

Concept Note and Schedule - Miners, Minerals, and Minamata: Interdisciplinary perspectives on Artisanal Gold Mining and Sustainable Development

Artisanal Gold Mining (AGM) supports 15-20 million livelihoods worldwide, with up to ten times that number of indirect dependents. Overall, artisanal miners operate in over 70 countries, accounting for 12-18% of global mineral production (IIED 2014; UNEP 2013). AGM can provide better wage creation for rural communities than agriculture, fishing or forestry, (Siegel & Veiga, 2009), but has traditionally been seen in a negative context i.e. illegality, land-use conflicts, social marginalization, gender discrimination, child labor, and poor environmental performance. Consequently, AGM has received a small proportion of development aid relative to its contribution towards rural livelihoods in Asia, Latin America and Sub-Saharan Africa.

In recent decades, academic institutes, the United Nations, and development agencies promote advancement of AGM as a livelihood strategy, with a growing body of literature and continued development of best practices to minimize adverse social and environmental impacts. Despite recent progress, complex challenges remain for scientists, practitioners, policy makers and bi-lateral cooperation to support the AGM sector at global, regional and local scales. Given the global nature of mineral supply chains, trade and growing patterns of consumption to meet emerging demands, international cooperation must be encouraged for vulnerable populations in developing and emerging economies to harness the potential of and equitably benefit from mineral resource endowments.

Canada is home to 57% of the world's mining companies (OECD, 2014) and about 2,400 Canadian mining and exploration properties are located in developing countries (DFATD, 2015). Recognition of the sector's connection to poverty alleviation and conflict mitigation between artisanal miners and large-scale mining companies has rapidly increased in the last decade (ICMM, 2009). Despite numerous international conferences and initiatives seeking to address policy issues on mining and sustainable development, few acknowledge AGM directly. In many cases, artisanal mining is considered a peripheral issue in the extractive industries, rather than a sector in its own right. Conventions, standards and platforms that mention artisanal mining such as the International Finance Corporation (IFC) Performance Standards, the Global Reporting Initiative's Mining and Metals Supplement, and the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, have emerged in recent years. In contrast, voluntary principles on human rights, the Extractive Industries' Transparency Initiative (EITI), and the International Council on Mining and Metals' (ICMM) Sustainable Development Principles fail to discuss AGM within a clearly articulated context.

AGM contributes to more than 37% of global anthropogenic mercury (Hg) emissions by amalgamation processes to extract gold from concentrated or whole ore (UNEP, 2013). Today, this represents almost 1,500 tons of mercury being released into air, soil and aquatic environments. Owing to its infinite persistence, Hg contamination is a legacy that transcends generations, geopolitical boundaries, environmental media and trophic levels. Recognition of mercury as a global pollutant is addressed directly by the Minamata Convention with the objective to reduce, and where possible, eliminate its use in industrial applications to safeguard human and ecosystem health (UNEP, 2013). Minamata is also the first Convention that explicitly targets artisanal mining (Article 7) through legislative reform, awareness raising, technology transfer and capacity development at operational and strategic levels. Despite prospects for poverty reduction through mining revenues, public health impacts of mercury use are severe and illicit trade remains a persistent issue for national governments.

With the recent adoption of the Minamata Convention on Mercury in 2013, the global community urgently requires solutions to advance, sustain and support artisanal miners and their families. Interventions must consider development perspectives well beyond issues associated with mercury. Due to the complex socio-ecological linkages associated with AGM, any meaningful dialog must consider its role in local communities, regional cooperation, global markets and broader sustainable development initiatives. Assessments of the social, economic and environmental impacts associated with AGM require integrated and interdisciplinary approaches to identify knowledge gaps and prioritize key development challenges at the leading edge of the post-2015 development agenda.

