailings in salmon streams in the US Pacific Northwest, where habitats have been damaged. He said the mined gold provides a revenue stream for future restoration projects and, with government support and the right partners, this model could be scaled up and applied to other metals.

Olivier Demierre, MKS Switzerland, said his organization partnered on the Salmon Gold project as it aligns with its corporate social responsibility goals, has a sound business case, and the gold obtained is traceable to its source.

Richard Kofi Adjei, Minerals Commission, Ghana, outlined the Ghanaian policies for managing mine tailings, highlighting the Planting for Food and Jobs programme whereby legacy mine tailings are capped and used to grow crops and vegetation.

Participants' questions included one about the impact cyanide in gold mine tailings could have on agricultural crops. Adjei responded that they ensure cyanide is at acceptable levels before tailings are capped. Participants also suggested that the wealth contained in mine tailings could be used to attract private investors to reprocess tailings and noted that issues around reprocessing tailings are context-specific.

Levin-Nally closed the session, urging that tailings be viewed as a resource, and stressing they can present a secondary business opportunity.

Session 19: Breaking Barriers to Mining Revenue Collection

Moderator Mary Baine, African Tax Administration Forum, asked whether governments are collecting the revenue they should be, and if not, what measures could help reach a fair distribution.



Alexander Medina, IGF Executive Committee Chair

Spyton Phiri, Zambia Revenue Authority, discussed work with UNCTAD to develop the online Mineral Output Statistical Evaluation System covering mineral production and exports reporting, saying it is used to link tax and customs authorities with the laboratories evaluating mineral exports, thereby improving information on the basis for taxation and royalties.

Alexander Medina, Ministry of Mines, Dominican Republic, discussed a task force created as the result of a memorandum of understanding between the finance and mining ministries, which promotes information sharing and helps increase sectoral expertise of tax and customs authorities to prevent erosion of the sector's tax base and increase royalty collection.

Bevon Sinclair, Tax Administration Jamaica (TAJ), expressed appreciation to IGF and the OECD for their capacity building support to introduce better benchmarks to enforce its 2015 transfer pricing rules and negotiate tax regimes with mining multinationals. He reported TAJ is now working more closely with the Jamaica Bauxite Institute and the finance and mining ministries in crafting a national minerals policy, and reviewing the bauxite incentive and overall fiscal regime.

Andrew Gunua, Mineral Resources Authority of PNG, discussed PNG's government team established three years ago for negotiating mining contracts. Appointed by the national executive council, the negotiating team is comprised of experts from Ministries of Mining, Environment, Justice, Treasury, Labor and Commerce, and Industry, and a secretariat for policy and legal advice. He said main challenges encountered related to institutional connectivity, regulatory requirements and information sharing. He noted that PNG will join a three-year capacity building effort through the OECD BEPS in Mining Programme.

Subsequent discussions focused on fiscal details, such as taxing intra-corporate transfers, controlling value declared at export, and collecting revenue from ASM and industrial minerals. Delegates addressed political challenges such as mistrust and power struggles between agencies, strong business lobbies, and applying minimum price instruments. In closing, Baine

highlighted institutional coordination, exchange of expertise, transparent data and better understanding as routes towards better taxation and more revenue.

Session 20: New Tech: The Green Mines of Tomorrow

Moderator Edwin Ritchken, Ritchken Consulting, stressed that the discussion of green mines should take into account differing levels of technology, political stability and regulatory sophistication. Janice Zinck, Natural Resources Canada, said the green mine of the future will be data-driven, fully electric, use clean renewable energy, result in zero waste on the surface and totally recycle water. She reviewed examples of technological innovations in energy efficiency, low-carbon energy applications, water consumption management, waste minimization and “mining value from waste.”

Aaron Cosbey, IGF Secretariat, said the New Tech, New Deal project identified a number of new technologies that were developed outside the mining sector, which have the potential to significantly improve environmental performance of mining operations, and are currently being implemented at some sites. He provided examples, including Glencore’s Onaping Depth mine in Canada, which is fully automated and electric, and Resolute’s Syama mine in Mali, which is powered by the world’s largest off-grid solar power plant.

