



Annual General Meeting

IGF 2017

October 16-20

Palais des Nations, Geneva

Managing Artisanal and
Small-scale Mining



IGF

INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development

Secretariat
hosted by



Core Secretariat
funding from

Canada

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INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development

**The IGF Secretariat would like to thank
UNCTAD for hosting the 2017 IGF
Annual General Meeting.**





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**INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development**

Letter from the IGF Secretariat

Welcome to the 13th Annual General Meeting (AGM) of the Intergovernmental Forum on Mining, Minerals, Metals, and Sustainable Development (IGF). We have prepared an engaging program along the theme of Managing Artisanal and Small-Scale Mining (ASM) and look forward to your participation.

More than 80 organizations and over 60 governments are taking part in the AGM this year, which is a clear indication of the IGF's significance and relevance for sustainable development.

IGF has grown into an institution that plays a key role on the world stage. Our membership has expanded to 61 countries since the IGF was established in 2005 by 25 founding members. In the year since our AGM last convened, the IGF has been honoured to welcome Cambodia, Chad, Ecuador, Liberia, Somalia and South Sudan as our newest members.

The IGF provides a number of services to members including: in-country assessments; capacity building and individualized technical assistance; guidance documents and conferences that explore resource governance best practices and provide an opportunity for governments to engage with industry and civil society. We are grateful to the Canadian government for infusing IGF with the funds necessary to expand our impact. These efforts are largely framed by IGF's flagship policy guidance and assessment tool, the Mining Policy Framework (MPF). The IGF has recently completed MPF assessments for the following countries: Mauritania, Mongolia, Rwanda, Senegal and Suriname.

The IGF believes it is important to provide as many opportunities as possible for our members to collaborate, access world-class experts and learn from one another. The IGF delivered 13 capacity-building workshops, which served representatives from 36 countries this fiscal year. Events were held in Africa, Asia and South America on topics such as ASM, environmental management, mining law, mine closure and post-mining transition.

The IGF Secretariat recently published a guidance document on managing the ASM sector and is working on guidance documents that will help its members optimize the benefits from mining through local content policies and efforts to tackle tax base erosion and profit shifting (BEPS).

For this year's AGM, the agenda is focused on the ASM sector. ASM is a complex and diversified sector across much of the developing world. It ranges from informal individual miners seeking a subsistence livelihood, to small-scale formal commercial mining entities producing minerals in a responsible way. For many countries, ASM is both an important source of livelihoods and also a cause of environmental damage. There is a pressing need to enhance the quality of life for miners working outside of formal legal and economic systems, and to enhance the contribution of the sector to sustainable development.

ASM has experienced explosive growth in recent years due to the rising value of mineral prices and the increasing difficulty of earning a living from alternative activities like agriculture. The exact scale of ASM worldwide is unknown, given that many operating in the sector do so outside of formal economic and legal structures. However, it is estimated that 40.5 million people were directly engaged in ASM in 2017, up from a 30 million people in 2014, 13 million people in 1999 and 6 million in 1993. That compares with just 7 million people working in industrial mining in 2014.



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ARTISANAL AND SMALL-SCALE MINING: GLOBAL TRENDS

Artisanal and small-scale mining (ASM) has experienced explosive growth in recent years due to the rising value of mineral prices and the increasing difficulty of earning a living from agriculture and other rural activities. An estimated 40.5 million people were directly engaged in ASM in 2017, up from 30 million in 2014, 13 million in 1999 and 6 million in 1993. That compares with only 7 million people working in industrial mining in 2014.

ASM is generally pursued as a route out of poverty or as an activity to complement insufficient income, especially in communities where alternative employment is hard to come by. ASM is also a very diverse sector. Its main challenges vary from region to region—and often from site to site.

There is a perception that ASM is a “get-rich-quick” activity. This has misinformed legislation and extension programs and led to the application of one-size-fits-all policies. However, people working in ASM are far from the same. They range from those whose livelihoods rely on subsistence farming to skilled workers who migrated from urban areas in search of work.

Despite its low productivity, ASM is an important source of minerals and metals. It accounts for about 20 per cent of the global gold supply, 80 per cent of the global sapphire supply and 20 per cent of the global diamond supply. ASM is also a major producer of minerals indispensable for manufacturing popular electronic products, such as laptops and phones. For example, 26 per cent of global tantalum production and 25 per cent of tin comes from ASM.

ENVIRONMENT AND HEALTH AND SAFETY

ASM relies on a mostly unskilled workforce using rudimentary tools and techniques. Unsurprisingly, its environmental and health and safety practices tend to be very poor. For example, dust and fine particles resulting from blasting and drilling cause respiratory illnesses. It also degrades crops and farmlands, resulting in lost food production. Streams and rivers often become polluted near ASM sites, which makes water unsafe for drinking and can also affect fish stocks previously relied upon for food.

Artisanal and small-scale mining is also the source of the largest releases of mercury, estimated at 1,400 tonnes per year in 2011 according to the Minamata Convention.

Exposure to mercury can have serious health impacts, including irreversible brain damage. Mercury is also difficult to contain and can be toxic at even very small doses. It can be transported long distances by air or water, poisoning the soil and waterways, and eventually making its way into the food chain. In sub-Saharan Africa, most of these risks are borne by women.

Many attempts have been made to encourage artisanal and small-scale miners to adopt cleaner technologies and safer practices. Many operators are reluctant to change their practices due to higher costs and concerns about the impact on production.



ASM AND LARGE-SCALE MINING (LSM)

In many parts of the world, ASM and LSM operate in neighbouring—and sometimes on the same—concessions. As mineral governance frameworks tend to favour foreign direct investment by multinational companies over ASM, there are significant power imbalances and clashes over claims. However, their coexistence opens the potential for cooperation.

Current practices and debates about ASM–LSM relations include:

- Removing ASM from LSM concessions, which is unlikely to solve clashes over land in the long run
- Separating ASM and LSM by creating “ASM zones,” with proven geological reserves
- Fostering cooperation between LSM and ASM operators through buy-back arrangements, technical assistance and support for formalization
- Promoting continued dialogue and communication between ASM and LSM, facilitated by governments

ALTERNATIVE LIVELIHOODS

Moving people straight out of ASM into other sectors is not a realistic strategy, as there are typically few other employment opportunities. Programs aiming to encourage more income-generating activities along the ASM supply chain—such as gemstone cutting and polishing—have shown positive results.

Agriculture and ASM need to be seen as complementary, as opposed to two activities that are fundamentally at odds. Many families turn to ASM to supplement their farming earnings and invest in farming and farm inputs.



IN NUMBERS

40.5 MILLION
people working in ASM in 2017

150 MILLION
depend on ASM across
80 COUNTRIES
in the global south

20 % of the global gold supply is produced by the ASM sector

80 % of the global sapphire supply and **20 %** of the global diamond supply come from ASM

26 % of global tantalum production and **25 %** of global tin production come from ASM

40–50 % of the ASM workforce in Africa are women

70–80 % of small-scale miners are informal



CERTIFICATION SCHEMES

In recent years, ethical certification schemes and standards have been used to support formalization and to improve social and environmental practices in the sector.

Standards such as Fairmined and Fairtrade Gold aim to foster responsible ASM cooperatives, provide assurance of minimum standards of production, and support the sector's formalization and professionalization. In addition, "chain of custody" initiatives aim to ensure traceable supply chains from mine to market that are free from conflict and human rights abuses. They respond to the need of companies seeking to meet international regulations and/or voluntary codes and to ensure good business practices.

Despite signs of progress, there are concerns about these initiatives. Some argue they are not reaching the most marginalized communities in need of greatest support. Instead, they are believed to be empowering already licensed and relatively affluent cooperatives able to meet the requirements and costs of certification. There are also concerns about longer-term sustainability due to their reliance on Western markets and ethical consumption trends.

FORMALIZATION

In many countries, 70 to 80 per cent of small-scale miners are informal.

Informality brings along damaging socioeconomic, health and environmental impacts, which trap the majority of miners and communities in cycles of poverty and exclude them from legal protection and support.

Formalization has to be inclusive of miners' views and effective in monitoring and enforcing regulation. It needs:

- Legal frameworks that remove barriers to formalization and are supportive and accessible rather than punitive
- Streamlined licensing processes that make it easy, cost-effective and rewarding to obtain a licence
- Access to finance for miners, potentially using geological information as collateral for loans
- Technical and financial support to meet the licensing requirements and, once licensed, to continue to improve performance

TOWARDS SUSTAINABLE ASM: WHAT DO WE NEED TO GET THERE?

- **Know-how:** Building capacity through local institutional partnerships
- **Organization:** Encouraging miners to form cooperatives and associations
- **Collaboration:** Encouraging large-scale mining companies to support capacity building
- **Capital:** Using microcredits to lend to organized groups of miners and communities, supported by donors
- **Technology and equipment:** Improving miners' access to efficient and cleaner technologies





International
Resource
Panel

INVITATION

UN Environment AGM Opening Reception

Tuesday, October 17 - 1800-1930

Bar Serpent - Building E, Palais des Nations

**THE IGF SECRETARIAT IS PLEASED TO INVITE
ALL REGISTERED DELEGATES TO ATTEND
A RECEPTION HOSTED BY UN ENVIRONMENT.**

Drinks will be served from 1800 to 1930 in Bar Serpent in Building E.

The International Resource Panel was launched by UN Environment in 2007 to build and share the knowledge needed to improve our use of resources worldwide.

The Panel consists of eminent scientists who are highly skilled in resource management issues. The Panel's goal is to steer us away from overconsumption, waste and ecological harm to a more prosperous and sustainable future.

More information is available at: <http://www.resourcepanel.org/>



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Secretariat hosted by



Core Secretariat funding from

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GENERAL INFORMATION

Navigating the Palais

FOOD AND BEVERAGES

There are several choices for food and beverages in the UN. The two closest are:

- The **UN Pasta Corner**: The Bar Serpent offers you coffee, pastries, sandwiches and salads. In the corner of the Bar Serpent you will find the Pasta Bar serving a wide range of pasta dishes. Both are conveniently located next to the conference room on the first floor.



- The **UN Cafétéria** is open to participants as well as UN Staff. You will find a full range of meals and drinks. It is located on the ground floor, in the A building. The “Cafétéria” signs will guide you from the Meeting Room XXV.



- The **Bar Serpent** offers you coffees, pastries, sandwiches and salads. It is conveniently located next to the conference room.
- **UN Delegates Restaurant** – 8th floor A Building. A la carte menus are available. It is necessary to make an advance reservation. – telephone: +41 22 917 3588

CURRENCY CHANGE AND ATM

A UBS bank is available to change money (Euros, Swiss Francs, and Dollars) from 8.30 am to 12.30 pm and 1.30 pm to 5.00 pm, on the 2nd floor of the E Building. From the meeting room take the stairs/elevators and follow the “Bank” signs..

WI-FI

The Palais des Nations is a Wi-Fi zone and Wi-Fi is available in most areas of the premises, allowing you to access free Internet. There will also be free Internet access provided in the Meeting Room.

CYBERCAFÉ

A free access cybercafé is available close to the Serpent Bar. It will give you the opportunity to use the available computers to access the Internet and use the most common software.

SHOPPING AND SOUVENIRS

Several shops sell UN-branded souvenirs, postcards and books. You can find the main shop, in the main lobby—2nd floor of the E building—near the main entrance.

OTHER FACILITIES

There are other facilities such as a post office, a newsagent, SAFI, available in the Palais des Nations. Please refer to the map below to locate them.

Medical Service

The UNOG Medical Service is located in the basement of Building S, near door S2, and is open from 8am to 5pm.

Lost and Found

The UNOG Lost and Found office collects all items that are handed in. For inquiries, please call +41 (0)22 917 1948.

Taxis

You may contact the following companies should you need to book a taxi:

- Taxi-company 1: + 41 (0) 22 33 141 33
- Taxi company 2: + 41 (0) 22 731 41 41

Please note that taxis are not permitted inside the UN premises. They will drop off/pick up at the Pregny gate only.

Palais des Nations Map

ACCESS FOR PERSONS WITH DISABILITIES

The 3rd floor and the ground floor allow you to cross the entire length of the Palais des Nations.

CARPARKS
Priority parking for persons with disabilities is available at the following accessible doors: A13 | A18 | B20 | C5 | D9 | E40

ACCESSIBLE DOORS
C5 | D9 | A18 | B20 | E40

ACCESSIBLE ELEVATORS
S2 | A12 | A15 | A16 | C5 | C7 | A29 | E46

ACCESSIBLE TOILETS
Door A13 | Ground floor near the Cafeteria
Door C6 | 1st, 2nd, 3rd, 4th floor
Door E40 | 1st, 3rd, 6th floor

CONFERENCE ROOMS

BUILDING	FLOOR	DOOR
BUILDING A	ROOM III	1 C6
	ROOM V	1 C6
	ROOM VII	3 A13
	ROOM VIII	3 A13
	ROOM IX	3 A13
	ROOM X	3 A15
	ROOM XI	3 A15
	ROOM XII	3 A15
	ROOM XIV	1 A18
	ROOM XV	2 A11
BUILDING B	LIBRARY	1 B20
	CYBERSPACE	1 B20
BUILDING C	LEAGUE OF NATIONS MUSEUM	1 B20
	ARCHIVES READING ROOM	3 B20
	LIBRARY	1 B20
BUILDING E	ROOM XVII	1 E40
	ROOM XVIII	1 E40
	ROOM XIX	3 E40
	ROOM XX	3 E40
	ROOM XXI	1 E40
BUILDING S	ROOM S1	0 S2
	ROOM S2	3 S2
	ROOM S3	3 S2
	ROOM S4	3 S2
	ROOM S5	4 S2

SERVICES

NUMBER	NAME	FLOOR	DOOR
1	SARI SHOP	-1	S1
2	MEDICAL SERVICE	-1	S2
3	POST OFFICE	0	C6 P3
4	PRESS BAR	0	C6 P3
5	DELEGATES LOUNGE	3	A13
6	CAFETERIA	0	A13 15
7	DELEGATES RESTAURANT	8	A13 15
8	GUIDED TOURS	2	E39
9	TRAVEL AGENCY	9:00 am - 5:30 pm	E40
10	SERPENT BAR	9:00 am - 5:15 pm	1 E40
11	BANK	9:30 am - 4:30 pm	2 E40
12	BAR / SNACK PALETTE	8:15 am - 5:00 pm	6 E40

DEFIBRILLATORS
Door S2 | Door C6 | Door E40 | Pregny, visitor entrance | Le Bodge Annexes, ground floor | Library, B building, 1st floor | Hall des Pas Perdus, A building, 3rd floor | Quai 30 |

Mineral Resource Governance for Sustainable Development: A Stakeholder Consultation

OCTOBER 17, 2017

13:00-14:30

Room XXV, Palais des Nations
IGF 2017 | Geneva, Switzerland

Participants of the Annual General Meeting of IGF 2017 are invited to attend a lunchtime session on the International Resource Panel's (IRP) report on governance of the mining sector for improved social & environmental outcomes.

** Light lunch and refreshments will be provided outside the venue at 13:00*

Speakers include two of the lead authors of the IRP report:

- **Bruno Oberle**, Professor of Green Economy, École Polytechnique Fédérale de Lausanne (EPFL)
- **Antonio Pedro**, Director, Sub-Regional Office of Central Africa, United Nations Economic Commission for Africa (UNECA)

*Participants are encouraged to read the short **consultation document** on the main premise of the IRP report – a proposed new governance framework for the extractive sector referred to as the "**Sustainable Development License to Operate**" - and provide feedback to the authors on the guiding questions.*

** The document can be accessed at: <http://www.resourcepanel.org/news-events/mineral-resource-governance-sustainable-development>*

Organised by:

International Resource Panel | United Nations Environment Programme

For further information please contact: Christina.Bodouroglou@unenvironment.org



International Conference on Artisanal and Small-scale Mining & Quarrying

ASM18

11-13 September, 2018, Livingstone, Zambia

For partnership and sponsorship
enquiries contact

asm.conference@undp.org

www.asmconference.org



AGENDA

IGF ANNUAL GENERAL MEETING

OCTOBER 17-20, 2017

Managing Artisanal and Small-Scale Mining

Monday, October 16 – Intergovernmental Workshop (Government Delegates Only)

Time	Agenda Item	Location
08:00 – 10:00	Registration and Security	Pregny Gate
10:00 – 11:30	PLENARY: EXECUTIVE COMMITTEE AND SECRETARIAT UPDATES	Room XXVI
11:30 – 11:45	Morning Networking Break	
11:45 – 13:00	WORKSHOP 1: FACILITATED DISCUSSIONS ON REGIONAL PRIORITIES Lead: IGF Secretariat Format: Group discussions by language (English, French and Spanish)	Room XXVI
13:00 – 14:30	Networking Lunch	Bar de l'Escargot
14:30 – 15:00	Members activities update	Room XXVI
15:00 – 16:00	WORKSHOP 2: TRENDS AND EMERGING ISSUES REGARDING MINING CODE AND REGULATIONS Lead: IGF Secretariat Format: Plenary session	Room XXVI
16:00 – 16:15	Afternoon Networking Break	
16:15 – 18:00	CONSULTATION ON LOCAL CONTENT POLICY GUIDANCE DOCUMENT Lead: Aaron Cosbey, IISD and Jerry Ahadjie, IGF Executive Committee Format: Plenary session	Room XXVI

Tuesday, October 17 – Annual General Meeting Day 1

Time	Agenda Item	Location
08:00–10:00	Registration and security	Pregny Gate
10:00–11:15	SESSION 1: FORMAL OPENING AND SECRETARIAT UPDATE Speakers: - Glenn Gemerts, Chair, IGF - Isabelle Durant, Deputy Secretary-General of UNCTAD - Scott Vaughan, President, IISD - Greg Radford, Director, IGF Secretariat	Room XXVI

DISCLAIMER:

In order to encourage openness and the sharing of information, Chatham House Rules are applied to all comments from participants. This means that “participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.”

The rules do not apply to comments made by panelists during formal presentations, which you are free to cite.

Please note that we will be taking photographs and video of the conference. Please speak to a Secretariat staff member should you wish not to be identified in photos and we will do our best to accommodate you.

Tuesday, October 17 – Annual General Meeting Day 1 (continued)

Time	Agenda Item	Location
11:15–11:45	Morning Networking Break	
11:45–13:00	<p>SESSION 2: ASM FORMALIZATION</p> <p>This session will be a moderated discussion focusing on government initiatives to legally and economically formalize artisanal and small-scale mining. Speakers representing three IGF member states will each be asked to highlight their country's approaches to formalization, and the corresponding successes, challenges and opportunities. Country experiences will be complemented with an intervention from the World Bank on the important role of reliable and accurate data in supporting formalization.</p> <p>Facilitator: Estelle Levin-Nally, Director, Levin Sources</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Mamadou Barry, Senior Mining Specialist, World Bank - Serge Herve Boyogueno, Director of Mines, Cameroon - Sereenov Mandakhbat, Head of Legal Division, Ministry of Mining and Heavy Industry, Mongolia - María Daniela Barragán Calderón, Subsecretaria de Minería Artesanal y Pequeña Minería, Ministerio de Minería, Ecuador 	Room XXVI
13:00–15:00	<p>LUNCH</p> <p>(13:00–14:30) Mineral Resource Governance for Sustainable Development: <i>A stakeholder consultation by UN Environment's International Resource Panel</i></p> <p>(14:30–15:00) UNDP Guidance Report Launch: <i>Integrating Human Rights into Environmental Governance of Mining</i></p>	Room XXV
15:00–16:15	<p>SESSION 3: FORMALIZATION AND MANAGEMENT STRATEGIES FOR ASM – LICENSE AREAS AND ASM ZONES</p> <p>Various countries have gathered experience in managing ASM activities in their jurisdictions. Some countries set up special licensing processes while others delineate dedicated zones where ASM activities are authorized to take place. It is important to discuss the parameters for successful and sustainable ASM management through these regulatory processes. The session will be a forum to exchange these experiences and lessons learned from Asia, Africa and Latin America.</p> <p>Facilitator: Gudrun Franken, Head of Unit Mining and Sustainability, Federal Institute for Geoscience and Natural Resources (BGR), Germany</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Alexander Medina, Director General of the Mining, Dominican Republic Ministry of Energy and Mines - Yeni Srihartati, Head of Social Services, Community and Villages Empowerment Department in Belitung Timur Local Government, Indonesia - John Kanyangira, Director, Support Services in Mining Investment and Business Development, Government of Rwanda - Willison Mutagwaba, Managing Director, MTL Consulting Company Limited 	Room XXVI
15:00–16:15	<p>SESSION 4: VOLUNTARY PRINCIPLES ON SECURITY AND HUMAN RIGHTS</p> <p>The objective of this panel discussion is to strengthen understanding among stakeholders on the Voluntary Principles on Security and Human Rights (VPs), their applicability in the context of ASM-related issues and the specific tools members use to implement the VPs. Examples will include the work of the In-Country Pilot Working Groups (ICPWG's), the Model Clauses, the Implementation Guidance Tool, the Key Performance Indicators and the DCAF/IGF toolkit. Additionally, the discussion aims to identify whether governments need additional guidance in implementing the VPs and what kind of role the IGF and its members can play in this regard.</p> <p>Facilitator: Ronald Roosdorp, Director for International Trade Policy and Economic Governance, Ministry of Foreign Affairs, Netherlands</p> <p>Panelists:</p> <ul style="list-style-type: none"> - J. J. Messner, Executive Director, Fund for Peace - Brent Bergeron, Executive Vice President, Corporate Affairs and Sustainability, Goldcorp Inc. - Alan Bryden, Assistant Director and Head of the Public-Private Partnerships Division, Geneva Centre for the Democratic Control of Armed Forces (DCAF) - Benjamin Aryee, Adviser on Mining, Ministry of Lands & Natural Resources, Ghana 	Room XXV

Tuesday, October 17 – Annual General Meeting Day 1 (continued)

Time	Agenda Item	Location
16:45–18:00	<p>SESSION 5: GLOBAL ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) TRENDS</p> <p>This session will present current country-level research findings from three global institutions using diagnostic tools that assess ESG in the mining sector, and will be moderated by an IGF member state that is working with all three global institutions. Results from IGF's MPF Assessments, the World Bank's MinGov and UNDP's Environmental Governance Program (EGP) provide lessons on ESG, whether in considering perspectives from different stakeholders or ensuring human rights outcomes are integrated into environmental management processes.</p> <p>Facilitator: Monica Gichuhi, Cabinet Secretary Advisor, Policy, Strategy and Institutional Reforms, Ministry of Mining, Kenya</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Michael Stanley, Global Lead Extractives, World Bank - Gregory Kituku, Assistant Director of Mines, Ministry of Mining, Kenya - Matthew Bliss, Deputy Director, Programs, IGF 	Room XXVI
16:45–18:00	<p>SESSION 6: VOLUNTARY SUSTAINABILITY INITIATIVES FOR THE MINING SECTOR</p> <p>There has been huge growth in the number and diversity of voluntary sustainability initiatives (VSIs) in the mining and minerals sector. How do they compare? How do they contribute to sustainable development and the sustainable development goals (SDGs)? What is their relationship with public laws and policies on mining activity? In this session, participants will learn about a recent review of 15 major mining VSIs, conducted by the IGF, and about government perspectives therein.</p> <p>Facilitator: Alan Young, Director, Materials Efficiency Research Group</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Laura Turley, Associate, IISD - Matthew Wenban-Smith, Director, OneWorldStandards Ltd - Gudrun Franken, Head of Unit Mining and Sustainability, Federal Institute for Geoscience and Natural Resources (BGR), Germany - Sahr Wonday, Director General, National Minerals Agency, Sierra Leone 	Room XXV
18:00–19:30	RECEPTION HOSTED BY UN ENVIRONMENT AT BAR SERPENT	E-Building