With support from the Peter Wall Institute for Advanced Studies, the [Centre for Artisanal Mining Innovation \(CAMI\)](#) will develop the International Research Roundtable *Miners, Minerals, and Minamata: Interdisciplinary perspectives on Artisanal Gold Mining and Sustainable Development* to advance knowledge on artisanal mining through a high-level integrated assessment and knowledge sharing. Through interdisciplinary communication and cooperation the Roundtable will address global knowledge gaps, propose solutions through collaboration, and enhance awareness about science and policy challenges in AGM. The outcomes will foster coordination between the University of British Columbia (UBC) and a diverse cross section of the sector, including international technical experts, leading practitioners and scholars, the United Nations and donors.

The roundtable objective is to: i) *Identify* knowledge gaps, ii) *prioritize* research areas and iii) *propose* solutions addressing multi-scale issues in AGM to support knowledge mobilization, strengthen partnerships and target key areas for intervention and future research grant development. Major outputs include academic publications in high impact journals, infographic and public outreach materials, an agenda for action and online knowledge-sharing platform, an agenda for priority international research projects as well as public events.

Identifying forward and backward linkages for value addition, economic spillover effects, determinants of social conflict, models for legal formalization and capacity development, conservation priorities, and co-existence with industrial companies are high on the development agenda. Consideration of regional, national and community level elements will assess science-policy dynamics at three scales of inquiry, centered on interactions between livelihoods of miners (local), minerals (national/regional) and the Minamata Convention (global policy) to capture diverse perspectives on the role AGM plays within sustainable development initiatives. Designing an effective integrated assessment and management system for multi-scale and complex problems such as AGM however, is not a one-time enterprise but part of an ongoing process. Therefore, the Roundtable will also promote awareness and long-term collaboration between academics, institutions and the public.

Our goal is to identify and prioritize knowledge gaps associated with the [Minamata Convention](#) and artisanal gold mining, through a multi-scale assessment framework. All recommendations are to be interpreted by Minamata, inclusive of relevant texts and annexes, including but not limited to the following:

- Article 7: Artisanal and Small-scale Gold Mining, Annex C
- Article 12: Contaminated sites
- Article 14: Capacity-building, technical assistance, and technology transfer
- Article 16: Public health aspects, especially for women and children
- Article 17: Information Exchange
- Article 18: Public information, awareness, and education
- Article 19: Research, development, and monitoring

Roundtable Structure and Expectations of Roundtable Participants:

The **Core Team**, led by the primary investigators (Ludovic Bernaudat and Marcello Veiga) and roundtable coordinator (Kirsten Dales) will define the final list of **Roundtable Participants**, assign speakers, composition of groups and chairpersons. Participants will be assigned to one of two thematic groups; **1) State of the Science**; and **2) Global Policy Paradigms**, based on their research and expertise.

A team of **Emerging Scholars and Practitioners (ESP)** will assist in reviewing and producing background information (papers and infographics); designing and implementing knowledge sharing resources (online outreach resources; report and survey templates); and designing and developing awareness raising resources (publications and public events).

The **background information** will include short papers and infographics presenting overviews of the current state of knowledge on State of the Science and Global Policy Paradigms and a preliminary research gap analysis associated with the Minamata Convention and AGM.

The **knowledge sharing platform** will include online resources for promotion of roundtable activities collaboration, synthesis and reporting of results. Participants will review the background information (submitted 7 days before the event), and prepare *ex-ante* questions and commentaries to stimulate early inquiry and collaboration. Survey and reporting templates will be filled out by participants to summarize results at the end of each discussion day. Awareness raising and outreach of results and proposals of the workshop will be presented by roundtable chairs during the **plenary session** with decision makers and the academic community and during a **public outreach event**.