Richard Morgan, Anglo American, recalled his company’s public announcement to develop the world’s largest hydrogen-powered mine haul truck by 2020, stating “it’s the technology of today, not tomorrow” that will make green mines a reality. Citing their “FutureSmart Mining” programme, he stressed that technology is an essential part of sustainability and informed delegates about ongoing on-site trials.

Participants asked about: solutions for acid rock drainage and legacy contamination; carbon sequestration in tailings; adequacy of ambition levels; whether new technologies will be open to new entrants or further monopolies; and how to improve access to knowledge, including knowledge about what has not worked. Panelists highlighted the potential of new technologies to monitor the environment in real time, and inspire new partnerships. They called for considering a “value, not tonnage” approach that would reevaluate the full cost of operations, including environmental impacts.

Session 21: Resource Taxation in a Changing World

Moderator Alexandra Readhead, IGF Secretariat, explained that 130 members of the OECD Inclusive Framework on BEPS are currently debating whether to allow market jurisdictions to tax transactions, potentially reducing the amount of mining tax revenue that is currently shared between countries where the mines and mining companies are located, respectively.

Norman Wingen, OECD, elaborated that the proposed tax reforms are intended for consumer-facing businesses, which do not include mining companies. He cautioned, however,



Yanchun Zhang, UNCTAD

that discussions are ongoing. He noted the move is driven by the global trend toward digital transactions, and is intended to simplify the tax system and reduce tax disputes.

Ann-Maree Wolff, Rio Tinto, said the extractive industry is not in favor of any approach that would reallocate taxing rights away from producing countries to “market-facing” countries, noting this would disproportionately affect developing countries.

Margaret Moonga Chikuba, Ministry of Commerce, Trade, and Investment, Zambia, said Zambia’s mining-related revenues are mostly from royalties based on price benchmarking and corporate income tax, noting the latter is prone to abuse. She said the aim is “not to tax mines to kill them,” as they are a key income source for mineral-rich countries.

Thomas Lassourd, Natural Resource Governance Institute, US, said considerations when setting tax policies or designing royalties include: using adjusting scales and price bands; determining the relationship between prices and costs; and accounting for different costs across different mining projects.

In the ensuing discussion, participants debated, among other issues, whether an agreement will require a global tax authority to monitor implementation, and whether tax policies can be used to regulate illegal mining in developing countries. They proposed the use of financial modelling to assess whether and when taxes or royalties should be applied.

Session 22: Closing plenary

Yanchun Zhang, UNCTAD, highlighted findings from the 2019 State of Commodity Dependence report indicating that the number of mineral-dependent countries rose from 14 in the 1998-2002 period, to 33 in the 2013-2017 period, and that nearly all of the 102 commodity-dependent countries are developing countries. She also recommended reading the newly released UNCTAD report Commodity Dependence, Climate Change and the Paris Agreement, noted UNCTAD is putting together a new programme on mining, and mentioned the 15th UNCTAD Ministerial Conference scheduled for 9-23 October 2020 is likely to include a forum on mining and sustainable development.

Greg Radford, Director, IGF Secretariat, thanked outgoing Executive Committee Chair Alexander Medina, Dominican Republic, for his service, and announced the new Committee members, including incoming Chair Rokhaya Samba Diene, Senegal. He urged members to participate in the consultations on the draft guidance document for governments on ESIA, and announced that the Council had voted for the next guidance document to address environmental management. He informed delegates that the 16th AGM will take place from 9-13 November 2020.

Medina closed the AGM at 5:07 pm.