Wednesday, October 18 - Annual General Meeting Day 2

Time	Agenda Item	Location
08:00–10:00	Registration and security	Pregny Gate
10:00–11:15	<p>SESSION 7: LARGE-SCALE MINING (LSM) AND ASM: CHALLENGES AND NEW INDUSTRY APPROACHES</p> <p>ASM activities often take place near or within the formal mining concessions of LSM operations. Interactions between LSM and ASM are increasing as both sectors expand; relations can range from violent confrontation to cooperative support. AngloGold Ashanti and Newmont will present challenges and industry approaches. An IGF member will provide recent government experience related to a new large-scale gold mine development.</p> <p>Facilitator: Estelle Levin-Nally, Director, Levin Sources</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Glenn Gemerts, Policy Advisor, Ministry of Natural Resources, Suriname - Nick Cotts, Group Executive, Sustainability and External Relations, Newmont Mining - David Noko, EVP Sustainable Development, AngloGold Ashanti 	Room XXVI
11:15–11:45	Morning Networking Break	

Wednesday, October 18 - Annual General Meeting Day 2 (continued)

Time	Agenda Item	Location
11:45–13:00	<p>SESSION 8: DEVELOPMENT MINERALS AND THE SUSTAINABLE DEVELOPMENT GOALS (SDGS)</p> <p>Development Minerals include the mining of industrial minerals, construction materials, dimension stones and semi-precious stones. This session will discuss how small-scale mining and quarrying of Development Minerals support social and economic development in the African, Caribbean and Pacific Group of States. It will also discuss how the sector can help contribute to the fulfillment of the SDGs. The session will be hosted by the ACP-EU Development Minerals Programme, an initiative implemented in partnership with UNDP.</p> <p>Facilitator: Dr. Daniel Franks, Programme Manager and Chief Technical Advisor, ACP-EU Development Minerals Programme, UNDP</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Hon. Ernest Gbwaboubou, Minister of Mines, Industry and Technological Development, Republic of Cameroon - Dr. Rajjeli L. Taga, Director, Minerals Resources Department, Fiji - Dr. Jennifer Hinton, Director, Auranda Minerals; Adjunct Professor, Carleton University - Mr. Antonio Pedro, Director, Subregional Office, Central Africa, United Nations Economic Commission for Africa - Harivao Fenosoa Razanakolona Rajaonarisoa, Head of Department of Administration and Control of Operations, Interregional Directorate of the Ministry to the Presidency in charge of Mines and Petroleum, Madagascar - Dr. Maximin Emagna, Private Sector & Investment Expert at African, Caribbean and Pacific (ACP) Group of States 	Room XXVI
15:00–16:15	<p>SESSION 9: GOVERNMENT, COMMUNITY AND INDUSTRY ENGAGEMENT TO DEVELOP A COMMON VISION FOR MINING</p> <p>This session is designed as a dialogue to discuss how governments and communities can engage better to develop a common vision for mining. The multistakeholder dialogue will include opening remarks from civil society, AMDC and industry. It will include a dialogue on global approaches as well as the achievements and challenges to date of implementing the African Mining Vision.</p> <p>Facilitator: Moreblessings Chidaushe, Policy Advisor Resource Governance, Norwegian Church Aid, Southern Africa</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Kojo Busia, Mr. Kojo Busia, Officer in Charge/Acting Coordinator, African Minerals Development Centre - Tom Butler, CEO, International Council on Mining and Metals (ICMM) - Mutuso Dhlwayo, Executive Director of Zimbabwe Environmental Law Association 	Room XXVI
15:00–16:15	<p>SESSION 10: MINE CLOSURE AND POST-MINING TRANSITION</p> <p>How governments plan for transition to post-mining and incorporate requirements into their legislation, licensing and inspections is critical for governments. Speakers from industry and IGF member states will describe mine closure challenges, the usefulness of the draft APEC Mine Closure Checklist and case studies on how they have approached post-mining transition. The CONNEX Support Unit will discuss recent experience from Mali.</p> <p>Facilitator: Hilary Morgan, Director of International Affairs and Trade Directorate of the Lands & Minerals Sector, Natural Resources Canada</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Lassana Guindo, National Mine Closure Commission, Adviser to Secretary General, Mining, Mali - Mark Freberg, Director, Permitting & Closure, Teck Resources - Roger Gunson, Executive Manager, Regulatory, Mineral Resources Authority, Papua New Guinea 	Room XXV
16:15–16:45	<p>AFTERNOON NETWORKING BREAK</p>	

Wednesday, October 18 - Annual General Meeting Day 2 (continued)

Time	Agenda Item	Location
16:45–18:00	<p>SESSION 11: ASM CASE STUDIES</p> <p>This session will feature profiles of four ASM case studies, with a focus on peer learning. Speakers will be given 10 minutes to profile their country or program case study, followed by a moderated question-and-answer period with the audience. Case studies will focus on a range of issues, including illicit financial flows from gold mining, developing ASM management strategies and responding to gold rushes.</p> <p>Facilitator: Rokhaya Samba, Directrice chez Direction de la Prospection et de la Promotion Minière, Ministère de l'Industrie et des Mines, Senegal</p> <p>Panelists:</p> <ul style="list-style-type: none"> - John Tychsen, Director, Development Projects, Geological Survey of Denmark and Greenland (GEUS) - Holger Grundel, Senior Manager, Levin Sources - Seydou Keita, Ingénieur Géologue, Conseiller technique, MEADD (Ministre de l'Environnement, de l'Assainissement et du Développement Durable), Mali - Ahmed Taleb Mohamed, Technical Adviser to the Minister in Charge of Mining, Mauritania 	Room XXVI
16:45–18:00	<p>SESSION 12: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR ASM–LSM</p> <p>The panel will open with an overview of ASM practices and policies and then draw from LSM EIA and global practices to support recommendations for ASM. IGF members will provide insights into country-level challenges with ASM and case study experience. Speakers will present practical recommendations for EIAs for ASM (and LSM), which will be accompanied by a short publication from the Canadian International Resources and Development Institute (CIRDI). The session will cover what is working and what is not working, and how governments can provide a supporting role to small-scale miners, perhaps looking at ASM areas (watershed) rather than individual mine sites.</p> <p>Facilitator: Rob Stevens, Director, Partnerships and Learning, Canadian International Resources and Development Institute (CIRDI)</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Justine Shirley Seyire Dzadzra, Principal Programme Officer, Mining Department, EPA, Ghana - Godfrey Scott, Senior Environmental Officer, Guyana Geology Mines Commission 	Room XXV

Thursday, October 19 - Annual General Meeting Day 3

Time	Agenda Item	Location
08:00–10:00	Registration and security	Pregny Gate
10:00–11:15	<p>SESSION 13: IGF GENERAL COUNCIL (MEMBERS ONLY)</p> <p>SESSION 14: LOCAL CONTENT POLICIES IN THE MINING SECTOR: LESSONS, CHALLENGES AND NEW TOOLS</p> <p>Resource-rich countries face difficult challenges in translating mining sector investment into sustainable development. Each country's situation is unique, but the goals are broadly similar: strong upstream and downstream linkages into the domestic economy, ample and quality employment, and spillover benefits to other sectors and the general public. This session, based on member guidance being prepared by the IGF Secretariat, will feature stories from the field that illustrate the potential and the pitfalls of local content policies designed to achieve those goals, as well as illustrations of new tools designed to help make that possible.</p> <p>Facilitator: Aaron Cosbey, Senior Associate, IISD</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Isabelle Ramdoo, Senior Linkages and Investment Advisor, African Minerals Development Centre/ UNECA - Richard Morgan, Head of Government Relations, Anglo American - Jane Korinek, Economist, Trade policy Analyst, OECD - Somine Dolo, Kanaga Consulting - Jeff Geipel, Venture Leader for Mining Shared Value, Engineers Without Borders Canada 	Room XXVI Room XXV
11:15–11:45	Morning Networking Break	

Thursday, October 19 – Annual General Meeting Day 3 (continued)

Time	Agenda Item	Location
11:45–13:00	<p>SESSION 15: WOMEN AND ASM</p> <p>This session aims to engage participants on some of the key challenges faced by women in ASM. It will focus on identifying practical ways to enable women progress as mining and linked entrepreneurs and lead sustainable livelihoods. A presentation of a recent research on the topic commissioned by the IGF will guide discussions which will benefit from presentations from women miners in ASM from Ghana and Tanzania. The session is hosted by the International Institute for Environment and Development (IIED).</p> <p>Facilitator: Caroline Ngonze, Program Specialist, ACP-EU Development Minerals Program, UNDP</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Amina Tahiru, Managing Director, Zenon Group, Ghana - Shamsa Diwani, Executive Director, Gemstyles Company Limited, Tanzania - Fitsum Weldegiorgis, Senior Researcher, Shaping Sustainable Markets, International Institute for Environment and Development (IIED) 	Room XXVI
11:45–13:00	<p>SESSION 16: ACHIEVING GOOD GOVERNANCE FOR BIODIVERSITY IN THE MINING SECTOR</p> <p>This will be an interactive session to gather stakeholder input, specifically on ways to achieve good governance for biodiversity in the mining sector. The session will draw upon analysis being done by IUCN and The Biodiversity Consultancy on national government mitigation hierarchy policies, biodiversity management and the importance of mining to national economies. The session will also discuss and describe—with participant interaction—ways for the mining sector to actively contribute to “Mainstreaming Biodiversity into the Energy and Mining Sector,” an initiative under the auspices of the Convention on Biological Diversity.</p> <p>Facilitator: Stephen Edwards, Senior Programme Manager, Global Business & Biodiversity Programme, International Union for Conservation of Nature (IUCN)</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Rachel Asante-Owusu, Project Officer for the Business and Biodiversity Programme, International Union for Conservation of Nature (IUCN) - Eugenie Regan, Senior Principal Consultant, The Biodiversity Consultancy - Annelisa Grigg, Head of Programme, Business and Biodiversity, UN Environment World Conservation Monitoring Centre 	Room XXV
15:00–16:15	<p>SESSION 17: ARTISANAL AND SMALL-SCALE GOLD MINING (ASGM)</p> <p>This session will feature a moderated discussion on the challenges particular to the artisanal and small-scale gold mining sector, and how these challenges are being addressed. Speakers from IGF member states, academia and the United Nations will focus on key issues including mercury use and environmental risks, Indigenous rights, and poverty reduction.</p> <p>Facilitator: Kirsten Dales, Director, Program Development, Canadian International Resources and Development Institute (CIRDI)</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Sheila Logan, Minamata Convention Secretariat/UN Environment - Roger Gunson, Executive Manager, Regulatory, Mineral Resources Authority, Papua New Guinea - Gregory Kituku, Assistant Director of Mines, Ministry of Mining, Kenya - Eulienne Watson, Technical Officer, Ministry of Natural Resources, Guyana 	Room XXVI
13:00–15:00	<p>LUNCH</p> <p>(14:00–14:30) Minerals and Energy for Development Alliance (MEfDA) and IGF: Financing Women in Mining</p> <p>(14:30 – 15:00) AfDB and Open Oil Report Launch: <i>Running the Numbers: How African Governments Model Extractive Projects</i></p>	Room XXV

15:00–16:15	<p>SESSION 18: FINANCIAL BENEFIT OPTIMIZATION</p> <p>Global experts and IGF members will discuss considerations for balancing the needs of investors and governments in maximizing and best using their mining revenues and financial benefits. The sensitivities that affect the returns on investment are critical, not only for companies seeking mine financing, but also for governments attracting mining companies and their investors. The session will discuss how to optimize the financial benefits of mining with examples from negotiations, arbitrations and the AfDB's recent report, an analysis of African governments' use of financial models and lessons about the need for modelling capacity to support policy-making.</p> <p>Facilitator: Rokhaya Samba, Directrice chez Direction de la Prospection et de la Promotion Minière, Ministère de l'Industrie et des Mines, Senegal</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Anton Mélard de Feuarent, Valuation Expert, Fair Links - Pietro Toigo, Chief Macroeconomist, African Development Bank - Ousmane Cisse, Director of Mines and Geology, Minière Ministère de l'Industrie et des Mines, Senegal 	Room XXV
16:15–16:45	Afternoon Networking Break	
16:45–17:50	<p>SESSION 19: CLOSING PLENARY</p> <p>The theme of the plenary session is positive and negative impacts of mining on SDGs. There will be four speakers in the session. Three speakers from UNCTAD will discuss the Special Unit on Commodities (SUC) research and project activities relating to the extractive sector. The last speaker will present a case study on measures taken by the Ghanaian government to reduce negative impacts of mining given the recent heightened concerns of small scale mining activities on the environment. The last presentation will also include reforms aimed at promoting small scale mining so as to increase its contribution to job creation. The topics to be presented are as follows:</p> <ol style="list-style-type: none"> I. Development linkages in the extractive sector: The case of Chad and Congo - Taro Boel, Project Officer, 9th tranche development account project, SUC; II. Small scale mining and the SDGs - Romain Perez, Economic Affairs Officer, SUC; III. State of commodity dependence (2017) - Alexandra Laurent, Statistics Officer, Commodity Research and Analysis Section, SUC; IV. Case study of mining in Ghana - Representative, Minerals Commission, Ghana. 	Room XXVI
17:50–18:00	<p>CLOSING REMARKS</p> <p>Speakers:</p> <ul style="list-style-type: none"> - UNCTAD - IGF Secretariat 	

Friday, October 20 – Tax Base Erosion and Profit Shifting (BEPS) Technical Workshop

Time	Agenda Item	Location
08:00–10:00	REGISTRATION AND SECURITY	Pregny Gate
10:00–10:30	<p>OPENING SESSION</p> <p>Speaker: Howard Mann, IGF Secretariat</p> <ul style="list-style-type: none"> • Overview of IGF-OECD BEPS in Mining Cooperation • Introduction to subtopics, BEPS team • Current and future work program <p>Panelists:</p> <ul style="list-style-type: none"> - Dan Devlin, Senior Tax Adviser - Extractive Industries, OECD - Janvier Désiré Nkurunziza, Chief of Research and Analysis Section in the Special Unit on Commodities, UNCTAD 	Room XXVI
10:30–10:50	<p>KEYNOTE ADDRESS</p> <p>Speaker: Elfrieda Tamba, Commissioner General, Liberia Revenue Authority</p>	Room XXVI

**Friday, October 20 – Tax Base Erosion and Profit Shifting (BEPS)
Technical Workshop (continued)**

Time	Agenda Item	Location
10:50-11:30	<p>TRANSFER MISPRICING IN MINING</p> <p>Speakers: Alexandra Readhead, IGF and Dan Devlin, OECD</p> <ul style="list-style-type: none"> • What it is and why it matters? • Stock-taking of actions to address transfer mispricing: <ol style="list-style-type: none"> a) Toolkit for Transfer Pricing Risk Assessment in the African Mining Industry presented by Mr. Thulani Shongwe, International Taxation Manager, African Tax Administration Forum b) OECD Mineral Product Pricing Toolkit 	Room XXVI
11:30-11:45	Morning Networking Break	
11:45-13:00	<p>TRANSFER PRICING IN MINING</p> <p>Session continues</p>	Room XXVI
13:00-14:00	Lunch	
14:00-15:00	<p>ISSUE 2: MINERAL VALUATION – COMBATING MISPRICING BY STRENGTHENING MINERAL TESTING FACILITIES</p> <p>Speaker: Alexandra Readhead, IGF and Discussants: Mr. Wonday, Director General, National Minerals Agency, Sierra Leone, and Mr. Nimaga, Secretary General, Ministry of Mines and Geology, Guinea</p> <ul style="list-style-type: none"> • What are the different mechanisms available to governments to improve inspection, verification and testing of mineral exports? 	Room XXVI
15:00-15:45	<p>ISSUE 1: DEBT FINANCING IN MINING – PROTECTING THE MINING TAX BASE AGAINST EXCESSIVE INTEREST DEDUCTIONS</p> <p>Speaker: Dan Devlin, OECD</p> <ul style="list-style-type: none"> • How do companies use debt to finance mining operations? • What policy tools are available to governments to address the use of debt in mining, and what are their relative advantages? 	Room XXVI
15:45-16:30	<p>ISSUE 3: TAX INCENTIVES FOR MINING INVESTMENT – MINIMIZING PROFIT SHIFTING AS A RESULT OF INCENTIVES</p> <p>Speaker: Alexandra Readhead, IGF</p> <ul style="list-style-type: none"> • Which incentives are most prevalent in the mining sector, and what is their impact on revenue collection? • Which incentives create opportunities for profit shifting? • How can governments design and use incentives more effectively? <p>Contributor: Iain Steel, Government Advisor, Liberia, Budget Strengthening Initiative</p>	Room XXVI
16:45-17:30	<p>ISSUE 4: INVESTMENT TREATIES AND STABILIZATION CLAUSES</p> <p>Speaker: Howard Mann, IGF</p> <ul style="list-style-type: none"> • What impact might stabilization clauses and investment treaties have on BEPS in mining issues, and governments' ability to respond? • What lessons can be learned from existing international arbitrations on these or related questions? 	Room XXVI
17:30-18:00	Wrap up and next steps	Room XXVI

REPORT LAUNCHES AND LUNCH PRESENTATIONS



International
Resource
Panel



TUESDAY: MINERAL RESOURCE GOVERNANCE FOR SUSTAINABLE DEVELOPMENT: STAKEHOLDER CONSULTATION

13:00–14:30, Room XXV

The International Resource Panel - an expert group established a decade ago by UN Environment to provide scientific assessments to policy-makers on the sustainable use of natural resources - is currently developing a report on the topic of governance in the mining sector for improved social and environmental outcomes. The purpose of the session at the IGF 2017 is to present the preliminary findings of the IRP report on mineral resource governance, and provide an opportunity for policy-makers and other relevant stakeholders to exchange their views on this topic with two of the lead authors of the report (Bruno Oberle - Professor of Green Economy at École Polytechnique Fédérale de Lausanne, and Antonio Pedro, Director of the Sub-Regional Office of Central Africa at the United Nations Economic Commission for Africa).

TUESDAY: HUMAN RIGHTS AND MINING

14:00–14:30, Room XXV

UNDP's Environmental Governance for Sustainable Natural Resource Management program will present its new guidance note, Integrating Human Rights into Environmental Governance of Mining. The note focuses on rights-based approaches that help mitigate environmental degradation and prevent social and human rights impacts. It provides tools and methodologies for ensuring better social and environmental outcomes in line with the Sustainable Development Goals (SDGs) at each stage of the mining cycle.



WEDNESDAY: MINE TAILINGS

14:00–14:30, Room XXV

Recent tailings dam disasters at the Samarco Mine in Brazil and Mount Polley Mine in Canada have confirmed the scale and intensity of the threat posed by poorly designed or managed tailings storage facilities. UN Environment will present its new report, Mine tailings storage: safety is no accident. The recommendations are aimed at achieving the change needed across a number of areas. The goal is to make safety a priority and ensure that mine design and tailings management practices reduce the risks and meet the needs of all stakeholders. The report will be presented by Kristina Thygesen, Programme Group Leader - Geological Resources and Ocean Governance, GRID Arendal.

WEDNESDAY: NEGOTIATING INVESTMENT CONTRACTS

The 14:00–14:30, Room XXV



G7 CONNEX Initiative was established in 2014 to provide developing country partners with extended and concrete expertise for negotiating complex commercial contracts, focusing initially on the extractives sectors. The CONNEX Support Unit provides independent, high-quality, demand-oriented, multi-disciplinary and rapid support and expertise during the negotiation of large-scale, complex investment contracts in the resource sector. CONNEX advisors Juliane Weymann and Torge Hamkens will present an overview of the service.

THURSDAY: FINANCING WOMEN IN MINING

14:00–14:30, Room XXV



Access to finance is one of the biggest impediments to women's economic empowerment. Innovative, impactful ideas on how women in mining can grow their businesses and overcome unfavourable business and regulatory environments will be presented. Alumni from the Minerals and Energy for Development Alliance (MEfDA) will participate in a lunch presentation. Georgette Barnes, Women in Mining Ghana, will present on government policy changes to support women-owned business. Dr Harmony Musiyarira, Namibia University of Science of Technology, will discuss a university partnership for technical advisory services for women mining entrepreneurs.

THURSDAY: FINANCIAL MODELS

14:30–15:00, Room XXV



The African Natural Resources Center of the African Development Bank (AfDB) and Open Oil (OO) will launch a new report on how African governments use financial models to manage extractive (oil & gas and mining) projects. The report, Running the Numbers: How African Governments Model Extractive Projects, is an empirical study of the capacity of 20 African governments to use models and the underlying institutional arrangements for their use.

FRIDAY: TAX AVOIDANCE

10:50–11:30, Room XXVI



The AGM's day-long technical workshop on tax base erosion and profiting will host the launch of a Toolkit on Transfer Pricing Risk Assessment for the African Mining Industry. The toolkit was developed by the African Tax Administration Forum (ATAF) and Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ). The toolkit is the first of its kind addressing mining and aims to help tax authorities determine whether particular high-risk related-party transactions should be selected for transfer pricing audit. IGF is partnering with GIZ to provide training to help African tax authorities implement the toolkit.

SPEAKER BIOGRAPHIES

Tuesday, October 17 - AGM Day 1

SESSION 1: FORMAL OPENING AND SECRETARIAT UPDATE

Speakers:

Glenn Gemerts, Chair, IGF and Moderator



Glenn Gemerts has extensive experience as both a mining regulator and a mining operator. He served for many years as Head of the Suriname Geological and Mining Service (GMD) and as Deputy Director of Mining in the Ministry of Natural Resources. He also ran the state mining company, N.V. Grassalco.

Glenn has been a part-time lecturer in geology and mining at the Anton de Kom University of Suriname since 1990. He is currently acting as a policy advisor to both N.V. Grassalco and the Ministry of Natural Resources of Suriname. Glenn sits on the boards of Rosebel Gold Mines N.V., a subsidiary of lamgold Corporation in Suriname, and the Paradise Oil Company, a subsidiary of state oil company Suriname N.V.

Glenn's advisory work includes membership in the External Advisory Board of the Caribbean Consortium for Research in Environmental and Occupational Health, and in the past, the Rosebel Task Force Negotiation Team and the Advisory Group for the Development of the Bakhuis Bauxite Deposits.

Isabelle Durant, Deputy Secretary-General of UNCTAD

Ms. Isabelle Durant (Belgium) took up the position of Deputy Secretary-General of UNCTAD on 3 July 2017.

A former Minister and Senator of Belgium as well as Vice-President of the European Parliament, Ms. Durant brings to UNCTAD solid experience in public affairs, intergovernmental processes and concrete assistance to countries. She is well-known for her skills in empowering people, addressing vulnerabilities at local and national levels and supporting Governments towards good governance and sustainable policies.

As Deputy Prime Minister of Belgium and Vice-President of the European Parliament from 2009 to 2014, Ms. Durant chaired different permanent delegations, notably one responsible for follow-up of the Cotonou Agreement between the European Union and the African, Caribbean and Pacific Group of States, as well as economic partnership agreements. She was also a member of the Budget Committee, working with the European Investment Bank on eurobonds, which support infrastructure investment, as well as the monitoring of Galileo, the European Union's Global Navigation Satellite System, a large-scale industrial project.

Ms. Durant also possesses a wealth of knowledge on links with civil society and the private sector. Notably, she was the Vice-President responsible for relations between the European Parliament and civil society.

Ms. Durant served as Minister of Transport and Energy between 1999 and 2003. In this position, she directly oversaw the design and implementation of policies on mobility, infrastructure, energy and sustainable development. She also held the presidency of the European Union Council of Ministers of Transport.

As a Senator for Belgium from 2003 to 2009, Ms. Durant served on the Committees for Foreign Affairs and for Social Affairs and participated in many election observation missions, including in the Democratic Republic of the Congo, Egypt and Tunisia.