Two-day workshop: Science-policy gap analysis, December 1st – 2nd 2015

The roundtable will have a two-day workshop format, each with a specialized focus: **State of the Science (Day 1)** and **Global Policy Paradigms (Day 2)**. During the workshops, selected researchers, practitioners, and technical experts will present worldwide study cases to level participants on the background knowledge and multidisciplinary science and policy challenges of AGM systems (e.g. biophysical, social, health, economic, regulatory). Roundtable participants will develop discussions for integrated assessments and gap analysis within groups during World Café style roundtables. Each afternoon session will create an interdisciplinary environment to explore key questions, encourage general contribution, connect diverse people and ideas through discussion. Results will be synthesized after each section with daily inputs collected from survey and reporting templates.

One-day plenary: Agenda for action and public outreach, December 3rd, 2015

On **Day 3**, roundtable participants will participate in a **plenary session** for targeted discussions with a strategic audience of scholars, leading development practitioners and policy makers. Presentations prepared by chairs to **prioritize research areas to advance knowledge** based on the results of the discussions will be presented during the afternoon plenary session on December 3rd. Chairs and the core team members will discuss key themes raised during the workshop and **propose coordinated projects** to support priority areas that advance research excellence, intercultural innovation and promote global partnerships in AGM. The plenary will be open to an audience of academics, researchers, practitioners, stakeholders and decision makers from several countries and the UBC community. A **public outreach event** at the [UBC Museum of Anthropology](#) for knowledge sharing and awareness-raising will close roundtable activities on the evening of Day 3. The event will feature an exhibition of global collections and artifacts, linked with gold, mining and alchemy and a selection of photographs and videos by researchers and participants highlighting key challenges and leadership on AGM, human development and global environmental stewardship.

Knowledge mobilization plan:

Knowledge mobilization for the research roundtable will enhance awareness of science-policy issues related to artisanal gold mining at local, national and global scales. The **Centre for Artisanal Mining Innovation (CAMI)** will coordinate roundtable activities to address major knowledge gaps identified by policy makers, technical experts, and the Minamata Convention Secretariat. Systematic reporting will enable synthesis and assimilation of Roundtable results to develop supporting academic and education materials, training curriculum and engage a **broader public audience** through knowledge transfer. Content generated from the roundtable and platform will be appropriately cited and used for educational curriculum development and research projects at UBC and beyond.

Roundtable timeline and important dates

The timeline, key dates and activities related to the roundtable and public events are presented below. **October 15-28th 2015 – Promotion of roundtable activities, participant information and logistics**

Participants will be contacted by the roundtable coordinator to finalize travel arrangements, assist with visa requirements and provide logistical support. All confirmed roundtable participants must send a short biography for the Roundtable website, including photo and contact information.

- **November 21st, 2015 - Distribution of guidelines for participants, roundtable speakers and session chairs**

Guidance and expectations documents will assist participants in preparing for the development of the integrated assessment workshop. Roundtable speakers and session chairs will receive an additional guidance document, outlining essential preparation for presentation of background data on the State of the Science and Global Policy Paradigms. Participants send biosketches and head photos to compose promotional and collaboration resources.

- **November 24th, 2015 – Promotion, distribution of background information and collaboration package**

Background resources will present the current challenges for science-policy in AGM. Online platform will be promoted for collaboration by participants (online bios, questions, commentaries and contributions). Calls for public events are posted with link for an Eventbrite RSVP via several social media outlets.

- **December 1st – 3rd 2015 – Roundtable workshop, stakeholder plenary, and outreach event**

Each day will consist of morning and afternoon sections with hosted lunch breaks. The afternoon of the third day focuses outreach panel with stakeholders, decision makers, and an evening cultural cocktail event. Water, coffee, and light refreshments will be provided to participants of the workshop all day long. At the end of each workshop day, cocktail events will take place at UBC for networking and social events.

Roundtable Daily Schedule of Events

○ December 1st, 2015 - Workshop day 1 - Miners, Minerals, and Minamata: State of the Science

- *Morning session (8:15 am – 12:30 pm):* At the beginning of the workshop, participants will network during a hosted breakfast. Greeting from primary investigators and core team members will inform participants about the structure, format and expected outcomes of the roundtable.