Upcoming Meetings

Sustainable Mining Conference 2019: This conference will explore the contributions the raw materials sector can deliver to achieve goals and targets under the UN Sustainable Development Goals and the UNFCCC. **date:** 6-8 November 2019 **location:** Brno, Czech Republic **www:** <http://euromines.org/events/2019-11-06-sustainable-mining-conference-2019>

14th Session of the Group of Experts on Coal Mine Methane (CMM): The meeting will discuss the role of fossil fuels in the future energy mix, the Global Methane Initiative, review and discuss the 2018-2019 and the 2020-2021 work plans, explore CMM research needs, and address gender-related issues, such as barriers impeding women from entering the coal industry. **dates:** 7-8 November 2019 **location:** Geneva, Switzerland **www:** <https://www.unece.org/index.php?id=51081>

Tailings and Mine Waste 2019: The conference provides a platform for the exchange of knowledge and skills related to tailings and mine waste, and future issues facing the mining and environmental communities. **dates:** 17-20 November 2019 **location:** Vancouver, Canada **www:** <https://tailingsandminewaste.com/>

Regional Consultation for Central Asia on a Draft Mine Tailings Standard: The ICMM, in cooperation with UNEP and the Principles for Responsible Investment (PRI) will host this regional consultation with stakeholders from different subregions, including representatives from communities, NGOs, authorities and operators in Central Asia, to ensure its broad acceptance. **dates:** 18-19 November 2019 **location:** Almaty, Kazakhstan **www:** <https://www.unece.org/index.php?id=52537>

Investing in African Mining Indaba: The Indaba brings together stakeholders to advance mining on the continent and support education, sustainable development, and other causes. **dates:** 3-6 February 2020 **location:** Cape Town, South Africa **www:** <https://www.miningindaba.com/Home>

Prospectors & Developers Association of Canada (PDAC) Convention: PDAC is expected to bring together more than 25,000 participants from 132 countries. PDAC 2020 will include a Sustainability Program (formerly known as the CSR Program), featuring ways that companies are improving their sustainability

performance, and an Indigenous Program, which provides a platform for discussion on fostering cooperative, respectful and mutually-beneficial relationships between indigenous communities and the minerals industry. **dates:** 1-4 March 2020 **location:** Toronto, Canada **contact:** Rose Stacey, rstacey@pdac.ca on the Sustainability Program; Lesley Williams, lwilliams@pdac.ca on the Indigenous Program **www:** <https://www.pdac.ca/convention>

The Electric Mine 2020 Conference: This conference discusses the unique challenges faced when trying to fully electrify mining operations in the face of increasing ventilation costs, deeper mine developments, and the need for miners to reduce their carbon footprint **dates:** 19-20 March 2020 **location:** Stockholm, Sweden **www:** <https://im-mining.com/electric-mine-2020-conference/>

Sustainable Minerals '20: The 6th International Symposium on Sustainable Minerals (Sustainable Minerals '20), will discuss all aspects of material and metal usage by considering, *inter alia*: clean technology, tailings disposal, EIA methodologies, coal waste, carbon emission controls, and sustainability from an industrial as well as consumer perspective. **dates:** 10-11 June 2020 **location:** Falmouth, UK **www:** <http://www.min-eng.com/sustainableminerals20/>

Fifteenth session of the UNCTAD Quadrennial Conference (UNCTAD XV): The conference is UNCTAD's highest decision-making body, which sets the organization's mandate and priorities every four years. A forum on mining and sustainable development will take place during the forum. **dates:** October 2020 (TBD) **location:** Bridgetown, Barbados **www:** <https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2137>

16th IGF AGM: The 16th IGF AGM will take place in November 2020. **dates:** 9-13 November 2020 **location:** Geneva, Switzerland **www:** <https://www.igfmining.org/>

For additional upcoming events, see <http://sdg.iisd.org/>

Glossary

EPRM	European Partnership for Responsible Minerals
ESIA	environmental and social impact assessment
ICMM	International Council on Mining and Metals
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
ILO	International Labour Organization
MPF	Mining Policy Framework
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goal
TSM	Towards Sustainable Mining
UNCTAD	UN Conference on Trade and Development
UNDP	UN Development Programme
UNEP	UN Environment Programme