Ms. Durant also worked for the United Nations Development Programme as a senior consultant on the empowerment of women in local government, in Algeria in 2015 and 2016. In addition, she participated in or headed European Parliament delegations to Haiti, the Islamic Republic of Iran and Myanmar.

Immediately prior to becoming Deputy Secretary-General of UNCTAD, Ms. Durant was a member of the Brussels-Capital Region in the Parliament of Belgium and of the Economic Affairs Committee. In the framework of a large reform of regional economic tools, she was especially involved in innovation and the sharing and circular economy.

Born in Brussels in 1954, Ms. Durant holds a Master of Science degree in Economic and Social Policy from the Université Catholique de Louvain in Belgium.

She is married and has three children.

SESSION 1: FORMAL OPENING AND SECRETARIAT UPDATE (CONTINUED)

Scott Vaughan, President, IISD and CEO



Scott Vaughan is IISD President and CEO. He has been Canada's Commissioner of the Environment and Sustainable Development; Director, Department of Sustainable Development, Organization of American States (OAS); Visiting Scholar, Carnegie Endowment for International Peace; Head of Economics, NAFTA Environment Commission; and Counsellor, World Trade Organization (WTO).

At UN Environment (UNEP), Vaughan initiated the UNEP Finance Initiative and UNEP's work on trade and environment. Early in his career, he worked at the head office of the Royal Bank Financial Group. Vaughan holds post-graduate degrees from the London School of Economics, University of Edinburgh and Dalhousie University, and an undergraduate degree from Mount Allison University.

Recent and current affiliations include member of the China Eco-Forum Global International Advisory Council; Associate Editor, Chinese Journal of Urban and Environment Studies; UNEP International Advisory Council for the Advancement of Justice; Governance and Law for Environmental Sustainability; Environmental Leadership Council; and Winnipeg Chamber of Commerce.

Speakers:

Greg Radford, Director, IGF Secretariat



Greg Radford has spent more than 25 years helping businesses and governments develop, adopt and apply environmental and social standards. He has worked in over 50 countries on projects involving mining, oil and gas, energy, infrastructure, agriculture and the international financial sector.

Greg is an international sustainability expert in: policy development; natural resource management; environmental and social impact assessment; training and capacity building; and the application of international standards to projects in developing countries. He also has extensive experience helping corporations and governments engage with civil society and communities affected by major projects.

Greg has held senior management positions at Canadian corporations and international organizations, including the IFC, prior to joining IISD to lead the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF).

Greg aims to expand IGF's advisory and technical support services, develop new partnerships and advocate for sustainable development and benefits sharing in the global mining sector.

He obtained a Bachelor of Geography at Mount Allison University in New Brunswick, Canada and a Master of Environmental Management at the University of Stirling in Scotland.



SESSION 2: ASM FORMALIZATION

Facilitator:

Estelle Levin-Nally, Director, Levin Sources



Estelle Levin-Nally is the Founder and Director of Levin Sources. She founded the company in 2010 as a catalyst to facilitate better business and good governance in the mineral sector. Estelle works with experts and specialists to develop innovations that concentrate on complex problems and add value for communities, stakeholders and shareholders.

Estelle has founded and facilitated a series of innovative programs, tools and strategies to address issues surrounding the formalization of the artisanal and small-scale mining (ASM) sector. In 2016, Estelle developed The GIFF Project to deepen the understanding of illicit financial flows linked to ASM, in collaboration with the Global Initiative Against Transnational Organized Crime. The tools have been applied in Sierra

Leone and Ghana.

In 2010, Estelle developed the ASM-PACE initiative in collaboration with the World Wildlife Fund (WWF) to address ASM in protected areas and critical ecosystems. The resulting program focused on building stakeholder knowledge and capacity for tackling issues with a focus on human rights, corruption, security and governance.

Estelle is an internationally recognized leader in ASM and responsible sourcing. She has spoken at events and conferences around the world and has been an expert participant on a number of panels and knowledge sharing initiatives. @levinsources @estellelevin

Panelists:

Mamadou Barry, Senior Mining Specialist, World Bank



Mamadou Barry, Senior Mining Specialist Extractives and Energy Global Practice Oil, Mining, and Gas Division The World Bank

Mamadou is Senior Mining Specialist at the Energy and Extractives Global Practice of the World Bank. He has over 25 years of experience in research, consulting and technical assistance to the extractive industries. He currently leads the artisanal and small-scale mining work at the World Bank, and he has been a team leader of mining technical assistance programs covering the Africa and South East Asia regions as well as cross-cutting initiatives. Prior to joining the World Bank, he worked at the Multilateral Investment Guarantee Agency (MIGA) where he underwrote political risk insurance for extractive industry projects in various parts of the world.

Mamadou holds a degree in minerals engineering from the Institute of Mines and Geology of Boké (Guinea), a diploma in economics from the Economics Institute of the University of Colorado, and a Master of Science and a Ph.D. from the Colorado School of Mines with a focus on mineral economics and finance.

Serge Herve Boyogueno, Director of Mines, Cameroon

Sereenov Mandakhbat, Head of Legal Division, Ministry of Mining and Heavy Industry, Mongolia



Mandakhbat is Director of the Law Department at Mongolia's Ministry of Mining and Heavy Industry. Based in Ulaanbaatar, he provides legal advice to the minister and the staff of the Ministry of Mining and Heavy Industry. Mandakhbat has been involved in negotiating Mining Investment Agreements with mining companies and Investment Protection and Promotion Agreements with foreign governments. He also is actively involved in drafting mining-related laws, regulations and policies in Mongolia.

Mandakhbat is a lawyer specializing in natural resources, investment and arbitration law. He has a Bachelor degree in law from People's Friendship University of Russia and Master's degree in law from the University of Melbourne. Mandakhbat has previously worked with the Mongolian Ministry of Justice and Home Affairs as a Deputy Director of Legal Policy Director, managing the legal reform of the country.

SESSION 2: ASM FORMALIZATION (CONTINUED)

**María Daniela Barragán Calderón, Subsecretaria de Minería Artesanal y Pequeña Minería
Ministerio de Minería, Ecuador**



María Daniela Barragán Calderón nació en Quito – Ecuador, el 6 de mayo de 1983. Es Abogada graduada en la Pontificia Universidad Católica del Ecuador, así como Especialista en Derecho Administrativo por la Universidad Andina Simón Bolívar y Máster Internacional en Derecho Ambiental por el Instituto Internacional de Formación Académica del Fondo Verde Mundial, sin dejar de mencionar que durante su educación secundaria se hizo acreedora a sendos diplomas de honor en mérito a la excelencia educativa.

En su actividad profesional, se ha desempeñado como funcionaria pública en varias instituciones estatales, adquiriendo así vasta experiencia en varios ámbitos, en especial dentro del Servicio de Rentas Internas, Ministerio del Trabajo, Ministerio del Ambiente y actualmente dentro del Ministerio de Minería desde julio del año 2016.

Como Subsecretaria de Minería Artesanal y Pequeña Minería, ha elaborado e impulsado la promulgación de la nueva normativa para el otorgamiento de concesiones en pequeña minería metálica para los procesos de petición y oferta, el cual ha sido socializado a través de la instauración de mesas de diálogo con diversos actores a nivel nacional; dicha normativa tiene la finalidad de dinamizar el procedimiento de entrega de concesiones mineras para el régimen de pequeña minería, fomentar la Asociatividad minera e inversión dentro del ejercicio de una minería responsable.

SESSION 3: FORMALIZATION AND MANAGEMENT STRATEGIES FOR ASM – LICENSE AREAS AND ASM ZONES

Facilitator:

Moderator: Gudrun Franken, Head of Unit, Mining and Sustainability, Federal Institute for Geoscience and Natural Resources (BGR), Germany



As head of the Mining and Sustainability unit at BGR, Gudrun Franken advises the German government, industry and the public on issues related to responsible mining and sourcing of minerals. Major current issues include capacity building through development cooperation in the mining sector, mainly for mining authorities, along with sustainability standards and certification in mining and mineral supply chains.

Gudrun worked for a decade in International Development Cooperation at BGR on project management of technical cooperation projects, mainly in the water and the mineral resources sector in Africa and Asia, prior to being appointed head of the Mining and Sustainability unit in 2009. She has also worked as an advisor to the German Ministry of Economic Cooperation and Development on issues of mineral resource governance.

Gudrun was appointed to the IGF's executive committee in 2015. She has been a member of the OECD Multi-Stakeholder Steering Group (MSG) since 2012. That group supports the implementation of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

Gudrun studied environmental sciences and afterwards obtained a PhD in geosciences from the University of Hannover, with research in Germany and Canada on contaminant transport in ground water.

SESSION 3: FORMALIZATION AND MANAGEMENT STRATEGIES FOR ASM – LICENSE AREAS AND ASM ZONES (CONTINUED)

Panelists:

ASM Zones Alexander Medina Herasme, Director General of Mining, Ministry of Energy and Mines, Dominican Republic



Alexander Medina Herasme has been Director General of Mining in the Dominican Republic Ministry of Energy and Mines since 2012 and is responsible for the supervision of all mining activities in the country. He has more than 40 years of experience in the mining industry, academia and government. He joined Falcondo, a large nickel mine subsidiary of Falconbridge Ltd., in 1975, occupying several managerial positions in that company including strategic business manager, communities and PR director, energy manager, project manager for energy conversion and corporate environmental director at the corporate office of Falconbridge in Toronto before his departure in 2009.

He has a bachelor degree in Chemical Engineering from Instituto Tecnológico de Monterrey in Mexico, an MBA from Instituto Tecnológico de Santo Domingo (INTEC) and an Executive Mining Management Course from Queens University in Ontario, Canada. He has also been a professor in the Chemical Engineering School at Santo Domingo University (UASD).

Yeni Srihartati, Head of Social Services, Community and Villages Empowerment Department in Belitung Timur Local Government, Indonesia



Yeni Srihartati is a Master of Engineering graduate in Urban and Regional Planning from the University of Gadjah Mada Yogyakarta and a Master of Science graduate in Urban Management and Development from the Institute for Housing and Urban Development Studies the University of Erasmus Rotterdam.

As Head of the Social Services, Community and Villages Empowerment Department at Belitung Timur Local Government, Yeni advises the Mayor (Bupati) on issues related to social protection, rehabilitation, and community and village empowerment; and serves the public with individual and family social protection and rehabilitation; developing and strengthening poverty alleviation and livelihood programs; and finance, management and strategic planning skills.

Yeni served previously as Head of the Legal/Law Division from 2010 to 2012, Secretary and Head of Planning and Regional Development Board in 2012–2016, along with the Mayor and the Mining and Energy Department, constructing and developing mining policy framework for people mining or ASM; delineating dedicated zones for ASM or People Mining Zones (WPR) in regional spatial planning document; inviting and engaging the third party (smelter companies) in a cooperative agreement with the Mayor as ASM Zones' Manager; setting up licensing processes for ASM (IPR) as individual, a group of miners, and/or a group of miners who join in a cooperative; constructing a model for inducing gender perspective and livelihood aspect as a socioeconomic benefit in the ASM cycle that named "GIVING, KEEPING, and LENDING Strategy" for implementing in ASM Zones and Mining Company Zones.

John Kanyangira, Director, Support Services in Mining Investment and Business Development, Government of Rwanda

Willison Mutagwaba, Managing Director, MTL Consulting Company Limited

SESSION 4: VOLUNTARY PRINCIPLES ON SECURITY AND HUMAN RIGHTS

Facilitator:

Ronald Roosdorp, Director for International Trade Policy and Economic Governance, Ministry of Foreign Affairs, Netherlands



Ronald Roosdorp is Director of International Trade Policy and Economic Governance at the Ministry of Foreign Affairs in the Netherlands. His responsibilities include multilateral and bilateral trade policy (i.e., World Trade Organization, free trade agreements, bilateral investment treaties, antidumping), international corporate social responsibility and trade in dual-use goods.

In his professional career, Ronald has worked at the Ministry of Economic Affairs, the Ministry of Finance and in the banking sector. His fields of expertise include energy policy (i.e., renewable energy, unbundling), competition policy and procurement policy. He has broad experience with European Union policies, including the common agricultural policy, structural economic reforms and euro area policies. In these areas

he has published several articles.

Ronald studied political economy at the Vrije Universiteit in Amsterdam. He graduated cum laude. Furthermore, he holds a Master's degree in Public Administration from Harvard University. For the latter, he was awarded the Dean's Fellowship and a stipend to recognize "exceptional academic ability and professional distinction."

Panelists:

J. J. Messner, Executive Director, Fund for Peace



J.J. Messner leads FFP's security and human rights implementation programs, including advisory services, training programs and site-level assessments in partnership with various governments, multilateral institutions and companies, particularly in the oil and mining sectors. He has also designed and operationalized human rights training programs for military personnel in complex environments.

J.J. has facilitated multiple multistakeholder dialogues in numerous countries, on issues including human rights, conflict-free supply chains, responsible investment and voluntary principles implementation. In 2017, J.J. co-authored the *Use of Security Forces: Assessing and Managing Risks and Impacts* guidance for the International Finance Corporation. Since 2011, J.J. has been a Steering Committee Member and

Board Member of the Voluntary Principles on Security & Human Rights.

Prior to joining The Fund for Peace, from 2006 to 2010, J.J. was Director of the International Stability Operations Association and was also the founder and Editor-in-Chief of the *Journal of International Peace Operations*. J.J. received his Bachelor's degree in politics and international studies from the University of Adelaide, Australia and a Master of Science (Peace Operations) from George Mason University in Arlington, Virginia.

Brent Bergeron, Executive Vice President, Corporate Affairs and Sustainability, Goldcorp Inc.



Brent Bergeron joined Goldcorp in November 2010 and was appointed Executive Vice President of Corporate Affairs and Sustainability in January 2015. Prior to joining Goldcorp, he served as a senior executive with international experience in the fields of construction and infrastructure development, broadcast and media. Over the course of his career, he has worked throughout Africa, North, South and Central America.

Mr. Bergeron leads the development and implementation of Goldcorp's corporate affairs and sustainability programs, including environmental stewardship, community relations, social responsibility, government relations, communications, country risk analysis and reclamation activities. He is a member of the Board of Directors of the Canadian Chamber of Commerce, the Canadian Council of the Americas, the

Mining Association of Canada, the Boreal Leadership Council and the BC Special Olympics and recently joined the BC United Way Campaign Cabinet. He also serves as a member of the Executive Steering Committee for the Responsible Gold Standard Initiative at the World Gold Council and is Chairman of the International Council of Metals and Mining's Environmental and Social Committee.

Mr. Bergeron holds a Bachelor of Arts (Economics) and a Masters of Arts (Economics) from Carleton University in Ottawa.

SESSION 4: VOLUNTARY PRINCIPLES ON SECURITY AND HUMAN RIGHTS (CONTINUED)

Alan Bryden, Assistant Director and Head of the Public-Private Partnerships Division, DCAF



Alan Bryden is Assistant Director and Head of the Public-Private Partnerships Division at the Geneva Centre for the Democratic Control of Armed Forces (DCAF). He is responsible for the planning, implementation and management of the division's programs. Issue areas addressed include the regulation of private military and security companies, business and security sector reform/security sector governance and cyber security.

Prior to joining DCAF, Alan was a civil servant with the UK Ministry of Defence. He has held various policy and project management posts including the Ministry's focal point for international humanitarian law issues. Alan was also seconded to the UK Department for International Development, working as a project manager in the field

of humanitarian demining.

Alan holds degrees in medieval history and international relations and a PhD from the Department of Peace Studies, University of Bradford. He is a graduate of the International Training Course at the Geneva Centre for Security Policy. @dcaf_ppps

Benjamin Aryee, Adviser on Mining, Ministry of Lands & Natural Resources, Ghana

SESSION 5: GLOBAL ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) TRENDS

Facilitator:

Monica Gichuhi, Advisor to Cabinet Secretary, Mining, Kenya, Policy, Strategy and Institutional Reforms



Monica Gichuhi advises on strategy and policy towards developing the mining sector as well as on creation and strengthening of the institutional frameworks. Monica formerly worked as a director for a consulting company, providing service to extractives companies as well as promoting business development skills among business owners. Monica also served as the CEO of the Kenya Chamber of Mines, where she focused on bringing together government, investors, communities and development partners towards supporting the growth and development of the mining industry in Kenya. Monica continues to create awareness on the dynamics of the mining industry and promoting the industry to potential investors, both locally and internationally.

SESSION 5: GLOBAL ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) TRENDS (CONTINUED)

Panelists:

Michael Stanley, Global Lead Extractives, World Bank



Michael Stanley is Global Lead – Extractives for the World Bank Group, in Washington D.C. Michael provides strong leadership on the policies and practices that guide the World Bank’s lending operations in oil, gas and mining worldwide; and ensuring that a diverse technical staff remain at the forefront of sector development of issues.

Michael has worked in resource development for more than thirty years within the commercial and public sectors; having led projects within Latin America, Europe & Central Asia, Africa, South Asia, and East Asia / Pacific regions. Michael is widely recognized for his expertise in the formation of resource development policy that aligns commercial and public sector investments using the principles of achieving shared value; and for his support of learning and education initiatives to build

capacity across a diverse set of stakeholders. Responding to the challenges of climate change, increased geopolitical risk and volatility in commodity markets; Michael and his teams guide governments each day to ensure investments in extractive industries contribute towards the World Bank Group’s twin goals of poverty reduction and shared prosperity.

Michael has degrees in Geoscience (BSc. Western University), Mineral Exploration (MSc. McGill University), and Mineral Resource Economics / Mining (Ph.D. University of Arizona). Additionally, Michael is co-editor of the EI Source Book, an online, open-source platform for the extractive industries.

Gregory Kituku, Assistant Director of Mines, Ministry of Mining, Kenya



Gregory Kituku has worked with Nairobi’s Ministry of Environment and Natural Resources for almost two decades, working within the field on mining inspection. As Chief Superintending Inspector of Mines, Kituku is responsible for mining and mineral policy formulation, including ASM; overseeing the inspectorate division; and ensuring compliance with mine safety and health regulations.

Matthew Bliss, Deputy Director, Programs, IGF



Matthew has 25 years of leadership experience in all aspects and phases of mine development and community engagement on six continents. He has a unique blend of experience working in senior roles in both mining companies and non-governmental organizations.

In his capacity at IGF, Matthew helps member governments to leverage their mineral wealth for sustainable development. Prior to joining IGF, Matthew worked in senior positions with the Dutch NGO Cordaid, the Canadian mining corporation Centerra Gold and Immet Mining. He has been appointed to the boards of a number of organizations including the International Water Association, EITI International, Better Coal and the Mining Association of Canada.

Matthew obtained a Bachelor of Geology from the University of Waterloo and a certificate in Environmental Assessment from Lakehead University.

SESSION 6: VOLUNTARY SUSTAINABILITY INITIATIVES FOR THE MINING SECTOR

Facilitator:

Alan Young, Director, Materials Efficiency Research Group



Since 1990 Alan has worked as a mediator, analyst and strategist for a wide range of conservation groups, Indigenous organizations, companies and governments across Canada and internationally. His primary focus has been on implementing sustainability and leadership strategies for the extractive sector in North America, Latin America, Europe and Scandinavia.

His work includes ethical practices certification programs in the forestry and mining sectors, cross-sector collaboration design and facilitation, large-scale conservation strategies, as well as various legislative reform initiatives in the extractive sectors nationally and internationally. Recently he served as the Director of the Secretariat of the Boreal Leadership Council, a unique collaboration among the finance

sector, extractive companies, Indigenous organizations and NGOs, and is Senior Advisor on Corporate Engagement with the International Boreal Conservation Campaign.

He is Chairperson of the International Institute for Sustainable Development, Steering Committee member of the Initiative for Responsible Mining Assurance and former Chair of the Forest Stewardship Council of Canada. He is a founding Director of the newly formed Circular Economy Partnership.

Panelists:

Laura Turley, Associate, IISD



Laura Turley is an Associate with the International Institute for Sustainable Development (IISD). She has been working with IISD since 2012, overseeing projects on public procurement, infrastructure planning and finance, investment policy and sustainability standards.

Laura is also a Research Associate at the Smith School for Environment and Enterprise at the University of Oxford, and a PhD Candidate and Teaching Assistant at the University of Geneva. Her doctoral research is on the distribution of benefits from water reservoirs in semi arid regions.

Matthew Wenban-Smith, Director, OneWorldStandards Ltd



Matthew Wenban-Smith is the Director of OneWorldStandards Ltd, an independent consultancy providing services to established and emerging sustainability standards initiatives, their clients and stakeholders. OneWorldStandards' areas of work include standards development, conformity assessment, product traceability, claims & labelling, business development and organizational governance.

Matthew has worked in the area of voluntary sustainability standards and conformity assessment since 1994, when he was employed by the Forest Stewardship Council (FSC) to set up its accreditation program. He founded OneWorldStandards in 2006.

OneWorldStandards has completed over 100 projects and reports in the sector, for clients including the German development organization GIZ, the UN Forum for Sustainability Standards (UNFSS), the Rainforest Alliance, the International Union for the Conservation of Nature (IUCN), the Alliance for Water Stewardship (AWS), WWF International and many others.

Gudrun Franken, Head of Unit Mining and Sustainability, Federal Institute for Geoscience and Natural Resources (BGR), Germany

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SESSION 6: VOLUNTARY SUSTAINABILITY INITIATIVES FOR THE MINING SECTOR (CONTINUED)

Sahr Wonday, Director General, National Minerals Agency, Sierra Leone



Sahr Wonday is a seasoned senior mining executive with significant operational experience in mining and mineral processing specifically related to diamonds and mineral sands (Rutile, Ilmenite, and Zircon). He graduated in 1974 with First Class Honours degree in Mining Engineering from Imperial College of Science, Technology, and Medicine, University of London, and has over 40 years' experience in the mining industry. He is a Fellow of the UK Chartered Association of Certified Accountants.

Wonday was appointed as the first Director-General of Sierra Leone's National Minerals Agency in February 2013. The National Minerals Agency is the body established by the Government of Sierra Leone to promote the development of the minerals sector by effectively and efficiently managing the administration and regulation of mineral rights and minerals trading in Sierra Leone; to provide technical and other support to the mineral sector including geographical survey and data collection activities; to administer and enforce the Mines and Minerals Act 2009 and other Acts related to the trade in minerals and related regulations; to advise the Minister of Mines & Mineral Resources on policy matters related to mining and natural resource governance.

His Excellency the President conferred upon Wonday the National Honour of "Commander of the Order of the Rokel (COR)" in recognition of his long, outstanding and dedicated service to the nation, particularly in the mining sector, in April 2013.

Wednesday, October 18 - AGM Day 2

SESSION 7: LARGE-SCALE MINING (LSM) AND ASM: CHALLENGES AND NEW INDUSTRY APPROACHES

Facilitator:

Estelle Levin-Nally, Director, Levin Sources

See page 24.

Panelists:

Glenn Gemerts, Policy Advisor, Ministry of Natural Resources, Suriname

See page 22.

Nick Cotts, Group Executive, Sustainability and External Relations, Newmont Mining



Nick joined Newmont in 1994 as the environmental manager for the Yanacocha mine located in Peru. During his 11 year tenure in Peru, his role evolved into a social environmental focus including community relations, external relations, sustainable development and communications. Nick transitioned to Newmont's Corporate offices in Denver on 2005 as the Director for Social Responsibility and Sustainability prior to relocating to Ghana, West Africa from 2006 to 2011 in the role of Regional Vice President, Environment and Social Responsibility.

Nick has worked in Newmont's corporate offices since 2012, where he has focused broadly on sustainability and leading a number of global initiatives in the sustainability and external relations areas including biodiversity, community development foundations, Indigenous Peoples and human rights. Nick is currently working in support of global operations with a specific focus on external relations and social responsibility.

Nick received his Bachelor of Science degree in Agronomy-Soil Conservation in 1988 and a Master of Science degree in range management-restoration ecology in 1991, both from Colorado State University.

SESSION 7: LARGE-SCALE MINING (LSM) AND ASM: CHALLENGES AND NEW INDUSTRY APPROACHES (CONTINUED)

David Noko, EVP Sustainable Development, AngloGold Ashanti



David Noko holds a position of Executive Vice President, Group Sustainable Development at AngloGold Ashanti Ltd, one of the largest gold mining companies in Africa. He is responsible for the company's Social and Sustainable Development portfolio.

He is an internationally renowned business leader. Born in South Africa, David started his illustrious career at General Electric Company (GEC), an international manufacturing company, in design engineering and maintenance management.

He worked for South African Breweries in 1987–1994. His move to Pepsi Cola International in 1994 allowed him extensive international exposure and global experience. In 1999 he was appointed as CEO of Air Chefs (Pty) Ltd, in South Africa, where he continued to develop his talent in implementing business improvements.

In 2002 he joined the giant De Beers Group and shortly earned numerous promotions to various operational positions. In February 2006, he was appointed Managing Director and CEO of De Beers Consolidated Mines Limited (DBCM).

Mr. Noko resigned from De Beers in 2010 to start on yet another project in his outstanding career, this time founding and heading up his own company, CelaCorp (Pty) Ltd. He believes that synergies between Effective People, Futuristic Strategy and Technology, Systems and Processes are imperative for business success. A member of the Institute of Directors, Mr. Noko's impressive experience, qualifications and business acumen have seen him serve on the boards of directors of several prominent companies. He served on the boards of Royal Bafokeng Platinum Limited, Harmony Gold (deputy chairman), AstraPak Ltd and Platistone Ltd.

Mr Noko holds a Higher National Diploma in Mechanical Engineering from Witwatersrand Technikon (now University of Johannesburg), a Management Development Programme (MDP) Certificate from the University of Witwatersrand, and a Postgraduate Diploma in Company Directorships from the Graduate Institute of Management and Technology, and a Master in Business Administration from the Heriot-Watt University. He also completed the Senior Executive Programme at the London Business School.

SESSION 8: DEVELOPMENT MINERALS AND THE SUSTAINABLE DEVELOPMENT GOALS (SDGS)

Facilitator:

Dr. Daniel Franks, Programme Manager and Chief Technical Advisor, ACP-EU Development Minerals Programme, UNDP



Dr. Daniel Franks is the Chief Technical Advisor and Programme Manager of the ACP-EU Development Minerals Programme at the United Nations Development Programme. Dr. Franks is well known for his research on sustainable development in the extractives sector. He is the author of more than 80 publications, including the book *Mountain Movers: Mining, Sustainability and the Agents of Change* (Earthscan, 2015) and his highly cited study with Rachel Davis on the costs of company-community conflict in the extractives sector, published in the *Proceedings of the National Academy of Sciences*.

Originally trained as a geologist, Dr. Franks retrained in political and social sciences. He has field experience at more than 70 mining and energy sites internationally in more than 30 countries. Prior to joining UNDP, he was Deputy Director of the Centre for Social Responsibility in Mining at the Sustainable Minerals Institute, The University of Queensland and a Senior Social Scientist at the Queensland Department of Natural Resources and Water. He has been a Visiting Professor at Universidad Católica del Norte, Chile; Columbia University, New York; the University of Eastern Finland; and the University of Western Australia. He is an Editorial Board Member of the *International Journal of Minerals Policy & Economics* (Resources Policy) and Impact Assessment and Project Appraisal.

SESSION 8: DEVELOPMENT MINERALS AND THE SUSTAINABLE DEVELOPMENT GOALS (SDGS) (CONTINUED)

Panelists:

Hon. Ernest Gbwaboubou, Minister of Mines, Industry and Technological Development, Republic of Cameroon



Hon. Ernest Gbwaboubou is a graduate of the cycle “A” of Cameroon’s National School of Administration and Magistracy (ENAM). He was appointed Minister of Mines, Industry and Technological Development by a decree of the President of the Republic, Paul Biya, on October 2, 2015. He was previously Director of the Division of Cooperation and Partnership at the Ministry of Small and Medium Size Enterprises, Social Economy and Handicrafts (MINPMEESA), from 2011 to 2013, then Director of Social Economy at the same Ministry, from 2013 to 2015.

Dr. Raijeli L. Taga, Director, Minerals Resources Department, Fiji



Dr. Raijeli Taga is the Director of the Minerals Resources Department, Fiji, having served the department for nearly 25 years. She graduated with a Bachelor of Science (Chemistry), and received the Australian Leadership award in 2007 to complete a Master of Philosophy in Environment Toxicology at the University of Queensland. She was awarded a PhD on the same topic in 2017 also from the University of Queensland. She holds post-graduate qualifications in Public Sector Management.

Dr. Jennifer Hinton, Director, Auranda Minerals; Adjunct Professor, Carleton University

Mr. Antonio Pedro, Director, Subregional Office, Central Africa, United Nations Economic Commission for Africa



Antonio M.A. Pedro is a mineral exploration geologist (Royal School of Mines, Imperial College, London) from Mozambique with more than 30 years of broad experience of and exposure to development issues and management at national, sub-regional, and continental levels. He joined the United Nations Economic Commission for Africa (ECA) in 2001, where he is currently the Director of ECA’s Sub-regional Office for Central Africa, based in Yaounde, Cameroon. For 7 years, he occupied the same position in the ECA office for Eastern Africa, in Kigali, Rwanda. Prior to joining ECA, he was the Director General of the Southern and Eastern African Mineral Centre (SEAMIC), in Dar es Salaam, Tanzania.

Harivao Fenosoa Razanakolona Rajaonarisoa, Head of Department of Administration and Control of Operations, Interregional Directorate of the Ministry to the Presidency in charge of Mines and Petroleum, Madagascar



Fenosoa Harivao Razanakolona is a mining engineer who serves as Head of Department of Administration and Control of the Operations in Antananarivo Interregional Directorate ; Ministry to the Presidency in charge of Mines and Petroleum, Madagascar.

She participated in the Regional Training Workshop at Environment, Community, Health and Security in the Development Minerals sector for ACP EU Development organized by the UNDP on September 2016; Congo Brazzaville.

SESSION 8: DEVELOPMENT MINERALS AND THE SUSTAINABLE DEVELOPMENT GOALS (SDGS) (CONTINUED)

Dr. Maximin Emagna, Private Sector & Investment Expert at African, Caribbean and Pacific (ACP) Group of States



Dr. Maximin Emagna is the Private Sector & Investment Expert at the African, Caribbean and Pacific Secretariat. He has 20 years of experience in international trade, development, and regional economic integration. Prior to joining the ACP Secretariat, Dr. Emagna was responsible for the preparations and negotiations of the Economic Partnership Agreement between ACP countries and the European Union. He was the EPA Regional Adviser for Central Africa in 2009-2010 to ECCAS and 2011-2012 based in Cameroon.

SESSION 9: GOVERNMENT, COMMUNITY AND INDUSTRY ENGAGEMENT TO DEVELOP A COMMON VISION FOR MINING

Facilitator:

Moreblessings Chidaushe, Policy Advisor Resource Governance, Norwegian Church Aid, Southern Africa

Moreblessings Chidaushe is a Programmes Manager at Norwegian Church Aid based in Johannesburg, South Africa. Norwegian Church Aid works with people and organizations around the world in their struggle to eradicate poverty and injustice. It provides emergency assistance in disasters, works for long-term development in local communities and addresses the root causes of poverty. It advocates for just decisions by public authorities, and business and religious leaders.

Panelists:

Kojo Busia, Officer in Charge/Acting Coordinator, African Minerals Development Centre



Dr. Kojo Busia is the Coordinator of the African Mineral Development Centre (AMDC). He also leads the governance and participation team under the African Mining Vision, an African Union mining flagship for sustainable development. He led the AMDC in the design and development of the Country Mining Vision Guidebook, which is now being rolled out in a number of African countries for the domestication of the African Mining Vision. Under his leadership, the AMDC has spearheaded a number of activities to foster upstream linkages, supply development programs and regional value chains, in particular in SADC and West Africa regions.

He spent nearly a decade leading the United Nation Economic Commission on Africa's support to the African Peer Review Mechanism for the African Union/NEPAD, helping the flagship program to gain traction and institutional support throughout Africa and globally.

In this role, he facilitated the adoption of the Peer Review Mechanism as the major framework for addressing natural resource governance challenges in Africa. His career spans a range of additional assignments at the international, multi-lateral and ODA levels throughout Africa and globally including design and implementation of a Regional Democracy and Conflict Prevention Program in West Africa. He is a frequent lecturer on business, economics, governance and development at major events in Africa and globally. @amdc_amv

SESSION 9: GOVERNMENT, COMMUNITY AND INDUSTRY ENGAGEMENT TO DEVELOP A COMMON VISION FOR MINING (CONTINUED)

Tom Butler, CEO, International Council on Mining and Metals (ICMM)



Tom Butler became CEO of ICMM in July 2015. Before that, he spent 18 years with the International Finance Corporation (part of the World Bank Group) in the infrastructure and natural resource teams, with much of that time focused on mining and power projects in Africa. From 2011, Tom was IFC's Global Head of Mining, where he led a multi-disciplinary team of specialists responsible for IFC's financing of mining exploration and development in emerging market countries, all in accordance with IFC's environmental and social Performance Standards. Tom began his career as an officer in the British army. Prior to joining IFC, he was a project manager and engineer with oil and gas industry service companies Technip and Schlumberger. He holds an engineering degree from Cambridge University in the UK, and an MBA from INSEAD in France.

Mutuso Dhlwayo, Executive Director of Zimbabwe Environmental Law Association

SESSION 10: MINE CLOSURE AND POST-MINING TRANSITION

Facilitator:

Hilary Morgan, Director, Natural Resources Canada (NRCan), Lands and Minerals Sector, International Affairs and Trade Division



Hilary Morgan became Director of International Affairs and Trade in the Lands and Minerals Sector of Natural Resources Canada (NRCan) on September 5, 2017.

In this role, she is responsible for leading international relations and engagement with countries of interest, developing policy positions to advance Canadian mineral resources development and science and technology, and advancing foreign direct investment in projects in Canada and improving market access for Canadian companies. Ms. Morgan also supports ministerial and senior official participation in major global mining events.

Most recently, she served as Chief of Staff to the Deputy Head of Library and Archives Canada, and Chief of Staff and Senior Policy Advisor to the Assistant Deputy Minister of the Mines and Minerals Sector at NRCan. Ms. Morgan was also Director of Stakeholder Relations and International Affairs at Canada's national library and archives.

Ms. Morgan holds a Bachelor of Arts, Directed Interdisciplinary Studies (Carleton University), and a Master of Information Studies, Book History and Print Culture Program (University of Toronto).

Panelists:

Lassana Guindo, Advisor to the Secretary General, Mining, Mali; Chair, National Mine Closure Commission



Lassana Guindo has experience as the Technical Advisor to the Ministry of Mines; National Director of Geology and Mines; Head of the Mining Division; Head of the Gemstone and Semi-Precious Stone Resources Development Project; Geologist GIS Informatician at the SYSMIN Project; Co-Lead of joint Japan-Mali program related to geology and environmental study; Exploration Geologist for Mining Cadastre; Geophysicist, Population Health and Rural Hydraulics; Geologist, Bureau of Emergency and Applied Geology (BURGEAP-MALI AQUA VIVA), in charge of the mapping of the hydrogeological basins, the inventory of water resources and the geophysics.

Lassana's international training includes mining governance; satellite imagery and geological mapping; gold geological mapping; sustainable mineral development; certified mineral exploration and environmental protection and mine planning; hydrogeological mapping; geophysics; and geology M.Sc.

SESSION 10: MINE CLOSURE AND POST-MINING TRANSITION (CONTINUED)

Mark Freberg, Director, Permitting & Closure, Teck Resources



Mark is the Director, Permitting and Closure for Teck Resources, a Canadian company with mines and interests throughout the Americas. His role is to coordinate and support closure planning at operating mines and support permitting activities across the company. He is currently the Chair of the Environment Committee for the Mining Association of Canada and an active member of the ICMM Mine Closure Working Group and the North American Mine Closure Working Group. Recently, he has been the Industry representative on the Steering Committee for the development of the APEC Mine Closure Checklist, a guidance document being prepared to assist governments in developing closure legislation and policies. He has over 35 years of experience in the industry.

Roger Gunson, Executive Manager - Regulatory Operations, Mineral Resources Authority, Papua New Guinea



Roger and his team form the regulator for mining within Papua New Guinea (PNG) with management and regulatory responsibility for mining tenure including the functions of the executive of the Mining Advisory Council, Registrar of Mines, Chief Warden, Chief Inspector of Mines, technical assessment branch and small-scale mining branch. For more than 15 years, Roger has represented PNG in key constitutional and commercial legal cases, establishing the first commercial corporatized entity in PNG (the Post & Telecommunication Corporation), developing the regulatory framework and negotiating the project agreements for the introduction of television in PNG, establishing the framework and terms of reference for the public inquiry into television, and as Senior Associate in private practise with an international legal firm.

A lawyer by profession with 38 years in legal practise and admitted to practise internationally, Roger's experience also includes executive management in the global rail sector and transportation.

SESSION 11: ASM CASE STUDIES

Facilitator:

Dr. Rokhaya Samba, DIENE, Directrice de la Prospection et de la Promotion Minière



Ingénieur géologue de Conception de l'Institut des Sciences de la Terre, Dr Rokhaya Samba DIENE est titulaire du Diplôme de Docteur-Ingénieur en Géologie appliquée de l'Université Cheikh Anta Diop de Dakar (UCAD). Spécialisée en Administration Publique des Mines (CESAM) de l'Ecole Nationale Supérieure des Mines de Paris et titulaire d'un MBA Executive en Finances et Management Avancés de l'Université Polytechnique de l'Ouest Africain (UPOA) à Dakar, elle a suivi avec succès le cours sur la Règlementation et la Gestion des Ressources minérales de l'Université de Curtin, Australie Occidentale dans le cadre des Australian Awards for Africa en 2011, et le cours sur « Politique Minière et Négociations Commerciales » de l'Institut Africain de Développement Economique et de Planification (IDEP) en 2012.

Directrice de la Prospection et de la Promotion Minière depuis avril 2015, elle a été successivement Chef du Centre de Documentation et du Cadastre Minier de la Direction des Mines et de la Géologie (DMG), Chef de la Division Mines et Carrières, Chef du Service Régional des Mines et de la Géologie Dakar.

Dr Diène a coordonné le Projet d'Observation Afrique-Europe des Georessources (AEGOS), le Programme de Diagnostic Institutionnel du Ministère des Mines et Diagnostic du Cadre légal et Fiscal du Secteur Minier

SESSION 11: ASM CASE STUDIES (CONTINUED)

Panelists:

John Tychsen, Director, Development Projects, Geological Survey of Denmark and Greenland (GEUS)



John Tychsen is managing the ASM component of the EU and IGF funded PanAfGeo project in Africa. The ASM component will provide training to 250–300 participants from around 30 countries in Africa, mainly from national geological surveys. His expert areas lie in ASM (assessment, technical assistance, training, extension services and managing ASM); the mining sector (legislation, licencing tax/royalties policy, organisation, management and training needs assessment); Strategic Environmental and Socio Economic Assessment; and attracting investment from the private sector. He has worked on various projects and as project manager in 38 countries in Africa, Latin America, Asia and Europe.

Holger Grundel, Senior Manager, Levin Sources



Holger Grundel leads the Good Governance division at Levin Sources. He has over 20 years of experience in development, international relations, policy development and program execution in extractive industries, natural resources and private sector development.

Holger has an extensive professional history working for the UK's Department for International Development (DFID). In his most recent role as Global Lead, Extractive Industries, he was responsible for setting DFID's policy positions on extractives, managing an international team and leading strategic relationships across the UK Government and global partnerships with multilateral organizations, NGOs and corporate clients. He has lived and worked in the Democratic Republic of Congo

(DRC), Senegal and China.

Holger has held a variety of strategic advisory roles, including the Governing Council for the Africa Legal Support Facility, the Advisory Board for Mining and Metals in a Sustainable World 2050 at the World Economic Forum and the Expert Advisory Committee for the UK's partnership with China's Chamber of Commerce of Metals, Minerals and Chemicals Importers and Exporters (CCCME).

Holger holds an MSc in international development from the University of Bath. He also holds Bachelor's degrees in international business from the University of Plymouth and the Fachhochschule Dortmund (Germany) as well as a diploma in marketing from the UK's Chartered Institute of Marketing.

Seydou Keita, Ingénieur Géologue, Conseiller technique, MEADD (Ministre de l'Environnement, de l'Assainissement et du Développement Durable), Mali



Seydou Keita is a Technical Advisor with Mali's Environment Ministry. Keita has spent a decade working in the mining sector and the management of artisanal and small-scale mining, both within the Ministry of Mines and also in partnership with UN agencies and the World Bank.

Keita has published case studies and ASM best practices guides and has worked as a consultant on a host of projects for regional groups such as the West African Economic and Monetary Union (UEMOA), L'Autorité du Liptako-Gourma (ALG), the Institut de la Francophonie pour le développement durable (IFDD) and PanafGéo.

He holds a degree in environmental engineering from Belgium's Université de Liège and the Technical University of Berlin

Ahmed Taleb Mohamed, Technical Adviser to the Minister in Charge of Mining in Mauritania.



Ahmed is a geologist who has worked for a decade with the government in different roles: manager of the mining inventory and geoscientific databases, director general of mines, as well as senior adviser.

He previously in the private sector on a variety of projects—including gold, iron ore, diamond, rare earth, base metals—both in and outside of Mauritania.

SESSION 12: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR ASM–LSM

Facilitator:

Rob Stevens, Director, Partnerships and Learning, Canadian International Resources and Development Institute (CIRDI)



Dr. Rob Stevens, a professional geologist, is currently the Director of Partnerships and Learning at the Canadian International Resources and Development Institute (CIRDI). Prior to that he was the Associate Dean of Natural Resources and Engineering (2010–2016) and faculty and head (2000–2010) of the Mining and Mineral Exploration Technology department at British Columbia Institute of Technology.

He is the author and publisher of the best-selling book *Mineral Exploration and Mining Essentials*, which provides a comprehensive overview of the minerals industry. Dr. Stevens has been a director of the Association for Mineral Exploration BC since 2001 and was Chairman from 2008 to 2010. He was also a director of the BC Aboriginal Mentoring and Training Association. In 2011, Dr. Stevens was

awarded the Association of Professional Engineers and Geoscientists of British Columbia's premier award for professional geoscience, the C.J. Westerman Memorial Award, for his significant contribution to professional geoscience. He is passionate about the mineral exploration and mining industry and enjoys the mix of science, engineering, business, discovery, community and entrepreneurialism that are integral to the industry.

Panelists:

Justine Shirley Seyire Dzadzra, Principal Programme Officer, Mining Department, EPA, Ghana



Justine Shirley Seyire Dzadzra is a Principal Programme Officer of the Environmental Protection Agency (EPA) of Ghana, where she has worked for the past 15 years and has gained extensive experience in environmental assessment procedures (including the EIA process) and environmental management.

Over the past seven years, as the Schedule Officer for Small Scale (Artisanal) mining as well as currently also responsible for the Exploration sub sectors in the Mining Department of the Agency, she provides critical guidance and expertise to clients seeking approval for mining and related projects in these subsectors. She undertakes training of the Agency's Regional staff and also co-regulators of the mining sector on the environmental requirements of ASM operations.

She reviews environmental assessment reports submitted by large-scale mining companies and makes recommendations for the issuance of environmental permits. She undertakes compliance enforcement monitoring and field verification visits of mining establishments to ensure that the requirements of the Environmental Protection Agency Act, 1990 (Act 490) and Environmental Assessment Regulations, 1999 (LI 1652) are adhered to.

Prior to joining the agency, Justine served as a Teaching Assistant at the University of Ghana, Department of Geology. She undertook some research on the impacts of mining on the environment, a key area of interest.

Godfrey Scott, Senior Environmental Officer, Guyana Geology Mines Commission



Godfrey Scott holds a Bachelor's Degree in forestry, as well as a Master's Degree in natural resources and environmental management (climate change), with previous research focus in relation to assessing the growth response of exotic tree species on mines tailings and estimations of Carbon sequestration potential of restored mines sites.

Within the portfolio of Senior Environmental Officer, he is responsible for planning and executing environmental and occupational health and safety compliance and monitoring activities among small, medium and large-scale mining and exploration projects and activities. He also currently holds specific responsibility for coordinating and mainstreaming the research and monitoring activities of the commission in relation to mine restoration intervention.

Thursday, October 19 - AGM Day 3

SESSION 13: IGF GENERAL COUNCIL (MEMBERS ONLY)

SESSION 14: LOCAL CONTENT POLICIES IN THE MINING SECTOR: LESSONS, CHALLENGES AND NEW TOOLS

Facilitator:

Aaron Cosby, Senior Associate, IISD



Aaron Cosby is a development economist with more than 25 years of experience in the areas of trade, investment and sustainable development. His work cuts across a number of IISD program areas, with emphasis on climate change and energy, trade and investment law and policy, subsidies and green industrial policy. He is currently leading the development of IGF Guidance for Governments: Local Content Policies. He is also the co-author of *Mining a Mirage? Reassessing the shared-value paradigm in light of the technological advances in the mining sector.*

Panelists:

Isabelle Ramdoo, Senior Linkages and Investment Advisor, African Minerals Development Centre/ UNECA



Isabelle Ramdoo is a Senior Investment and Linkages Advisor at the African Minerals Development Centre. She supports African governments in developing strategic linkages and supply chains to promote economic transformation. She has 15 years of experience in trade and investment policies and negotiations. Prior to joining the AMDC, she was the Deputy Head of Programme at the European Centre for Development Policy Management in the Netherlands, where she developed and led the extractive industries workstream. She has published extensively on various dimensions of the extractive sector, in particular on local content and industrial diversification. She worked for the Government of Mauritius, notably as an economist and as a trade negotiator.

Richard Morgan, Head of Government Relations, Anglo American



Richard Morgan is Head of Government Relations, Anglo American London (joined October 2010). He holds a global role covering multilateral and sustainability issues, the UK and European international regulatory framework. He also manages Anglo American principal country operations in Southern Africa (mining platinum, iron ore and coal, and also diamonds through Anglo's 85% holding in De Beers which also has mines in Canada), Brazil (nickel and iron ore), Chile and Peru (copper), Colombia (thermal coal) and Australia (metallurgical coal). The aim of the role is to promote a partnership approach with government and wider society whereby responsible mining is seen constructively, particularly in a development context, and its benefits and challenges are shared.

Past roles: Head of Public Diplomacy at the British Foreign Office (2008–2010); Seconded to Unilever as Head of Public Affairs for Africa, Middle East and Turkey (2005–2008); posted to British Embassy Paris (2000–2004), South Africa (1995–2000) and Tokyo (1986–1990). In the Foreign Office in London from 1990–95, he worked in the Middle East and North Africa Department and the Communications/News Department.

SESSION 14: LOCAL CONTENT POLICIES IN THE MINING SECTOR: LESSONS, CHALLENGES AND NEW TOOLS (CONTINUED)

Jane Korinek, Economist, Trade policy Analyst, OECD



Jane Korinek is an Economist and Trade Policy Analyst in the Policies in Trade and Agriculture Division of the Organisation of Economic Cooperation and Development (OECD). Her recent policy research has been in the areas of the benefits of good regulation in the extractive industries, export restrictions on raw materials, trade impacts of regional trade agreements, the trade effects of exchange rates, trade costs and short-term trade finance. Previous areas of study include vertical integration and China, tariffs, South–South trade, trade and gender, special and differential treatment and trade issues in emerging economies. She holds an undergraduate degree in Economics from Duke University and graduate degree in International Economics from Stanford University.

OECD policy research undertaken on Trade in Raw Materials is available at: <http://oe.cd/rawmaterials>

Somine Dolo, Kanaga Consulting



Somine Dolo is a specialist in economic and financial analysis, with more than 15 years of experience across North America and West Africa. He currently leads Kanaga Consulting, a consulting firm focussed on economic development challenges facing West Africa, including extractive sector governance, human capital and financial systems.

Prior to founding Kanaga Consulting, Somine worked as a consultant for the World Bank, and as an auditor and financial analyst for several investment and consulting firms. He holds a Master of Business Administration from Texas Christian University in Fort Worth, TX, and has earned the CPA and CFA designations.

Somine has been involved in multiple research and implementation projects on local content in the extractive sector in West Africa over the last eight years, including Burkina Faso, Côte d'Ivoire, Guinea, Liberia, etc. He held the regional implementation support role for the World Bank's West African Local Procurement Implementation project. His recent work includes leading a company-level assessment of local content practices and performances in the mining sector in Guinea.

Jeff Geipel, Venture Leader for Mining Shared Value, Engineers Without Borders Canada



Jeff Geipel is the Founder and Venture Leader for Mining Shared Value at Engineers Without Borders Canada. This initiative works to improve the development impacts of mineral extraction in host countries through increasing local procurement by the global mining industry. Through this work, Jeff is also the Community Manager for the World Bank's Extractives-led Local Economic Diversification Community of Practice. Before Engineers Without Borders, Jeff was the founder and first Executive Director of Fair Trade Vancouver, which became a model for municipal-based fair trade organizations across Canada. Originally from Vancouver, Jeff holds a Master's degree in international development from the London School of Economics in the United Kingdom. Jeff's work and articles have been featured by the *Guardian*, *Devex*, the

Globe and Mail, *National Post*, *Next Billion*, *Mining Weekly* and *Hill Times Magazine*. Jeff currently resides in Toronto.

SESSION 15: WOMEN AND ASM

Facilitator:

Caroline Ngonze, Program Specialist, ACP-EU Development Minerals Program, UNDP



Caroline Ngonze is a Programme Specialist at UNDP Brussels working on the ACP-EU Development Minerals Programme.

Prior to joining UNDP, Caroline previously worked at the United Nations Economic Commission for Africa (UNECA) leading research and policy analysis on the situation of women in artisanal and small-scale mining (ASM) in Ghana, Guinea (Conakry), Tanzania, the Democratic Republic of Congo and Zambia. She has extensive experience covering program design, implementation, policy and planning, spanning 12 years in both development and humanitarian settings, with 10 years' international experience acquired in the United Nations in policy research, analysis and evidence-based policy advocacy. This has seen her work in Chad, Djibouti, Ethiopia, Kenya and

Uganda with a large cross-section of stakeholders including medium- and senior-level policy-makers in government, parliamentarians, the African Union Commission, regional economic commissions (RECs), development planners, diplomatic missions, academia, civil society organizations, as well as other UN agencies to deliver as one.

Caroline is an alumnus of the 2015 edition of the Emerging Leaders in African Mining (ELAM) program.

Panelists:

Amina Tahiru, Managing Director, Zenon Group, Ghana



Amina Tahiru is a Ghanaian entrepreneur, mining professional, estates developer and women's advocate. She has been Managing Director of Zenon Group since 2006; she is also the women's coordinator with Ghana National Association of Small-scale Miners (GNASSM) since 2012. Amina worked as a self-employed gold buyer from 2000 to 2006.

From 2002 to 2005, Amina was Chief Executive Officer of Women Can, an NGO that dealt with safety issues in small scale mining. She represented Ghana at the United Nations Economic Commission for Africa (UNECA) Women in Mining Conference, Kenya in 2015 and UN Women in Extractive Industry in 2016.

Shamsa Diwani, Executive Director, Gemstyles Company Limited, Tanzania



Shamsa Diwani is the Founder and Chairperson of Mineral Value Addition Organisation (MIVA) with the brand name Fahari Stones, a Registered Women Organisation assisting women in adding value to the mineral sector and work in value chains with artisanal and small-scale miners all over the country. Previously, she was a Secretary General of Tanzania Women Miners Association (TAWOMA) for eight years, and she is one of the Founding Members of Tanzania Women Chamber of Commerce TWCC, founded in 2006.

Ms. Diwani is currently working as Executive Director of Gemstyles Company Limited, a company formed by her and other three ladies. The main business is to add value to gemstones and other minerals and train other women; sell them locally and export globally.

Fitsum Weldegiorgis, Senior Researcher, Shaping Sustainable Markets, International Institute for Environment and Development (IIED)



Fitsum Weldegiorgis is an economist with research and project interests on sustainable human development effects of economic activities; applying socioeconomic theory and modelling to analyze impacts and influence policy and practice reform. He is currently Senior Researcher within the Shaping Sustainable Markets Group at the International Institute for Environment and Development (IIED). Fitsum currently leads IIED's global dialogue series on artisanal and small-scale mining (ASM) to support policy and practice reform through a more inclusive and solution-focused process. Prior to IIED, Fitsum worked as Research Officer for the Centre for Social Responsibility in Mining, Sustainable Minerals Institute (SMI) at the University of Queensland, Australia. This role involves applied research and capacity

building through various projects with extensive fieldwork and engagements with mining stakeholders. Fitsum maintains his affiliation with SMI as an Industry Fellow.

SESSION 16: ACHIEVING GOOD GOVERNANCE FOR BIODIVERSITY IN THE MINING SECTOR

Facilitator:

Stephen Edwards, Senior Programme Manager, Global Business & Biodiversity Programme International Union for the Conservation of Nature



Stephen Edwards earned his Master of Science degree from the University of Idaho and his Bachelor of Arts degree from the University of California, Santa Cruz. He has experience across more than two dozen countries, spanning Latin America, Africa, and Asia. He was a Peace Corps volunteer in Uruguay and joined Conservation International in 1998, where he worked globally on enterprise, ecotourism and protected area initiatives. In 2008 he joined CI's Center for Environmental Leadership in Business, where he supported field programs in the design and implementation of corporate engagement strategies and projects and played a critical role in working with companies in the extractives sector.

Steve joined the International Union for the Conservation of Nature in 2013, and serves as the Rio Tinto and Shell relationship manager, and leads IUCN's work related to the mitigation hierarchy—including the development of IUCN's Policy on Biodiversity Offsets (www.iucn.org/offsets). He is also currently leading efforts to establish an independent scientific and technical advisory panel to support the restoration efforts following the collapse of the Fundão tailings dam in Brazil in late 2015.

Panelists:

Rachel Asante-Owusu, Project Officer for the Business and Biodiversity Programme, International Union for Conservation of Nature (IUCN)



Rachel is a Programme Officer in the Global Business and Biodiversity Programme at IUCN, where she has worked since 2011. The main focus of her work involves reducing the impacts of the extractives sector on biodiversity and local livelihoods. She provides technical expertise to IUCN projects globally with a specific focus on Africa and is currently working on projects based in South Africa, Cameroon and Nigeria.

Prior to IUCN Rachel worked as an independent consultant, addressing ethical and sustainable trade issues in the agricultural sector with various organizations, including the United Nations Environmental Programme, World Wildlife Fund and Rainforest Alliance. She holds a degree in genetics and plant breeding from University of Wales and a Doctorate in molecular biology from Oxford University.

Eugenie Regan, Senior Principal Consultant, The Biodiversity Consultancy

Eugenie Regan has wide expertise in biodiversity conservation with a particular focus on monitoring, indicators and accounting, and the application of science to policy and decision making. Eugenie manages a diverse portfolio of projects including hydropower, mining, oil and gas, biodiversity indicators and metrics for the corporate sector, and science and policy.

Eugenie has developed and managed projects with UN Environment and the European Commission, amongst others, in Europe, Africa and Asia, and played leadership roles in the Global Biodiversity Observation Network, the European Biodiversity Observation Network, the Biodiversity Indicators Partnership and Butterfly International. Her expertise ranges from wetland ecology, entomology and international policy to biodiversity data management, monitoring and metrics.

Annelisa Grigg, Head of Programme, Business and Biodiversity, UN Environment World Conservation Monitoring Centre



Annelisa leads UNEP-WCMC's work with the private sector, focusing on the provision of data and insights to private sector decision-makers. Through Proteus—a partnership with 12 mining and oil and gas companies—UNEP-WCMC provides access to data and technical support to better integrate biodiversity into development decisions. Annelisa has more than 20 years of experience advising companies and civil society on the business risks and opportunities associated with biodiversity and ecosystem services and approaches to managing them with a focus on the mining, oil and gas, and finance sectors. Annelisa was previously the Director of Corporate Affairs and Director of Environmental Markets with Fauna & Flora International before spending six years as an independent environmental consultant.

SESSION 17: ARTISANAL AND SMALL-SCALE GOLD MINING (ASGM)

Facilitator:

Kirsten Dales, Director, Program Development, Canadian International Resources and Development Institute (CIRDI)



Kirsten Dales, MSc. in environmental management, is an expert in science-policy integration with nearly 10 years of experience in artisanal and small-scale mining, multilateral environmental governance and global resource policy. With a strong technical background in natural science, Kirsten has served as a technical expert for the design, development and review of over 30 projects on international waters, chemicals and waste management, sustainable forests, land degradation, restoration ecology, and climate change in Canada, the United States, Australia, New Zealand, Nepal, Mongolia, Russia, China, Iran, Nigeria, Tanzania, Ghana and Madagascar. She is an emerging authority on artisanal and small-scale gold mining (ASGM), supporting technical and resource policy issues for pre-ratification of the Minamata Convention

on Mercury for the United Nations Industrial Development Organization (UNIDO), UN Environment program (UNEP) and UNESCO.

Kirsten has held academic and research positions with Duke University, Dartmouth College, University of California Irvine, University of Calgary, Royal Roads University, The Asia Foundation, The Peter Wall Institute for Advanced Studies, Liu Institute for Global issues, Yale's Center for Industrial Ecology, the African Forest Research Initiative for Conservation and Development (AFRICAD), and the University of British Columbia.

Kirsten provides strong leadership to CIRDI's artisanal and small-scale mining portfolio, calling attention to issues related to environmental justice, gender equality, Indigenous resource rights, post-conflict resource governance and the UN Sustainable Development Goals.

Panelists:

Sheila Logan, Minamata Convention Secretariat/UN Environment

Sheila Logan came to policy work through her background in veterinary medicine and the use of pesticides in agriculture, both in Australia and internationally. She worked as a vet, then in the Pesticides Registration Authority and the Department of Agriculture, where she was introduced to the works of the UNEP. She worked for a time with the Australian Health Department, assessing the health effects of chemicals, both pesticides and industrial chemicals.

In early 2003, she joined the secretariat of the Rotterdam Convention, moving to Geneva and taking on technical work in relation to industrial chemicals, including supporting meetings of the Convention, developing issues papers relevant to chemicals and providing technical assistance to countries in support of their implementation of the Convention.

Late in 2006, she joined the Mercury and other Metals program, and has worked to develop the partnerships program for mercury, and assisted with the small grants program providing direct assistance to countries. She worked as a support to the mercury negotiations, supporting the meetings of the intergovernmental negotiation committee and continued to support ongoing work on mercury as a member of the interim secretariat of the Minamata Convention on Mercury. She supports the work of the group of technical experts who developed guidance relating to emissions of mercury from certain point sources, as well as a broad range of other technical issues in preparation for entry into force and the first meeting of the Conference of the Parties.

Roger Gunson, Executive Manager, Regulatory, Mineral Resources Authority, Papua New Guinea
See page 36.

Gregory Kituku, Assistant Director of Mines, Ministry of Mining, Kenya
See page 29.

SESSION 17: ARTISANAL AND SMALL-SCALE GOLD MINING (ASGM) (CONTINUED)

Euliene Watson, Technical Officer, Ministry of Natural Resources, Guyana



Euliene Van-Lewin-Watson has over 29 years of experience working within the mining industry in several different capacities. A mining engineer by profession, she holds both a diploma in Civil Engineering and a Bachelor of Engineering in Mining, from the University of Guyana. She held the distinct privilege of being the only Guyanese woman mining engineer in Guyana for over 20 years.

The major part of Ms. Van-Lewin-Watson's career was spent working for the Guyana Geology and Mines Commission (GGMC), the regulating body for mining in Guyana. She held the positions of project officer doing water quality sampling; as an inspector of mines; inspecting small, medium and large-scale gold, stone, sand, loam and bauxite mines; and as a senior environmental officer, responsible for organizing,

supervising and coordinating all environmental activities related to mining at mining operations and exploration projects.

Ms. Van-Lewin-Watson obtained an MSC in Project Management from the University of the West Indies, St. Augustine, and spent two years working as a consultant project engineer for the Reunion Manganese Company in Guyana. She now works as the Technical Officer for Mining within the Ministry of Natural Resources in Guyana, advising the Minister of Natural Resources on Mining Issues.

SESSION 18: SESSION 18: FINANCIAL BENEFIT OPTIMIZATION

Facilitator:

Rokhaya Samba, Directrice chez Direction de la Prospection et de la Promotion Minière, Ministère de l'Industrie et des Mines, Senegal

See page 36.

Panelists:

Anton Mélard de Feuarent, Valuation Expert, Fair Links



Anton de Feuarent is an expert in the valuation and economic and financial modelling of complex projects. He specializes in the extractive industries and public-private partnership, assisting governments and companies worldwide. For more than 20 years, he has acquired a well-grounded knowledge of complex projects and contractual relations between governments and companies. He also has an intricate understanding of the key economic and financial principles underlying the valuation of such contracts.

Anton de Feuarent has assisted more than 30 governments, the International Monetary Fund, the World Bank and other leading international institutions in contract negotiations, the definition of tax policies and regulatory frameworks as well as the public administration of complex contracts. He is a trusted advisor to numerous companies, banks and investors, providing economic and financial figures for decision making and analysis.

In addition, he has testified as an independent expert before State courts and international arbitration tribunals (ICSID, ICC, LCIA, PCA, ad hoc) and competition authorities. He has also served as an advisor and mediator in many litigation and international arbitration cases.

Prior to joining Fair Links in 2008, Anton de Feuarent worked with Arthur Andersen, then Ernst & Young in Paris, where he last served as a Director in the Consulting, Valuation and Litigation division.

Anton de Feuarent is a member of the Royal Economic society (UK) and the Société Française des Évaluateurs (France). He holds a Master in Economics from the Institut d'Études Politiques de Paris (Sciences-Po, France) as well as a Bachelor in Management from the University of London (UK) and University of Madrid (Spain). He lectures at the Institut d'Études Politiques de Paris (Sciences-Po), the Institut Français du Pétrole et des Énergies Nouvelles (IFP-EN) and the Sorbonne Law School.

SESSION 18: SESSION 18: FINANCIAL BENEFIT OPTIMIZATION (CONTINUED)

Pietro Toigo, Chief Macroeconomist, African Development Bank



Pietro Toigo is Chief Macroeconomist at the African Natural Resource Center of the African Development Bank. Before joining the ANRC he served as Chief Macroeconomist in the AfDB's Governance, Economic and Financial Reforms Department, working on Public Financial Management, private sector development and governance of the extractive sector. Pietro's experience includes six years as Senior Economist in Zimbabwe and Sierra Leone and as Country Representative in Libya for the UK Department of International Development, where he designed and managed a portfolio of programs covering economic management, public sector reform and management of the extractive sector. Pietro previously worked as Head of the Budget Preparation team in the Coalition Provisional Authority and as adviser to the Minister of Finance during the post-conflict transition of power in Iraq. He served in a number of positions in the UK Treasury and in the European Commission, DG Economic and Financial Affairs. He holds an MSc in economics from the London School of Economics.

Ousmane Cisse, Director of Mines and Geology, Ministère de l'Industrie et des Mines, Senegal



Ousmane Cisse is focused on mineral law and policy related to responsible mining development in Senegal. He works on mining, policy and strategic planning for the ministry. Prior to that, Ousmane worked with the UN and was responsible for their technical projects.

Ousmane has a degree in geological engineering from Dakar Institute of Earth Sciences, an MBA from the Superior Institute Superior of Management, and a Masters degree in mineral law and policy from the University of Dundee.

SESSION 19: CLOSING PLENARY

Speakers:

I. Development linkages in the extractive sector: The case of Chad and Congo – Taro Boel, Project Officer, 9th tranche development account project, SUC;

A graduate of Université d'Auvergne in France, Taro Boel has been working as an economist for UNCTAD's Special Unit on Commodities since September 2012. His areas of interest include the extractive sector and agricultural commodities as well as the role of stable institutions in the development process. He worked for the International Labour Organisation (2006), the United Nations Economic Commission for Africa (2008-2012) and the United Nations Conference on Trade and Development (2012-2017). In these different institutions, he has contributed to various publications including The Key Indicators of Labour Market, the Economic Report on Africa, and the Commodities and Development Reports.

II. Small scale mining and the SDGs – Romain Perez, Economic Affairs Officer, SUC;

A graduate of Sciences Po and HEC, Romain Perez has been working as an economist at the Special Unit for Commodities since 2015. He is particularly interested in the role of commodities in achieving the Sustainable Development Goals by 2030, and in the development of linkages between extractive industries and local economy in commodity-dependent developing countries. He also contributes to the coordination of various projects in the field, including Development Account projects on cotton by products and local content in Africa. He previously worked at the OECD (2011-2014), at the United Nations Department of Economic and Social Affairs (2006-2011), and the United Nations Economic Commission for Africa (2004-2006).

SESSION 19: CLOSING PLENARY (CONTINUED)

III. State of commodity dependence (2017) - Alexandra Laurent, Statistician, Special Unit on Commodities

Alexandra Laurent joined the SUC in 2001. She is in charge of two main publications:

(1) The biannual State of Commodity Dependence series, which aims to assess developing countries commodity dependence through 135 individual country profiles, among others. The third issue of this report was launched on October 13, 2017.

(2) The Commodities at a glance. Available in both English and French, this series aims to compile topical information on specific commodity markets (e.g. forthcoming shale gas issue).

Mrs. Laurent holds a Master degree in Management and a Master of Arts in International Finance

IV. Case study of mining in Ghana - Mr. Orlands Kofi Tetteh, Head of Small - Scale Mining, Minerals Commission, Republic of Ghana

Orlands Kofi Tetteh is a mining engineer by profession. He holds a BSc in Mining Engineering from the University of Science & Technology, Kumasi, Ghana and a PGD & MPhil in Mining Engineering from the University of Mines & Technology, Tarkwa. Before joining the Minerals Commission in 1989, Tetteh worked at the Ghana Consolidated Diamonds (GCD), Akwatia. He has over 30 years' experience in the minerals and mining industry in Ghana and abroad. He is currently the Head of Small-Scale Mining in Ghana.

Friday, October 20 - AGM Day 4

OPENING SESSION

Speaker:

Howard Mann, IGF Secretariat and Discussant: Dan Devlin, OECD



Howard Mann is a leading international lawyer specializing in international investment and sustainable development law. He has advised the governments of more than 80 nations over the course of his lengthy career.

Howard was the founder of IISD's Investment for Sustainable Development program, and was the lead author of IISD's Model International Agreement on Investment for Sustainable Development. Significant portions of the model have been adopted in multiple international investment treaties since it was published in 2005.

He has written a handbook on mining contract negotiations for developing countries and crafted a template for a model mining development agreement for IISD. Howard also helped lead the development of the first internationally recognized model contract for sustainable mining, the International Bar Association's Model Mine Development Agreement. He is currently working with a multidisciplinary team on an analysis of the impact of mining automation.

Howard has been actively engaged with the IGF for several years as a panelist, organizer and program developer. Since September 2015, he has been the senior advisor to the IGF Secretariat.

Howard received his law degree from McGill University, and his LL.M. and Ph.D. from the London School of Economics.

Panelists:

Dan Devlin, Senior Tax Adviser – Extractive Industries, Organisation for Economic Cooperation and Development (OECD)



Dan is the Senior Economist in Natural Resource Taxation at the OECD and assists developing countries to mobilize their own revenue from mining and better understand tax base erosion risks. Dan is also a technical adviser to the OECD-UNDP Tax Inspectors Without Borders project in Liberia on mining. Before the OECD, he worked at the Australian Treasury which included three years within the Indonesian Ministry of Finance. He has also worked for the United Nations in Thailand and in post-conflict Iraq. He has a Masters in Economic Policy from the Australian National University.

Janvier Désiré Nkurunziza, Chief of Research and Analysis Section in the Special Unit on Commodities, UNCTAD



Janvier Désiré Nkurunziza is the Chief of Research and Analysis Section in the Special Unit on Commodities, UNCTAD where he directs research on the interaction between primary commodities production, trade, and economic development. For several years, Janvier was a resource person in the African Economic Research Consortium, a research and capacity building network based in Africa. Before his current position in UNCTAD, Janvier was the officer-in-Charge of the Africa Section, UNCTAD; Macroeconomic Policy Advisor at UNDP, New York; and an economist at UNCTAD and UNECA. Janvier also worked at the University of Oxford; Harvard University; the University of Yaoundé; the University of Burundi; the IMF; and the World Bank and the University of Yale as a Consultant. He has published dozens of articles and chapters in

edited books and co-authored flagship reports, including UNCTAD's Commodities and Development Report, and Economic Development in Africa Report; the African Economic Outlook; and UNECA's Economic Report on Africa. He holds a doctorate in Economics from the University of Oxford, where he is affiliated with the Center for the Study of African Economies. Janvier is a Fellow of a number of academic and research institutions. His recent research has focused on commodities and development; the economics of conflict; capital flight and illicit financial flows; and financial systems in Africa.

KEYNOTE ADDRESS

Speaker:

Elfrieda Stewart Tamba, Commissioner General, Liberia Revenue Authority



Elfrieda Stewart Tamba is the Commissioner General of the Liberian Revenue Authority (LRA). She is also the Chair of the West African Tax Administration, a Council Member of the African Tax Administration Forum, co-chair of the Addis Tax Initiative, and recently appointed a member of the United Nations Committee of Experts on International Cooperation in Tax Matters.

Tamba joined the public sector in August 2006, as the Deputy Minister of Finance for Revenue where she initiated and championed reforms to modernize revenue administration in Liberia, including the establishment of the LRA.

She and her hardworking team have successfully raised national revenue more than 500 percent from USD 88 million to USD 500 million. She has also commenced the development of operating systems, policies and procedures aimed at enhancing professionalism in revenue administration including in the delivery of taxpayer services, transparency and institutional integrity, and educating citizens on their role in domestic revenue mobilization.

Tamba holds a BSc. in Business Administration from Cuttington University College and an MBA in Finance.

TRANSFER MISPRICING IN MINING

Speakers:

Alexandra Readhead, IGF



Alexandra Readhead is an expert in international taxation and the extractive industries. Her work is focused on issues of tax avoidance, and other forms of illicit financial flows, by multinational extractive companies in developing countries. She is currently Technical Advisor to the IGF on its program: 'Tax Base Erosion and Profit Shifting in the Mining Sector in Developing Countries.'

Alexandra has authored and co-authored a range of policy reports and guidelines on tax avoidance, including the first Toolkit for Transfer Pricing Risk Assessment in the Mining Industry. The Toolkit is the result of a collaboration between GIZ and the African Tax Administration Forum (ATAF). It is aimed at helping tax authorities identify and detect transfer pricing risks in the mining sector. In 2016, Alexandra published the

first detailed account of the challenges experienced by African tax authorities in applying transfer pricing rules to the mining sector: 'Preventing Tax Base Erosion in Africa: a Regional Study of Transfer Pricing Challenges in the Mining Sector.'

Alexandra has directly advised numerous tax authorities including in Sierra Leone, Guinea, Tanzania, Zambia, Cote d'Ivoire, Ghana, and Kenya, as well as Parliamentary Committees, and regional assemblies, on strengthening legal frameworks against abusive transfer pricing in the mining sector.

Alexandra obtained her Bachelor of Laws (First Class Honours) from Monash University, and a Master of Public Policy (Distinction) from Oxford University. For more information visit: alexandreadhead.com. Follow Alexandra on twitter @ali_readhead.

Dan Devlin, Senior Tax Adviser – Extractive Industries, Organisation for Economic Cooperation and Development (OECD)

See page 47.

Thulani Shongwe, International Taxation Manager, African Tax Administration Forum



Thulani Shongwe is responsible for managing international taxes (transfer pricing, interest deductibility and treaties) at the African Tax Administration Forum (ATAF). Mr. Shongwe is responsible for ATAF's project on Base Erosion and Profit Shifting (BEPS) and the ATAF Technical Committee on Cross Border Taxation (CBT), among other duties. He is a member of the Illicit Financial Flows Working Group, a member, the ATAF delegate to the OECD Committee on Fiscal Affairs and a delegate to the OECD Working Party 6 on the Taxation of Multinational Enterprises. Mr. Shongwe is also ATAF's engagement with international multilateral organisations such as the IMF, OECD, AfDB and African Union. Prior to joining ATAF, Mr Shongwe worked for the South African Revenue Service, Nestle and Kalagadi Mining Resources.

ISSUE 2: MINERAL VALUATION – COMBATING MISPRICING BY STRENGTHENING MINERAL TESTING FACILITIES

Speaker:

Alexandra Readhead, IGF

See above

ISSUE 1: DEBT FINANCING IN MINING – PROTECTING THE MINING TAX BASE AGAINST EXCESSIVE INTEREST DEDUCTIONS

Speaker:

Dan Devlin, OECD

See page 47.

ISSUE 3: TAX INCENTIVES FOR MINING INVESTMENT – MINIMIZING PROFIT SHIFTING AS A RESULT OF INCENTIVES

Speaker:

Alexandra Readhead, IGF

See page 48.

ISSUE 4: INVESTMENT TREATIES AND STABILIZATION CLAUSES

Speaker:

Howard Mann, IGF Secretariat and Discussant: Dan Devlin, OECD

See page 46.

IGF GUIDANCE FOR GOVERNMENTS: COUNTERING TAX BASE EROSION AND PROFIT SHIFTING IN THE MINING SECTOR

For many resource-rich developing countries, mineral resources present an unparalleled economic opportunity to increase government revenue. Tax base erosion and profit shifting (BEPS) and weak tax administration in developing countries threaten this prospect.

The International Monetary Fund (IMF) estimates that developing countries' BEPS revenue losses exceed USD 200 billion annually.

With a long list of Sustainable Development Goals (SDGs) to finance, and the end of the commodities super cycle, it is now more important than ever that resource-rich developing country governments ensure that existing mining projects contribute their full share to government budgets.

In 2016, IGF member country governments identified BEPS as their primary collective concern.

IGF believes that equipping developing country governments with the knowledge, skills and tools to build and administer mining tax systems that are robust enough to address BEPS is central to improving domestic revenue mobilization and enabling countries to achieve full implementation of the SDGs.

To deliver the best results for its members, IGF has partnered with the Organisation for Economic Co-operation and Development (OECD) Centre for Tax Policy and Administration, combining its mining expertise with the OECD's knowledge of taxation to design sector-specific solutions to some of the most pressing base erosion challenges facing developing countries.

IGF member countries will be involved in the program throughout, providing guidance, input and feedback to ensure solutions are responsive, practical and capable of being implemented in resource-constrained environments.

WORK HAS ALREADY BEGUN

The forthcoming **IGF Technical Workshop on Tax Base Erosion and Profit Shifting**, presented in collaboration with the OECD during the IGF's Annual General Meeting (October 20, 2017, in Geneva), provides a forum to discuss these challenges:

- Transfer pricing
- Mineral product pricing
- Excessive interest deductions (use of debt)
- Tax incentives
- Investment treaties and stability agreements.

TRAINING ON TRANSFER PRICING RISK ASSESSMENT FOR THE MINING INDUSTRY

IGF is providing training to help African tax authorities address transfer mispricing in the mining sector. Workshops are being developed for the Government of Côte d'Ivoire in October 2017 and Liberia in February 2018. Governments interested in training may contact project lead Alexandra Readhead at alexandra.readhead@iisd.org for more information.

This training will be based upon a new toolkit aimed at helping African tax authorities address transfer mispricing in the mining sector published by the African Tax Administration Forum (ATAF) with Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ).

The *Toolkit for Transfer Pricing Risk Assessment for the African Mining Industry* helps to determine whether particular high-risk, related-party transactions should be selected for a transfer pricing audit. IGF was invited to be the toolkit's official training partner.

A MENU OF ISSUES

More than 100 countries are working together to address tax base erosion and profit shifting through the G20/OECD BEPS initiative. The Inclusive Framework on BEPS aims to address significant gaps in existing national and international tax rules that are exploited by multinational corporations. The initiative has outlined 15 BEPS Actions that arm governments with the tools to combat aggressive tax planning and tax avoidance by multinational corporations.

This program builds on the OECD BEPS actions to include other causes of revenue loss in the mining sector, such as the use of harmful tax incentives, abusive hedging arrangements and metals streaming.

The program will cover the following issues:

- 1 Excessive Interest Deductions:** Companies may use related-party debt to shift profit away from mineral-producing countries via excessive interest payments to related entities.
- 2 Transfer Mispricing:** Transfer pricing is a business practice that consists of setting a price for the purchase of a good or service between two "related parties." Transfer mispricing is when the related parties distort the price of a transaction to reduce their taxable income.
- 3 Undervaluation of Mineral Exports:** A feature of transfer mispricing specific to mining: companies may sell mineral products to a related entity at prices below market rates, thereby moving sales revenue and profits offshore, to take advantage of lower tax rates.
- 4 Harmful Tax Incentives:** Tax incentives are generally used to attract foreign investment. However, they may also erode the tax base and encourage profit shifting, for example, by encouraging companies to abuse tax-exempt entities in ways that were never envisioned by producing countries.
- 5 Tax Stabilization:** Tax stabilization clauses, often in association with investment treaties, can be problematic from a tax perspective because they can freeze the fiscal terms in the contract such that changes in tax law (including BEPS-related reforms and updates to international tax standards) may be applicable to existing mines.
- 6 International Tax Treaties:** Tax treaties are agreements between states that establish a common framework for the taxation of cross-border activity. There are potential tax treaty issues arising from mining that resource-rich countries should consider when designing tax treaty policy. Treaty shopping (companies structuring their investment to obtain benefits not intended by parties to the treaty) also presents BEPS challenges.
- 7 Indirect Transfer of Mining Assets:** Sale of ownership of mine assets (or the companies themselves) can generate significant income, which many countries seek to tax as capital gains. However, indirect sales that take place offshore may be harder to tax, potentially resulting in hundreds of millions of tax dollars foregone.
- 8 Metals Streaming:** Metals streaming involves mining companies selling a certain percentage of production at a fixed cost to a financier in return for funds for mine development and construction. Companies may agree to lower sale prices for long periods of time, thereby reducing royalty and tax collection.
- 9 Abusive Hedging Arrangements:** Hedging means locking in a future selling price to manage risks of price fluctuations. A problem arises when companies enter hedging contracts with related parties to set an artificially low sale price for production, reducing the mine's taxable income.

- 10 Inadequate Ring-fencing:** Ring-fencing is one way of limiting income consolidation for tax purposes; however, getting the design right is critical to securing tax revenues while continuing to attract further investment.

The full workplan is available [here](#).

OUR MODEL

PHASE 1:

For each of the topics listed above, we will develop a combination of policy and administrative tools for use by resource-rich developing country governments. The precise nature of these products will vary from issue to issue depending on need, as well as work being done by other international and non-governmental organizations.

There are three overarching principles that guide the program:

- 1 Adapt existing guidance on international tax issues to be mining-sector specific.** We are taking tax issues experienced by a range of sectors in the economy (such as double taxation treaties) and developing a framework by which governments of resource-rich countries can analyze the impact of treaty provisions on taxes imposed on the mining sector, as well as possible strategies to protect the mining tax base against specific treaty risks.
- 2 Fill vital gaps in the available resources.** We are developing new practical guidance and tools that specify the precise legal, administrative, organizational and technical means required for tax authorities and mining regulatory agencies to address the tax issue. For example, we look at “metals streaming,” a financing arrangement that may reduce the tax base of resource-producing countries, for which there is virtually no guidance.
- 3 Keep administrative capacity front of mind.** We are delivering practical tools capable of being implemented by developing country tax authorities. Mining tax law is only as effective as the administrative capacity of the tax authority responsible for enforcing it. Developing country tax authorities face a range of challenges that impede tax administration, including limited resources, technical expertise and access to tax information. All products will be designed to address these specific challenges.

All results from the program will be publicly available via a dedicated website that will offer users a holistic view of how different mining tax issues interact, and the potential policy trade-offs. The site will be an up-to-date centre of expertise on international tax policy design and administration in mining, and a home to the guidance and tools that will be developed over the next two years.

PHASE 2:

IGF will deliver a menu of training options for member country governments based on the work produced in Phase 1. It will be a mix of annual training events on BEPS issues, as well as country-specific training and direct advisory services.

With support from GIZ, the IGF will develop a diagnostic tool that countries can use to identify the specific BEPS risks they need help with. The IGF will then gather the relevant policy guidance and tools to provide a tailored package of support.

OUR EXPERTS

- **Alexandra Readhead** is Technical Advisor to the IGF on Tax Base Erosion and Profit Shifting. She is a specialist in international taxation and the extractive industries.
- **Dan Devlin** is the Senior Economist in Natural Resource Taxation at the OECD. He is also a technical adviser to the OECD-UNDP Tax Inspectors Without Borders project on mining in Liberia.
- **Howard Mann** is an Associate & Senior International Law Advisor to IISD and IGF. He is a specialist in international investment and sustainable development law, as well as mining contract negotiations.

WANT TO GET INVOLVED?

We recognize that there are many governments, organizations and individuals with significant expertise in mineral tax policy and administration, and we are keen to leverage this wherever we can. Current collaborators include: the International Monetary Fund, United Nations Tax Committee, the World Bank Group, the African Development Bank, the African Mining for Development Centre, the International Senior Lawyers Project, and the International Council on Mining and Metals.

Please get in touch if you or your organization would like to know more about the program, or have something to contribute or suggestions for us.

For more information, please contact project leads Alexandra Readhead at alexandra.readhead@iisd.org and Howard Mann at hmann@iisd.ca.

FUNDING

The program has initial funding from Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) and the Canadian government.

More funds are still required.

If your organization is interested in helping fund the IGF BEPS in Mining Program please contact Alexandra Readhead at alexandra.readhead@iisd.org or Howard Mann at hmann@iisd.ca.



IGF GUIDANCE FOR GOVERNMENTS: LOCAL CONTENT POLICIES

Resource-rich economies—especially those in developing countries that may be over-dependent on only a few resources or operations—face a daunting challenge: how to translate hundreds of millions or even billions of dollars of mining investment into broad and sustainable economic development. The struggle is to avoid enclave development where all goods and services are imported, all employees are foreign, all extracted material is sold unprocessed and there is little resulting benefit to the host economy beyond taxes and royalties.

It is a struggle as widespread as it is difficult. An estimated 90 per cent of resource-rich countries employ some sort of local content policy, and a large number of them are in the process of reviewing or revising mining and investment codes with a view to better exploiting mining's powerful potential. In countries where there are few other strong sectors, success is critically important.

Making such policies work is difficult, not least because there is no simple template for success. Each country has different resource endowments, different skill sets in their local suppliers and labour force, different infrastructure assets and challenges, and different investment environments. The success of such policies is intricately entwined with the success of other policies and regulations—such as education, science and innovation policies; support for entrepreneurs; and trade and investment policies—most of which are scattered across separate ministries.

HOW WILL WE MEET THESE CHALLENGES?

The challenges of such policies, and their critical importance for sustainable development in many countries, led IGF member nations to name local content policies as their highest priority for guidance at the 2016 Annual General Meeting. IGF has been mandated to produce similar guidance in the past, on artisanal and small-scale mining and on tax base erosion and profit sharing.

The guidance on local content policies will be an accessible resource, housed both in print and in a user-friendly online platform that allows easy updating and deep links to the wealth of case studies and other resources that exist on this topic. It will be launched at Investing in Africa Mining Indaba in February 2018. The guidance will identify policies to encourage:

- Local procurement of goods and services
- Direct employment of locals or disadvantaged persons
- Downstream linkages (i.e., processing of extracted products)
- Building domestic capacity in the mining sector
- Horizontal linkages (spillover benefits from mining into non-mining sectors)

It will include dozens of case studies and will cover a number of cross-cutting themes including legal issues, policy coherence and the impacts of new technology.

The product of many contributing experts, and of the support of a high-level external expert advisory group, the guidance will be used as part of the IGF's stable of materials for delivering demand-driven in-country training for government officials in member countries.

For more information, please contact project lead Aaron Cosbey at acosbey@iisd.ca.



IGF

INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development

IGF ANNUAL GENERAL MEETING BACKGROUND PAPER: ASM GLOBAL TRENDS

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The International Institute for Sustainable Development (IISD) is one of the world's leading centres of research and innovation. The Institute provides practical solutions to the growing challenges and opportunities of integrating environmental and social priorities with economic development. We report on international negotiations and share knowledge gained through collaborative projects, resulting in more rigorous research, stronger global networks, and better engagement among researchers, citizens, businesses and policymakers.

IISD is registered as a charitable organization in Canada and has 501(c) (3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the International Development Research Centre (IDRC) and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations, the private sector and individuals.

The IGF supports nearly 60 nations committed to leveraging mining for sustainable development to ensure that negative impacts are limited and financial benefits are shared.

It is devoted to optimizing the benefits of mining to achieve poverty reduction, inclusive growth, social development and environmental stewardship.

The IGF is focused on improving resource governance and decision making by governments working in the sector. It provides a number of services to members including: in-country assessments; capacity building and individualized technical assistance; guidance documents and conference which explore best practices and provide an opportunity to engage with industry and civil society.

These efforts are largely framed by IGF's flagship policy guidance and assessment tool, the Mining Policy Framework (MPF). The MPF lays out international best practices in six key pillars of mining policy and law: the legal and policy environment; financial benefit optimization; socioeconomic benefit optimization; environmental management; mine closure and post-mining transitions; and artisanal and small-scale mining.

The International Institute for Sustainable Development was appointed to a five-year term as Secretariat for the IGF in October 2015. Funding is provided by the Government of Canada.

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SUMMARY

Artisanal and small-scale mining (ASM) has experienced explosive growth in recent years due to the rising value of mineral prices and the increasing difficulty of earning a living from agriculture and other rural activities. An estimated 40.5 million people were directly engaged in ASM in 2017, up from 30 million in 2014, 13 million in 1999 and 6 million in 1993. That compares with only 7 million people working in industrial mining in 2014.

ASM is generally pursued as a route out of poverty or as an activity to complement insufficient income, especially in communities where alternative employment is hard to come by. ASM is also a very diverse sector. Its main challenges vary from region to region—and often from site to site.

There is a perception that ASM is a “get-rich-quick” activity. This has misinformed legislation and extension programs and led to the application of one-size-fits-all policies. However, people working in ASM are far from the same. They range from those whose livelihoods rely on subsistence farming to skilled workers who migrated from urban areas in search of work.

Despite its low productivity, ASM is an important source of minerals and metals. It accounts for about 20 per cent of the global gold supply, 80 per cent of the global sapphire supply and 20 per cent of the global diamond supply. ASM is also a major producer of minerals indispensable for manufacturing popular electronic products, such as laptops and phones. For example, 26 per cent of global tantalum production and 25 per cent of tin comes from ASM.

ENVIRONMENT AND HEALTH AND SAFETY

ASM relies on a mostly unskilled workforce using rudimentary tools and techniques. Unsurprisingly, its environmental and health and safety practices tend to be very poor. For example, dust and fine particles resulting from blasting and drilling cause respiratory illnesses. It also degrades crops and farmlands, resulting in lost food production. Streams and rivers often become polluted near ASM sites, which makes water unsafe for drinking and can also affect fish stocks previously relied upon for food.

Artisanal and small-scale mining is also the source of the largest releases of mercury, estimated at 1,400 tonnes per year in 2011 according to the Minamata Convention.

Exposure to mercury can have serious health impacts, including irreversible brain damage. Mercury is also difficult to contain and can be toxic at even very small doses. It can be transported long distances by air or water, poisoning the soil and waterways, and eventually making its way into the food chain. In sub-Saharan Africa, most of these risks are borne by women.

ASM AND LARGE-SCALE MINING (LSM)

In many parts of the world, ASM and LSM operate in neighbouring—and sometimes on the same—concessions. As mineral governance frameworks tend to favour foreign direct investment by multinational companies over ASM, there are significant power imbalances and clashes over claims. However, their coexistence opens the potential for cooperation.

Current practices and debates about ASM–LSM relations include:

- Removing ASM from LSM concessions, which is unlikely to solve clashes over land in the long run
- Separating ASM and LSM by creating “ASM zones,” with proven geological reserves
- Fostering cooperation between LSM and ASM operators through buy-back arrangements, technical assistance and support for formalization
- Promoting continued dialogue and communication between ASM and LSM, facilitated by governments

ALTERNATIVE LIVELIHOODS

Moving people straight out of ASM into other sectors is not a realistic strategy, as there are typically few other employment opportunities. Programs aiming to encourage more income-generating activities along the ASM supply chain—such as gemstone cutting and polishing—have shown positive results.

Agriculture and ASM need to be seen as complementary, as opposed to two activities that are fundamentally at odds. Many families turn to ASM to supplement their farming earnings and invest in farming and farm inputs.

CERTIFICATION SCHEMES

In recent years, ethical certification schemes and standards have been used to support formalization and to improve social and environmental practices in the sector.

Standards such as Fairmined and Fairtrade Gold aim to foster responsible ASM cooperatives, provide assurance of minimum standards of production, and support the sector’s formalization and professionalization. In addition, “chain of custody” initiatives aim to ensure traceable supply chains from mine to market that are free from conflict and human rights abuses. They respond to the need of companies seeking to meet international regulations and/or voluntary codes and to ensure good business practices.

Despite signs of progress, there are concerns about these initiatives. Some argue they are not reaching the most marginalized communities in need of greatest support. Instead, they are believed to be empowering already licensed and relatively affluent cooperatives able to meet the requirements and costs of certification. There are also concerns about longer-term sustainability due to their reliance on Western markets and ethical consumption trends.

FORMALIZATION

In many countries, 70 to 80 per cent of small-scale miners are informal.

Informality brings along damaging socioeconomic, health and environmental impacts, which trap the majority of miners and communities in cycles of poverty and exclude them from legal protection and support.

Formalization has to be inclusive of miners' views and effective in monitoring and enforcing regulation. It needs:

- Legal frameworks that remove barriers to formalization and are supportive and accessible rather than punitive
- Streamlined licensing processes that make it easy, cost-effective and rewarding to obtain a licence
- Access to finance for miners, potentially using geological information as collateral for loans
- Technical and financial support to meet the licensing requirements and, once licensed, to continue to improve performance

TOWARDS SUSTAINABLE ASM: WHAT DO WE NEED TO GET THERE?

- Know-how: Building capacity through local institutional partnerships
- Organization: Encouraging miners to form cooperatives and associations
- Collaboration: Encouraging large-scale mining companies to support capacity building
- Capital: Using microcredits to lend to organized groups of miners and communities, supported by donors
- Technology and equipment: Improving miners' access to efficient and cleaner technologies

In numbers:

- 40 million people working in ASM in 2017
- 150 million depend on ASM across 80 countries in the global south
- 20 per cent of the global gold supply is produced by the ASM sector
- 80 per cent of the global sapphire supply and 20 per cent of the global diamond supply come from ASM
- 26 per cent of global tantalum production and 25 per cent of global tin production come from ASM
- 40–50 per cent of the ASM workforce in Africa are women
- 70–80 per cent of small-scale miners are informal



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1. GLOBAL TRENDS AND UPDATES ON KEY ASM NUMBERS

Artisanal and Small-Scale Mining (ASM) is recognized as a considerable source of revenue for millions of people in about 80 countries worldwide (World Gold Council, 2017; World Bank, 2013). ASM takes place in different parts of the world, mostly in the global South, i.e., sub-Saharan Africa, Asia, Oceania, Central and South America (Armah et al., 2016). The activity has been defined in different ways, and is often characterized in terms of the number of miners, the production capacity, the level of mechanization or capital investments (ILO, 1999; World Gold Council, 2017).

In 1993, about six million people were believed to be working in ASM. The International Labor Organization (ILO) revised this number to 13 million miners in 1999 (including women and children) and estimated that about 80 to 100 million people depend on this activity (ILO, 1999). In recent years, the number of people directly involved in ASM has more than doubled, reaching about 30 million people in 2014, because of the rising value of mineral prices and the increasing difficulty of earning a living from alternative activities like agriculture, among other reasons (García et al., 2015; Seccatore et al., 2014; Levin, 2014; Banchirigah & Hilson, 2010). This implies that more than 150 million people are indirectly dependent on ASM (Levin, 2014). As accounted on Artisanalmining.org (2017), a database where ASM estimates are regularly updated, direct ASM numbers might have reached (+/- 25 per cent) 40.1 million in 2017. Some sources estimate a much higher number, for example, up to 100 million ASM operators, compared to 7 million people working in industrial mining (World Bank, 2013). However, it is important to remember that there is a need to improve benchmarking and consistency in the field with national data, the need to disaggregate numbers by gender and to establish a criteria-based census of ASM operators.

The number of people involved in ASM differs across countries in Africa, Latin America and Asia. Most of the countries in Africa had 5-20 per cent of their populations directly depending on ASM in 2009; in Latin America 0.1-5 per cent and Asia 0.1-1 per cent. Most ASM operators are in Asia, with a total average of at least 10.6 million in 15 countries in 2014, mainly due to the extremely high number in China (nine million). This is followed by Africa, with a total average of at least 9.9 million ASM operators in 23 countries in 2014, and Latin America with a total average of at least 1.4 million ASM operators in 19 countries in 2014.

There are two African countries with an average of more than 1 million miners in 2014 (Democratic Republic of Congo [DRC] and Sudan) compared to one country in Asia (China) and none in Latin America.

There are four African countries with an average of 500,000 to 1,000,000 miners in 2014 (Ivory Coast, Ghana, Mali, and Tanzania), but none in Asia and Latin America.

The other countries where ASM activity involves on average at least 200,000 miners in 2014 are: Angola (200,000), Ethiopia (450,000), Guinea (250,000), Madagascar (450,000), Mozambique (200,000), Niger (365,000), Sierra Leone (300,000), Uganda (200,000), Zimbabwe (450,000), Pakistan (450,000), Philippines (325,000), Brazil (467,500), and Colombia (385,500).

Studies concerning African countries with ASM are the most complete—i.e., there are estimates on all but four countries that are known as having ASM operations. In Asia, 15 countries do not have estimates, although they are likely to have ASM activities; and in Latin America, the same issue concerns five countries. Hence, compared to Africa, the ASM population in Asia and Latin America remain relatively understudied.

The three regions have commonalities concerning ASM since it is a way of addressing poverty for many communities or a way to earn more for a living in combination with other activities such as agriculture. There are also regional differences between the three continents (Hentschel, 2003): “[I]n Africa, AIDS and sustainable community development are the key issues; in the Asia/Pacific region,



multicultural aspects and cultural rights predominate; while in the Latin American/Caribbean region, environment, indigenous rights and legal aspects are the key issues.” There are also differences in terms of women’s ASM participation. According to Hinton et al. (2003), there is generally fewer than 10 per cent of women directly participating in mining in Asia, between 10 and 20 per cent in Latin America, and between 40 and 50 per cent in Africa. In some regions, female miners can even represent 60 to 100 per cent of the ASM mining force; for example, in Guinea the rate is as high as 75 per cent (Hentschel, 2003, Hinton et al., 2003).

The motivations for child labour in ASM also vary depending on the region. According to Buxton (2013), children are commonly involved in Latin America as part of a “long ASM tradition”; whereas in Asia, there is less child labour due to the involvement of the private sector in ASM. . As in Latin America, in Africa children are also commonly involved in ASM, but more because of the poor socioeconomic context (e.g., civil war, conflicts, weak social institutions and government, forced labour) (Buxton, 2013). It is hence essential to understand the specificities of each ASM site.

ASM is believed to contribute 15–20 per cent of the global non-fuel mineral production, 18 per cent of Africa’s gold, and almost all African gemstones except diamonds (ILO, 1999; Ledwaba & Nhlengetwa, 2015). It is an important source of revenue for miners, their communities and local governments, especially when the activity is focused on the mining of high-value minerals like gold, silver and gemstones. According to CIFOR (2009), gold and diamond mining account for more than half of the mineral exploitation globally, involving between six to nine million artisanal miners, i.e., about 60 per cent of all ASM activities in 2009. About 50 per cent of the total number of ASM operators work on gold extraction, contributing to 90 per cent of total employment (the remaining 10 per cent mainly came from large-scale gold mining) and generating between 12-15 per cent of global gold production (Levin, 2014).

According to the World Bank (2013), ASM accounts for about 20 per cent of the global gold supply, 80 per cent of the global sapphire supply, and 20 per cent of the global diamond supply. About 65 per cent of the world’s diamond reserves are in Africa (CIFOR, 2009). Madagascar is one of the largest producers of sapphires, with about 50 per cent of the global supply in 2002—production relies heavily on artisanal mining, with about 500,000 people involved either on a full-time or part-time basis (Tilghman et al., 2005). The activity is, however, not limited to these minerals: according to Veiga et al. (2014), ASM operators work on more than 30 different sorts of minerals. For metals specifically, in 2009 ASM operators were estimated to account for about 26 per cent of global tantalum production, 25 per cent of global tin production, 6 per cent of tungsten, 4 per cent of iron ore, 3 per cent of lead, 1 per cent of zinc and 0.5 per cent of copper (Dorner et al., 2012). Most ASM production of tantalum is in Africa, particularly Central Africa where it is obtained from alluvial and soft rock deposits.



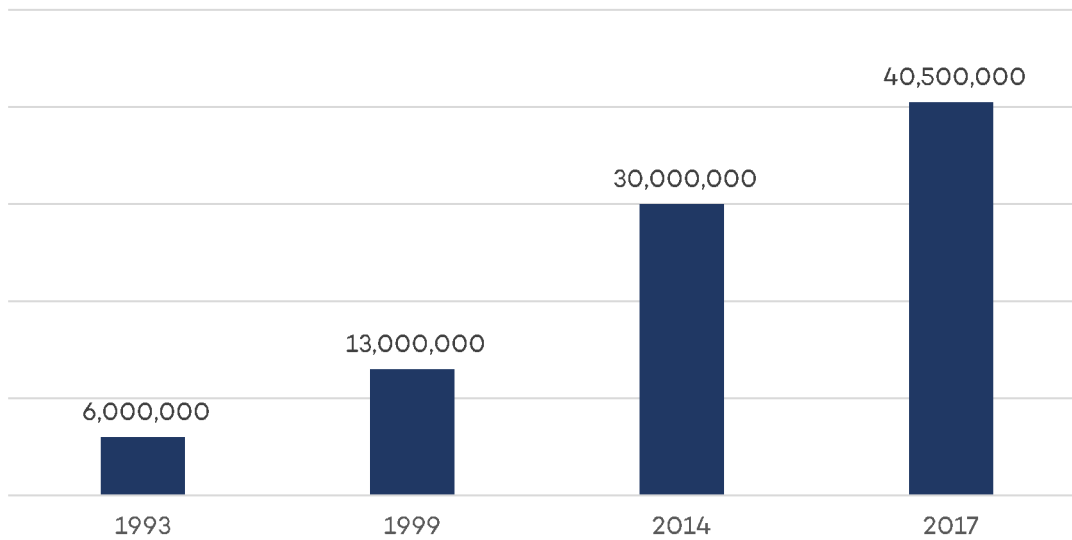


FIGURE 1. NUMBER OF ASM OPERATORS WORLDWIDE SHOWS THE GROWTH IN THE NUMBER OF ASM OPERATORS WORLDWIDE BETWEEN 1993 AND 2017.

Source: Author illustration based on ILO, 1999; Seccatore et al., 2014; Levin, 2014; artisanalmining.org, 2017

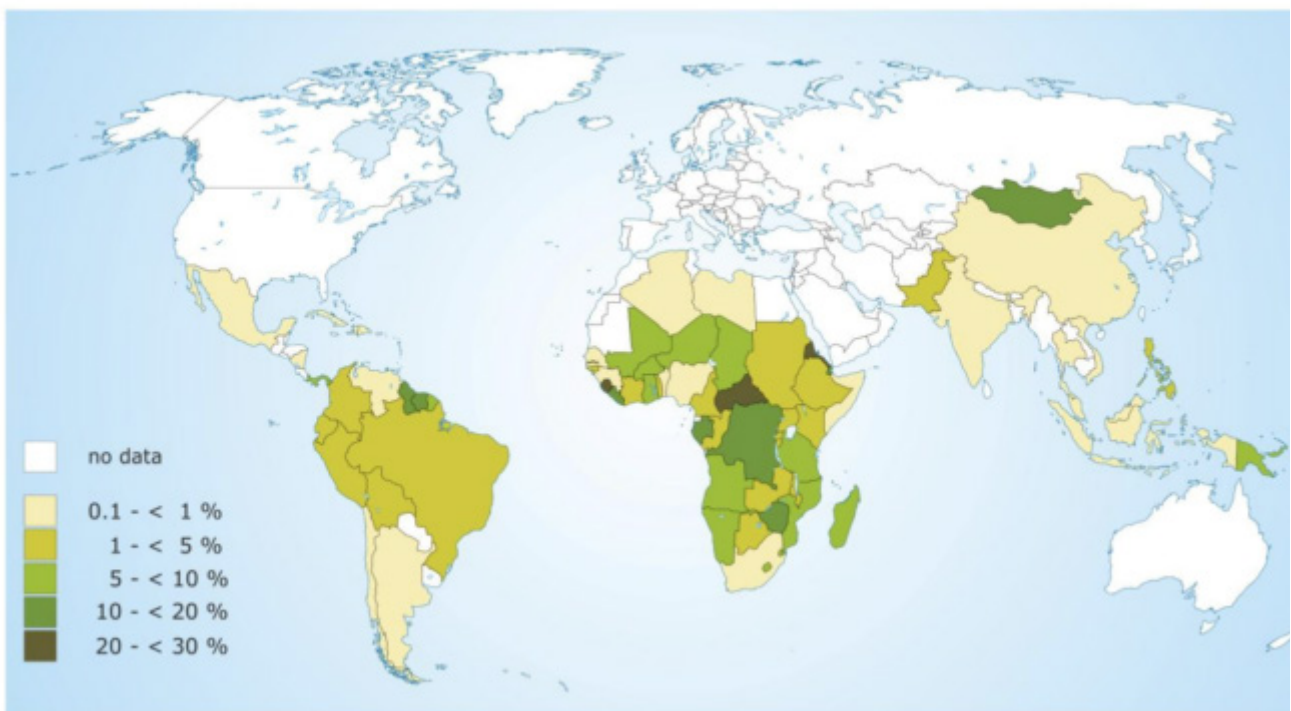


FIGURE 2. PERCENTAGE OF THE POPULATION DEPENDING ON ASM

Source: Dorner et al., 2012



2. ENVIRONMENT, HEALTH AND SAFETY IMPACTS AND REMEDIAL EFFORTS

Although each ASM site has specific characteristics, some common factors can aggravate the general environment, health and safety (EHS) impacts of the ASM activity. These include lack of mechanization, use of rudimentary techniques, low levels of occupational health and safety (OHS) practices, lack of skilled workforce, lack of social security and a lack of awareness about EHS issues.

The use of hazardous substances puts the health of miners and their communities at risk, through exposure to mercury, zinc vapour, cyanide, or other acids (Obiri et al., 2010). This is particularly significant for gold mining, where mercury is often used, and which is also seeing increasing cyanide use. Mercury can be inhaled, swallowed or absorbed through the skin, but the health consequences are usually not immediate (Armah et al., 2016). The inhalation of dust and fine particles due to blasting and drilling processes can cause respiratory diseases such as silicosis or pneumoconiosis to men, women and children that often accompany their parents (Armah et al., 2016). According to their findings, temporary or permanent hearing loss and speech interference can also be the consequence of a lack of safety protections to filter noise from equipment like drills or crushers. Most occupational health and safety risks in sub-Saharan Africa are borne by women, due to the division of tasks between male and female miners.

There are usually two ways to use mercury in artisanal and small-scale gold mining (ASGM): “whole ore amalgamation” (WOA) and “concentrate amalgamation” (United Nations Environment Programme [UNEP], 2012, p.14). WOA uses the most mercury since it is inefficient (usually capturing no more than 30 per cent of the gold) compared to concentrate amalgamation and releasing important quantities of mercury in the tailings.

The burning of the amalgam can take place on site and in processing centres, but also in the villages, for instance in the kitchen/houses/backyards of miners, putting their health and the health of their families and community at risk of mercury intoxication when no protection equipment is used (UNEP, 2012, p.12; GAHP, 2014; Spiegel et al., 2018). According to UNEP (2013a, 2013b), ASM activity emits about 1,400 tonnes of mercury per year and is the largest source of anthropogenic mercury emissions worldwide with about 727 tonnes per year. Among the countries where mercury is used in ASGM, Indonesia has seen the number of polluted sites rise in the past 20 years by about 50 per cent between 2010 and 2015 (Balifokus, 2015). The country hosts some of the most mercury-polluted sites in the world (Spiegel et al., 2018).

According to Pure Earth (2017), about 130 ASGM sites are sources of mercury contamination, particularly in Africa and Southeast Asia. Based on available estimates (Mercury Watch, 2017), four countries are the largest polluters of mercury from ASGM activities: Bolivia (120 tonnes/year), Brazil (105 tonnes/year), China (100 tonnes/year), and Burkina Faso (35 tonnes/year). However, it must be emphasized that no estimates are available for many other countries. Indonesia clearly appears to be one of the countries with the largest health issues related to mercury use, as well as Mongolia, Peru and Ecuador with 70,000–150,000 people exposed to mercury contamination.

The least effective mercury practices (ratio of mercury consumed versus gold produced) can be observed in Africa, in Burkina Faso (ratio of about 1:70), Senegal (ratio of about 1:35), Sudan (ratio of about 1:20) and Ghana (ratio of about 1:17). Better practices can be found in Asia and Central America (Indonesia: 1:10, China: 1:10, Mexico: 1:10). The most effective practices are in South America, where Colombia and Brazil still have a ratio of about 1:5; however, all other countries are below this ratio.

Mercury contamination is more serious in some countries compared to others. This is the case for instance in Tanzania and Indonesia, which were defined as hotspots by Evers et al. (2013, pp 10–11). In the Matundasi and Makongolosi regions of Tanzania, the amalgamation process is conducted in the



open air with no safety or mercury recovery systems. Most of the contaminated water from sluicing and amalgamation is poured directly into the Lupa River and has environmental and health impacts for the people living in the Lake Rukwa area of South Tanzania. In Indonesia, several sites are of concern. In both countries, the level of mercury in human hair largely exceeded the U.S. Environmental Protection Agency (EPA) reference dose of 1.0 ppm (parts per million). A number of studies have shown urinary mercury concentrations in humans well above the 100 µg Hg/g-creatinine, a World Health Organization (WHO)-defined level above which the probability of developing classical neurological signs of mercury intoxication is high. In various cases such as Burkina Faso, for instance, these limits are exceeded in ASGM sites (Black et al., 2017).

The World Health Organization lists mercury among the top 10 chemicals of major public concern. Mercury poisoning causes problems in the brain and the nervous, digestive and immune systems, as well as in the lungs, kidneys, skin and eyes (UNEP, 2012; WHO, 2017). The symptoms of mercury poisoning include tremors, insomnia, memory loss, headaches, cognitive and motor dysfunctions, respiratory failures, psychotic reactions, and eventually death in case of severe intoxication (WHO, 2017; GAHP, 2014). People working in ASM and using mercury are the most directly and seriously affected populations since they are exposed to both occupational mercury poisoning and methylmercury poisoning through the food chain.

Cyanide is usually used in LSM operations, but is increasingly being used in ASGM because it can recover more gold than mercury amalgamation (EPA, 2017). In some cases, it is more effective and cost-effective, as shown in Ecuador (Veiga et al., 2009). In general, however, cyanidation is still more costly than mercury amalgamation for most ASGM sites, and requires more knowledge and technical training (Veiga et al., 2009). The use of cyanide to process tailings at processing centres is observed in countries like Brazil, China, Colombia, Ecuador, Mozambique, Nicaragua, Peru, Venezuela, Tanzania, Zimbabwe, and the Philippines (Veiga et al., 2014; Hilson & van der Vorst, 2002).

Cyanide can be used instead of mercury in a process called direct cyanidation (Spiegel et al., 2018) and is the safest way to use cyanide after the ore has been concentrated (EPA, 2017). However, cyanide is also a toxic hazardous substance, although it does not persist in the environment like mercury (GAHP, 2014; EPA, 2017). Unlike mercury, cyanide can be decomposed into less toxic forms and its effects are immediate and chronic, while mercury has long-term effect on EHS (Veiga et al., 2014).

Cyanide is not as common as mercury in ASGM since it usually requires more capital investments and skills, different business models, and its management is thus more complex (Spiegel et al., 2018). However, the number of processing plants where cyanide is used is rising in reaction to the international pressure for phasing out mercury use (Spiegel et al., 2018). According to Seccatore et al. (2014), Basu et al. (2015) and Malehase et al. (2017), South America is the region where the most environmentally friendly techniques are used in ASGM: other examples of good practices can be found in Central Asia and Central America. On the contrary, the practices that cause most damage to the environment are more common in Africa—with sub-Saharan Africa leading on mercury emissions—and East Asia (Basu et al. 2015; Malehase et al., 2016).

Efforts to address the EHS impact of ASM practices are grouped here into three main activities: technological alternatives, education/awareness raising, and national, international policies and programs. Among the most common technological alternatives to chemical usage in ASM, retorts and mercury-free concentration methods (such as gravity, panning, sluicing, shaking tables, spiral concentrators), have been subject to many studies and pilot projects, with greater or lesser success.

Technological alternatives and more environmentally friendly practices are among the cornerstones of tackling the issue of chemical usage in ASM. However, it should be noted that even though technical alternatives exist, they are not always applicable to ASM because of geological, socioeconomic, cultural and other site-specific issues.



One main barrier for mining communities in adopting cleaner technologies is cost-effectiveness, which means that the technology must increase the amount of minerals recovered and/or productivity (GAHP, 2014; Hinton et al., 2003). Also, ASM operators are usually risk averse and will not change their practices until the benefits have been clearly demonstrated to them (GAHP, 2014). Technological alternatives are more likely to be successful when introduced and implemented in organized mining communities in the form of cooperatives for instance, where investments in time and money may happen more easily.

Education and awareness raising on EHS issues in ASM is also important. However, to be effective they need to be feasible alternatives and related to the socioeconomic characteristics of the mining community, to understand better which technologies might or might not work (Spiegel et al., 2018). They should focus on contamination and how current bad practices are stigmatizing miners, as well as providing appropriate solutions to make a change. Regular and intensive training programs should be set up to educate miners and communities about the pros and cons of various technology alternatives. These programs need to be specified in legislation providing for enforcement and proper monitoring and evaluation. Forging partnerships with community organizations, civil society organizations and private sector will be crucial to successful implementation.

Governments have been working for several decades on reducing the EHS impacts of ASM, in particular the use of mercury. Some governments have banned mercury use in ASGM—or the ASGM activity itself—since the informality of the sector in some cases does not contribute to the creation of wealth for the country in the same way as large-scale mining (GAHP, 2014). But due to the large share of gold produced by ASGM, some approaches have instead focused on the formalization and regulation of the sector so that ASGM miners contribute to the wealth of the country by paying taxes while ensuring more environmentally friendly practices (GAHP, 2014). Such approaches, however, still need greater stakeholder involvement on site and investment in efficient technologies that align with the local context. With the rising number of ASM operators and the related EHS impacts correlated with the rise in the prices of minerals like gold, several national and international initiatives were introduced such as the Minamata Convention on Mercury.

Eliminating the use of mercury in all ASGM sites by forbidding the use of mercury or the ASM activity itself will not be effective—one recommendation may be that governments looking at eliminating mercury use in ASGM do it progressively (as in the case of Zimbabwe) (Spiegel et al., 2018). Indeed, such bans constitute a barrier for better environmental practices, since governmental bodies or external organizations (like NGOs and IGOs) have difficulty supporting ASM operators, since the activity is then considered illegal. In this context, as underlined by Seccatore et al. (2014), some governments—like Ecuador in 1991—have chosen to legalize ASM activity, so that miners can access safer technologies via national and international cooperation programs.

Beyond technologies and education, it is very important to consider the site-specific characteristics of ASGM and the needs of the mining community (bottom-up approaches) and engage directly and empathetically with miners and local stakeholders to build trust. Before developing new legislation, it is essential that policy-makers understand environmentally and locally attuned remedial activities.



3. ASM INTERFACE WITH LARGE-SCALE MINING

Increasingly, ASM activities are in contact with LSM operations, increasing the probability for conflict and clashes—as well as the potential opportunity for cooperation between the two. This is due to the growth of the ASM sector in rural, largely impoverished communities across the developing world over the past two decades, as well as the propensity for LSM companies to increasingly exploit marginal deposits. To meet demand, mining companies are exploring new frontiers and neglected resources that comprise lower-grade and hard-to-access deposits that were previously uneconomical to mine on a large scale due to the high levels of capitalization, technology and infrastructure required. These are also areas where, traditionally, artisanal and small-scale miners may already be present living and working near surface deposits. Furthermore, as new deposits are opened via exploration activities and roads they may attract small-scale miners to the area in rush-type situations (CASM, 2009; ICMM, 2009).

The instances where ASM and LSM activities have met have usually been marked by tension and conflict over land, access and control of mineral deposits, and the right to mine. In many countries the mineral governance framework favours foreign direct investment in the mining sector by multinational companies over local ASM concerns, leading to significant power imbalances and clashes over claims. Large-scale mining companies not only have a dominant position in the political and legal spheres, but also in terms of their significant financial resources and access to geological knowledge and sophisticated mining technologies: this gives them a great advantage over ASM firms when competing for the same claims.

Oftentimes extensive mining concessions are given over to large-scale mining companies without communities being informed or consulted. This leads to mining companies essentially arriving overnight and dispossessing informal small-scale miners of claims they believe to be rightfully theirs through customary land tenure systems and traditional laws—despite a lack of a permit or licence to mine under statutory law. This can create significant tension and conflict if the community and miners are not actively and meaningfully engaged prior to large-scale activities commencing, and due to the use of force and methods used to evict and police miners and communities. It can also lead to the encroachment of unlicensed and informal miners on to the concessions of large-scale mining companies (Chachage, 1995; Okoh, 2014; Hilson, 2002; Hilson & Yakovleva, 2007; Carstens & Hilson, 2009; Nyame & Blocher, 2010; Verbrugge, 2017).

Another area of interaction between the two is the way in which small-scale miners can act as “pathfinders” or “barefoot prospectors.” During the exploration phase, junior mining companies will often follow small-scale miners in order to identify and search for potential new claims, only then to later evict them from the site once they have obtained a licence or place them in marginal parts of the concession where returns may be low and resources limited to a few years of mining (Carstens & Hilson, 2009; Luning, 2014).

Fundamentally, what all the challenges and conflict between LSM and ASM have in common is competition over limited land as well as overlapping concessions and poorly managed land-allocation programs (Siegel & Veiga, 2009). It has been argued that, starting with formalizing the sector, addressing power imbalances and supporting small-scale miners to access claims that have geologically proven reserves, would help to improve relations between LSM and ASM and ameliorate instances of conflict (Hilson, 2013; Verbrugge, 2017).

Working with local communities is not only important to meet legal and voluntary requirements and ensure communities (including local small-scale miners) benefit, but increasingly it is also necessary to gain the social license to operate. However, in some cases Corporate Social Responsibility (CSR) has had negative impacts on ASM–LSM relations. Characterized by long histories of tension and mistrust as a result of years of poor communication and engagement, and failed promises, some CSR programs do little to benefit the local community and may instead act to fuel poor ASM–LSM relations. This is particularly the case when mining concessions change hands between different, discrete



mining companies multiple times over the course of a mining life cycle, and is particularly acute at the exploration phase.

Beyond CSR, it is also important to consider ways in which mining companies can contribute to the shared value of the local communities and businesses in which they operate. These can be through linkages to local input services and business, local content initiatives, ensuring they have a positive sustainable impact, and, if necessary finding ways to interact positively, dialogue, and work with ASM (Prieto-Carrón et al., 2006; Kemp, 2009; Ramdoo, 2013; Geipel, 2017).

There exist a number of potential governance and policy considerations, ranging from the complete separation of the two activities to finding ways in which the two can work together side by side. Given the highly heterogeneous, dynamic and diverse nature of ASM and the varied socio-political landscapes in which activities take place, such intervention would need to be assessed on a case-by-case basis. Any approach would be most effective by being embedded within an inclusive and holistic formalization program that prioritizes the socioeconomic development of ASM.

Four main governance and policy considerations regarding ASM–LSM interactions are outlined here.

A. SEPARATE ASM AND LSM BY DEMARCATING CONCESSIONS FOR ASM AND CREATING “ASM ZONES”

Given that the majority of tension and conflict between ASM and LSM is due to access to land and the imbalance of power between the two, it is argued that there is a need to demarcate specific areas for ASM activities with proven geological reserves. Furthermore, in order to be successful, ASM zones need to be located in areas that miners want to mine. Encouraging mining companies to shed unwanted or unused land as part of their concessions, and preventing exploration companies from speculating and selling land multiple times without breaking ground could help free up more areas for ASM activities and prevent illegal encroachments (Steinmüller, 2017; Hilson, 2017).

B. REMOVAL OF ASM FROM LSM CONCESSIONS

This is the least effective measure. Companies will often remove small-scale miners from their concessions by force, which is completely legal. However, it is unlikely to yield any meaningful solution in the long run given the way in which it is conducted and the fact that many informal miners may feel it is their land or that they have the right to mine there.

C. COOPERATING, INCORPORATING AND TRANSFORMING ARTISANAL AND SMALL-SCALE MINERS

There are numerous ways in which large-scale mining companies can work with small-scale miners, including by shedding and identifying land for ASM activities within their concessions and exploring the potential for tribute and buy-back arrangements, technical support, equipment leasing schemes, support formalization, and opportunities for small-scale miners to process and refine their ores, thus making them part of their supply chains (CASM, 2009). The mineral governance framework should effectively prioritize ASM and address power imbalances enabling small-scale miners to access high-value areas with proven geological reserves.

D. DIALOGUE BETWEEN ASM AND LSM

The process of consultations, sharing of information regarding concessions, and agreements between LSM and ASM should begin in the exploration phase and include all affected stakeholders. There is also a need for better information, understanding and awareness of customary and statutory laws and regulations that affect land for small-scale miners. Governments need to play a role in creating streamlined dialogue and communication channels between LSM and ASM, that outlast changes in ownership and licensing, and help small-scale miners to have a voice and air their grievances in effective ways that mitigate the potential for conflict (CASM, 2009; McQuilken & Hilson, 2016).



4. ALTERNATIVE LIVELIHOODS AND DIVERSIFICATION

There is a body of work looking at livelihood diversification in rural areas more broadly (and particularly in relation to agriculture) but without a focus on ASM. This provides good background context to the issue.

Hilson and Garforth (2012) argue that “agricultural poverty” (hardship induced by an over-dependency on farming for survival), has fuelled the rapid expansion of ASM operations throughout sub-Saharan Africa. They argue that the “get-rich-quick” perception of artisanal miners by policy-makers and donors has misinformed sector-specific legislation and extension programs. There is great diversity among those engaged in ASM operations. They range from skilled individuals who have migrated from urban areas in search of work due to redundancy in the private and public sectors, to those whose livelihoods are largely reliant on subsistence farming. This diversity is an important factor not often considered by policy-makers (Hilson & Garforth, 2012).

In 2005, Hilson and Potter (113) found that “a declining standard of living has not only attracted recent school graduates but has also persuaded a wide range of former professionals, semi-skilled labourers, and retrenched large-scale mine workers to relocate to the many rural reaches of the country where artisanal gold mining can be readily carried out.” Similarly, Banchirigah (2008) claims that the numerous and diverse range of employment opportunities provided by the ASM sector—ranging from menial work such as digging, hauling, ore washing, to vending and bookkeeping positions—is one of the key drivers of its growth.

Attempting to move people straight out of ASM into other livelihoods is not a realistic approach given the lack of alternative employment opportunities and the fact that most alternative livelihood programs have not been successful. Value addition or beneficiation programs to encourage diversified income-generating activities as part of the ASM supply chain—rather than trying to divert miners into alternative livelihoods—have also shown promise.

According to Hilson (2016c), policies and institutions need to recognize and respond to the complementarities and linkages between agriculture and ASM rather than one or the other as alternatives. This is particularly the case in sub-Saharan Africa, where an “alternative livelihoods agenda” that focuses on moving people away from informal ASM to farming has been promoted. This agenda has failed to recognize that “a great number of these individuals are already involved in various agricultural activities” (Hilson 2016c, 557). Families turn to ASM to supplement their farming earnings and invest in farming and farm inputs in, for example, Ghana, Tanzania and Madagascar.





5. MINERAL CERTIFICATION SCHEMES FOR ASM

Over the past decade, a number of ethical mineral certification schemes that either directly target or include provisions for the ASM sector have been developed. Promoted by their designers as being development interventions with a potential to play a key role in formalization and addressing the negative social and environmental impacts of operations (Blackmore et al., 2013; Echavarria, 2014; IGF, 2017).

Two broad categories of certification initiatives have emerged. The first group comprises those that fall under the umbrella of Fair Trade, termed here as “ethical mineral certification schemes and standards.” These are also aligned more closely with development and sustainability interventions in their efforts to foster responsible artisanal and small-scale mining cooperatives, provide assurances concerning minimum standards of production, and support the wider formalization of the sector, in the process addressing its associated negative socioeconomic and environment impacts.

The second group of certification schemes is made up primarily of “chain of custody” initiatives concerned with ensuring traceable and transparent supply chains from mine to market that are free from conflict and human rights abuses. These initiatives are borne largely out of the need for companies within global mineral supply chains to meet international regulations, voluntary codes and initiatives, and ensure good business practices.

The majority of certification activities that directly target ASM have been focused in Latin America—where the original Fairmined and Fairtrade Gold Standards (FFGS) (Maldar, 2011) were developed and piloted from 2009 to 2013—and sub-Saharan Africa, where the main focus has been in developing conflict-free, traceable and transparent supply chains and where both ARM and FLO are undertaking pilot schemes to scale up their certification initiatives.

Overall, progress has been made in terms of bringing these standards and mineral certification schemes to fruition in the first place; their contribution in reaching and raising the profile of marginalized ASM communities and their daily challenges to a global audience and consumers; helping to address the negative impacts of ASM activities through working with operators to become certified and the related benefits of doing so; and, ensuring a more responsible approach to sourcing minerals in conflict affected and high-risk areas (Levin, 2010; Blackmore et al., 2013; Childs, 2014a; Hilson & McQuilken, 2016). However, there are a number of concerns in the wider academic literature regarding the current implementation and future long-term potential of certification initiatives for the ASM sector.

Key considerations and refinements to maximize the potential of such certification initiatives in reaching as many artisanal and small-scale miners as possible and in their contribution to supporting the wider formalization of the sector include:

OVERCOMING ELITE CAPTURE, SELECTIVE EMPOWERMENT AND TARGETING “LOW-HANGING FRUIT”

There are concerns that certification initiatives are not reaching the “poorest of the poor”—the most marginalized ASM communities in need of greatest support—but targeting low-hanging fruit, and empowering a select group of already licensed and in some cases relatively affluent and highly organized mining cooperatives able to meet the criteria. This is due to the requirements and burdensome costs that mining communities have to meet in order to become certified which are deliberately stringent, mirroring the approach taken in agriculture.

To extend the benefits of certification, more needs to be done to address the fundamental and structural issues of informality. This can be through advocacy and dialogue with government, and to work with unlicensed, informal groups to help bring them into the legal domain where they may then be supported to become certified (Fridell, 2006; Hudson et al., 2013; Blackmore et al., 2013).



GREATER UNDERSTANDING OF THE COMPLEXITIES, FUNCTIONING, AND LOCAL DYNAMICS OF ASM

There is already evidence from FLO's pilot project that the differences in ASM operations as well as the social, cultural and economic conditions between Latin America—where the original Fairtrade and Fairmined Gold Standard were developed—and sub-Saharan Africa have been greatly underestimated, slowing both the progress and impact of their interventions (Keller et al., 2013; Hilson & McQuilken, 2016). Extending schemes to work with middlemen rather than cutting them completely out of supply chains could be a more bottom-up approach that keeps more value created by mining activities in-country and in local communities. A greater understanding of the functioning of ASM supply chains and the roles of the multiple actors within them is therefore needed. Furthermore, approaches to certification need to be adapted in order to take account of local dynamics and to avoid displacing legitimate market players.

LONG-TERM SUSTAINABILITY AND CONSUMER DEMAND

There are concerns regarding the longer-term sustainability and viability of fair trade mineral certification schemes due to their reliance on Western markets, ethical consumption, and catalytic bodies such as FLO. At present, most of the schemes are geared toward supplying the ethical jewellery market; however, there is no requirement for sustainable and ethically sourced minerals to come from ASM.

Certification should therefore be seen as a way to ensure supply chains are traceable and transparent and free from conflict. They should also raise awareness of the plight of small-scale miners and effect greater changes in society, provide a source of ethical minerals for the jewellery and electronics sector, and support a select number of miners and their communities to improve their position. Certification may complement formalization efforts in ASM, but it should not replace or be prioritized over wider formalization programs and policies. Until the more fundamental barriers to formalization are addressed, and the majority of miners are formalized, certification will remain limited in its ability to support large numbers of artisanal and small-scale miners in breaking free from the poverty trap.





6. ASM FORMALIZATION AND THE GLOBAL POLICY DEBATE

Globally, estimates suggest that in many countries 70 to 80 per cent of small-scale miners are informal (ILO, 1999) and in some countries these figures are even higher (EEITI, 2015). As a result of the sector's pervasive informality, a wide range of damaging socioeconomic, health and environmental impacts and development challenges has emerged, trapping the majority of miners' cycles of poverty and leading to community impoverishment (Hilson & Pardie, 2006).

Informality also leaves the sector open to corruption, embezzlement, and criminality and results in lost revenue for local and national governments. The position of the majority of miners operating informally, illegally and outside of formal governance frameworks means they are not afforded the benefits of legal protection, nor are miners or their communities able to access support services needed to address the negative "expressions of informality" leaving them out of reach of government (Hilson & Hilson, 2015).

Formalization is, therefore, more than just legalizing and regulating economic activities. It also concerns the activation, monitoring and enforcement of such regulations as well as the inclusion of marginalized miners in the process of developing, adapting and revising legal frameworks and support to meet such regulatory obligations in order for them to be effective.

A broad-based, integrated and inclusive approach to formalization needs to be taken, focused on the poverty-driven aspect of the sector. To be effective, formalization needs to address the following key areas:

SUPPORTIVE AND COMPREHENSIVE LEGAL FRAMEWORKS

The ASM sector is often a policy afterthought, and its largely poverty-driven characteristics are not accounted for (UNEP, 2013; Hilson & McQuilken, 2014). Legal frameworks therefore need to be adjusted to remove the barriers to formalization, be supportive and accessible rather than punitive, and account for the diversity of ASM operations.

STREAMLINED AND ACCESSIBLE LICENSING PROCESS

Despite many countries having a short time period (10 days to one month) to award licences upon receiving the application, the process of obtaining a licence can be a challenging, costly, time-consuming, and onerous task. Applicants are often required to travel long distances to regional and national government offices to obtain the necessary documentation and submit applications; in some cases, making informal payments to brokers and corrupt officials along the way. Nonetheless, they wait for up to several months or even a year to hear back and finally receive their paperwork due to the lengthy bureaucratic process involved, centralization of government, and overlapping or unconnected institutions at national and local levels.

These factors either preclude or discourage the majority of miners from obtaining a licence, making the process open only to an elite group who are often well connected and are able to navigate and afford it. The licensing process in many countries therefore needs to be streamlined in order to make it easy and rewarding to obtain a licence, and reduce the costs associated with doing so.

ACCESS TO GEOLOGICALLY PROSPECTED LAND

Demarcating geologically prospected areas specifically for ASM activities so that miners can access finance and support services by using the geological information as collateral for bank loans could help confine activities to specific areas and thus improve both the social and environmental impacts of ASM. The costs of geological prospecting are often high for governments. One way around this issue could be to ensure large-scale mining companies and prospectors are required to shed off



land deemed uneconomical for industrial mining but suitable for ASM, and to retain data for use by national geological survey departments.

TECHNICAL AND FINANCIAL SUPPORT

Artisanal and small-scale mining communities need technical and financial support to meet the requirements of obtaining a licence and, once licensed, to continue to improve the efficiency and impacts of activities.

Dialogue Between Government and ASM

To ensure that formalization efforts are aligned with realities on the ground it is essential that ASM miners are involved in the process of formalization. The development of ASM mining associations to establish a conduit for positive regular dialogue between government and miners is therefore needed, and miners need to be consulted on changes. More research with mining communities is also needed in order to understand the complexity and functioning of operations in host countries.





7. INITIATIVES AND STRATEGIES FOR SUSTAINABLE ASM

There have been various initiatives and interventions by key players, particularly governments, international bodies and the private sector through the following areas:

GEOLOGICAL DATA

There are limited examples of geological services being provided to ASM operators (or available in an accessible form), as government and donor attention in this area has tended to focus on LSM and attracting foreign investment (Huggins, Buss & Rutherford, 2017; Hilson & Maponga, 2004; Clifford 2011; Siwale & Siwale, 2017). Miners “are instead left independently to assess land, through costly consultants or unreliable basic prospecting” (Clifford 2011, p. 359).

According to Hilson and McQuilken (2014, p. 6), a number of African countries began providing assaying services for ASM operators in the 1990s, through funding from the World Bank and German Technical Cooperation (GTZ). For example, an assaying facility was installed in Tarkwa, Ghana; however, such analytical techniques were not suited to the targeted ordinary miners that lack the knowledge needed to adopt it.

Aryee, Ntibery, and Atorkui (2003, p. 138) mention an initiative in Ghana funded under the World Bank’s Mining Sector Development and Environment Project (see EPC, 1994; World Bank, 1995) focused on “providing better geological information to small-scale miners through the assistance of geologists working in the field to delineate recoverable ore bodies on small-scale mining concessions.”

Due to a focus on LSM investment, a number of donor projects have aimed to improve the efficiency and transparency of mining cadastre systems in Africa through the introduction of computerized and decentralized cadastres and GIS technologies (World Bank 2012b, 2012a; Ortega, Pugachevsky, & Walser 2009; CEEST 2009). For example, in 2015 the Australian government provided funding to the Minerals Commission of Ghana for a two-year project to develop a fully GIS-based computerized Mining Rights Cadastre system for processing, managing and monitoring mineral rights and licences in Ghana (Essabra-Mensah, 2015; Australian High Commission Ghana, 2015; GNA 2016). The online repository (web-based portal) was launched in July 2016 (Amadou, 2016), replacing the previous semi-computerized Mineral Rights Administration System and presenting two datasets: LSM and ASM licences (GNA, 2016).¹

FlexiCadastre is a mining cadastre and mineral rights management system developed by the company Spatial Dimension, launched in 2003 after the company won a World Bank-funded project to implement a new computerized mining cadastre system for Mozambique (Spatial Dimension, 2015b). It has since implemented a number of World Bank Sustainable Management of Mineral Resources Projects (SMMRP). The system uses a web portal for data management and GIS technologies to facilitate the administration of mineral titles in multiple jurisdictions with the aim of improving stakeholder communications, reducing corruption and improving transparency (CEEST, 2009; Spatial Dimension, 2014). It can be used for both LSM and ASM (Spatial Dimension, 2013). Countries in Africa currently using the FlexiCadastre system include the Democratic Republic of Congo, Ethiopia, the Ivory Coast, Kenya, Liberia, Mozambique, Rwanda, Senegal, Tanzania, Uganda, and Zambia (Kolver, 2013; ArcGIS, 2014).

Some problems with accessing the system have been reported in regional offices. For example, in Tanzania, it was reported that the server is based in the capital city and very slow in regional areas; mining officers reported that it could take up to two hours to access the system and they could enter and search for one or two licences during this time (CEEST, 2009). In Nigeria, a similar system sponsored by the World Bank SMMRP (but developed by a different company) has also encountered

¹ According to Amadou (2016) the Minerals Commission had been attempting to implement a fully-fledged cadastre system since 1999.



various challenges, including the absence of supporting datasets and lack of system maintenance, as well as data entry issues such as duplication of entries and inconsistent spelling (Ozah et al., 2010). The lack of adequate and uninterrupted electricity supply also caused problems for the computerized system. These types of basic capacity and infrastructure challenges need to be considered when implementing technological strategies to improve the governance of ASM in developing countries.

CAPACITY BUILDING

Poor understanding of the makeup and dynamics of ASM communities has led to the design of many inappropriate technologies and support services (Hilson & Potter, 2003; Hilson, 2006; Banchirigah, 2008). Hilson and McQuilken (2014) criticize the technical support provided by donors through the 1980s and 1990s for their top-down approach, lack of knowledge of target populations and local context, as well short-term nature and lack of planning for ongoing funding and support to ensure the sustainability of interventions. This issue is not confined to that period and can still be seen in interventions today.

More recently, World Bank-funded initiatives in Tanzania—which include setting up new technical advisory services in existing state institutions like the Geological Surveys, national universities and vocational training institution—have been praised for focusing on local institutional partnerships (Fold, Jønsson & Yankson, 2014). Similarly, a recently established agreement in Ghana between the Minerals Commission, National Association and University of Mines and Technology (UMaT) and the Ghana National Association of Small Scale Miners (GNASSM) will develop a training program consisting of “six training modules aimed at teaching good practices in surveying, prospecting, mining, mineral extraction and environmental and safety management to small-scale miners in the nine mining Districts in the country” (Yeboah, 2015, n.p.).

Another relatively successful project was a three-year regional program run from 2013 to 2016 in Mali, Burkina Faso and Senegal through the Global Environment Facility (GEF) and UNIDO, focused on the transfer of mercury-free technologies (UNIDO, 2015; ARM, 2017). This program provided health education and technology training programs based on workshops, seminars and trainings, as well as assistance to mining communities to obtain Fairmined® Gold certification.

Encouraging miners to form cooperatives and associations is another well-praised initiative. It has the potential to aid successful capacity building and ultimately encourage formalization and more responsible mining practices, along with sharing of knowledge and resources).

There is some potential for large-scale mining companies to provide capacity building in the area of environmental management to the ASM sector, particularly when working with associations or cooperatives. Lombe (2003) provides some examples of successful cases of large-scale mining companies providing mentorship on best practices to artisanal and small-scale miners in South Africa and Zimbabwe. A further example is Bolivia, where the Coeur d'Alene Mines Corporation works via joint venture with organized ASM cooperatives representing 15,000 local artisanal miners (Pact, 2015).

ACCESS TO CAPITAL

MICROFINANCE (CREDIT AND SAVINGS)

Drawing on experience from the implementation of microcredit for ASM operators in the Yale mining camp in Talensi-Nabdam District, Northern Ghana, Hilson and Ackah-Baidoo (2011) recommend that the principles that made the Grameen Bank successful should be applied to ASM microcredit programs. These include social collateralization (i.e., money is lent to groups of people who are more likely to pay a loan than individuals); devolved responsibility to borrowers; and borrower discipline. Microfinance schemes in Tanzania have met with relative success as they have followed the Grameen



model, which encourages “individuals [to] unite and form ‘trust groups’ (typically, five–eight people who know each other) to borrow money or equipment collectively, and to hold each other accountable for repayments” ((Hilson & Ackah-Baidoo, 2011, p. 1195). Both Spiegel (2012) and Hilson and Ackah-Baidoo (2011, p. 1194) suggest that equipment loans could be a better alternative to cash to ensure that “finances dispensed are used to purchase the required technologies and not siphoned” (Hilson & Ackah-Baidoo, 2011, p. 1194).

GRANTS

A World Bank SMMRP run from 2004 to 2012 in Nigeria provided a total of 245 grants totalling roughly USD 9 million to 147 ASM cooperatives as well as 98 community entities, which included subprojects to enhance granite, sand, gravel and laterite quarrying (IEG, 2014b). Another World Bank SMMRP run in Uganda from 2003 to 2011 included a community grants scheme which provided grants to pilot safer and more efficient ASM practices. To receive a grant, miners had to form a group and be further trained in financial management and procurement (Sheldon et al., 2013). An unexpected consequence of the training and grants scheme was that it motivated several ASM associations to start Village Savings and Loan Associations that could provide small loans to members in times of need.

GOVERNMENT LOAN FACILITIES

Siegel and Veiga (2010) suggest that rather than focusing on grants, donors could assist in setting up user-friendly government loan facilities and carrying the risk. The authors provide examples of two successful government loan facilities for the ASM sector in Namibia and Mozambique. Tanzania has also taken steps through World Bank-financed initiatives to provide small-scale grants from a revolving fund and establish an equipment leasing scheme (Fold, Jønsson, & Yankson 2014). The Zimbabwe Government Mining Industry Loan Fund is another example of specially designed equipment loans and cash loans to ASM, which although short-lived was considered to be best practice (Spiegel, 2012).

ACCESS TO EQUIPMENT

One of the main bottlenecks for ASM operators is the lack of resources to be able to “replicate or adapt mining techniques.” As a case in point, the Chinese presence in Ghana is strongly related to their advantage over access to both equipment and finance (Hilson, Hilson, & Adu-Darko, 2014).

UNECA (2002, p. 82) describes in detail specific best practice technologies in ASM, including for drilling, blasting, surface mining underground mining and processing (crushing, grinding, sizing, flotation and gravity concentration techniques) and provides the following list of success factors in the use of ASM equipment:

- Is simple in design and can be produced locally
- Uses accessories, e.g., grinding media that are readily available
- Is mobile and easy to install and operate
- Is powered by small diesel engines (diesel is available in most mining areas)
- Is cheap and can be afforded by individual miners
- Is efficient and has minimal environmental impacts
- Has low power consumption
- Utilizes selective mining techniques that allow focusing on particular types and grade of ore
- Applies methods that combine both manual and mechanized processing techniques.



HIRE PURCHASE LOAN SCHEMES

Attempts to improve artisanal mining technologies may be most effective if they encourage groups (rather than individuals) to collectively acquire new equipment through hire purchase loan schemes (Spiegel & Veiga, 2005).

Along with the assaying laboratory and processing plant set up in Tarkwa, Ghana, in the early 1990s, the Minerals Commission also set up equipment at other field sites, and had an equipment leasing scheme, whereby equipment manufactured in collaboration with local fabricators was made available on a sale or loan basis (UNECA 2002, p. 29; Hilson & McQuilken 2014, p. 6). The Global Mercury project also included a hire purchase scheme to assist miners to progressively buy a range of equipment.

CENTRALIZED PROCESSING CENTRES

Centralized processing centres are one way to reduce mercury emissions in ASM. The first processing centres were established in Ghana, Venezuela and Zimbabwe, by governments and other project donors. As well as providing processing facilities, the centres have served a role in the provision of information about environmental management (Hinton, Veiga, & Veiga, 2003). Unfortunately, they have faced a number of issues based in large part on a lack of prior research of their target beneficiaries. A centralized processing centre in Bolgatanga, Ghana, for example, was underutilized because it was too far away from the mining area and the equipment wasn't tailored to local geological conditions (Hilson, Hilson, & Pardie, 2007). In addition to the cost of transporting ores to processing centres, the centres require ongoing resources for labour, equipment, maintenance and administration (UNIDO, 2015).

The Government of Ghana has recently announced the five-year Multilateral Mining Integrated Project (MMIP), expected to cost USD 10 million dollars, which among, other activities, intends to set up a centralized processing plant that miners will be able to use for a fee (Citi News, 2017b; Asamoah, 2017).

There is certainly a sense that everyone wants to have the next “great idea” for fixing the “ASM problem,” without drawing on lessons from the past. It appears that with technical support provided to ASM, the same ideas are cyclical, and there is a need for initiatives to build on previous knowledge and successes and failures.

LICENSING AND LAND-RELATED ISSUES

ASM is often supported by informal and customary land tenure systems (for example, because traditional authorities can gain financial benefits from the sector and thus give permission for ASM operators to work on their lands), which frequently conflict with formal land rights and licensing processes (Nyame & Blocher, 2010; Banchirigah, 2008; Hilson & Yakovleva, 2007). Conflicting land registration systems can cause additional complications and because of this, more attention needs to be given to understanding informal or customary land rights and their intersection with ASM (Spiegel & Veiga, 2010).

There are examples of artisanal and small-scale miners selling their ore (or even tailings) to LSM companies, who have the equipment necessary to extract it more efficiently. For example, in the Katanga province in the DRC, Pact has facilitated arrangements where an industrial producer buys from local ASM organizations operating on or around their concession.

Mitchell (2016) discusses the use of geographical information system (GIS) mapping to understand overlapping land use. This data is generally not made public or is accessible only by paying expensive fees. However, there is potential for broader use in resolving disputes over overlapping claims to land (including ASM). Mitchell mentions USAID's Mobile Application for Secure Tenure (MAST), which provided training, support and technology for Tanzanian landholders to map their (World Bank-promoted) Certificates of Customary Rights of Occupancy (CCROs) using mobile technology.



Others have attempted to use GIS data for mapping ASM activities. For example, Patel et al. (2016) identify areas of small-scale mining (SSM) activities using a classification of remotely sensed Landsat data to determine locations of spatial overlap between SSM and LSM concessions, in the context of conflict between LSM and ASM. More recently, a project based at the University of Adelaide and working in Burkina Faso and Mali is looking at optimizing potential land-use scenarios (including LSM, ASM and agriculture) using remote sensing data and mapping products (Ostendorf, Bolster, & Williams n.d.; personal communication, 2016).

Overall, there is still a lot of work to be done in many countries to improve the knowledge of communities and traditional authorities in terms of ASM licensing processes and land management.

ASM REGULATIONS AND POLICIES

O’Faircheallaigh and Corbett (2016) investigate policy and regulatory responses to ASM around the world using a heuristic model with two key variables: geographical scope (i.e., national or regional/local) and the extent to which policy and regulation is coercive or incentive-based. The authors conclude that regulation should be focused on the local or regional level to be effective, but have a level of central coordination. They also found that most regulations and policies for ASM tend to have a mix of incentives for miners to formalize (e.g., offering educational, technical, financial and infrastructure support, access to formal mining rights, and allocation of land for ASM), as well as coercive regulation and policies (e.g., military crackdowns or taskforces).





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