Selected researchers, practitioners, and technical experts will **deliver 12-minute presentations**, highlighting geographic case studies, historic and contemporary sites affected by mercury, AGM and background of multidisciplinary perspectives on the science, technology and political implications. **State of the Science presentations must be accessible to a non-expert audience, minimizing technical jargon and considering science-policy linkages concerning Convention Articles.**

- 8:15 am - 9:15 am: Registration and welcome breakfast
 - [Peter Wall Institute for Advanced Studies](#)
- 9:15 am – 9:30 am: Greetings and introductory talk series
 - 9:15 am: Dr. Marcello Veiga – Global situation on AGM
 - 9:30 am: Ludovic Bernaudat – Science-Policy and Minamata Convention
 - 9:45 am: Kirsten Dales – Objectives and Schedule
- 10:00 am – 12:45 pm: Global case studies, State of the Science and AGM
 - 10:00 am: From Minamata to Mitigation (Evelyn Swain)
 - 10:15 am: Global mercury source: Almaden, Spain (Dr. Rocio Millian)
 - 10:30 am: Contamination legacies and solutions (Dr. Milena Horvat)
 - 10:45 am: Mercury and environmental health of riverine systems (Dr. Jean Remy Guimaraes)
 - 11:15 am: *Coffee break (30 mins)*
 - 11:45 am: Artisanal gold mining in Indonesia (Ruby Stocklin-Weinberg)
 - 12:00 pm: Mercury and lead co-exposure in Zamfara, Nigeria (Oluyomi Banjo / Kirsten Dales)
 - 12:15 pm: Integrated assessment of artisanal gold in Ghana (Dr. Nil Basu)
 - 12:30 pm: Transboundary contamination in the Puyango-Tumbes basin, Ecuador & Peru (Dr. Adam Kiefer)
 - 12:45 pm: Measuring ecosystem health in response of AGM activities (Dr. David Evers)
- Lunch break (1:00pm-2:00 pm): [Peter Wall Ideas Lunch and Wine Bar](#)
- *Afternoon session (2:00 pm-5:00 pm):* First round of [World Café](#) style roundtable discussions will provide an interactive platform for integrated assessment and gap analysis on the State of the Science. At the end of the session, roundtable chairs will complete and submit a **template reporting and survey**

form to identify key outcomes from each round. Chairs will have assistance from the ESP team and other voluntary students.

- 2:00 pm – 5:00 pm: Roundtable Session 1: State of the Science and AGM
 - 2:00 pm – 2:30 pm: State of the Science: Mining the knowledge gaps
 - Presentation by Dr. Marcello Veiga / Kirsten Dales
 - 2:30 pm – 2:45 pm: Self-introduction of roundtable chairs and rapporteurs
 - 3:00 pm – 5:00 pm: First round of discussions - **State of the Science**
- Participants will be divided in groups (10-12) assigned to individual tables, each with a **roundtable chair** and **rapporteur**, who remains at the same table over the discussion process. After 30 mins, participants are invited to change tables and explore a new issue. The chair explains the table question to participants who arrive for the next round (See Annex B).
- After **two rounds** of progressive conversation, **facilitated dialogue** among the whole group will also include **gathering and recording key ideas**, questions or insights that might be **useful for action planning**. Each roundtable chair will fill out a template form for presentations on Day 3.
- *Evening session (5:30 pm - 8:00 pm):* Wine and cheese event at the [Liu Institute for Global Studies](#) with a presentation by the **Centre for Artisanal Mining Innovation**.
- **December 2nd, 2015 – Workshop Day 2 - Miners, Minerals and Minamata: Global Policy Paradigms**
 - *Morning session (9:00 am - 1:00 pm):* Background and study case presentations on Policy Paradigms in artisanal gold and global policy paradigms.
 - 8:30 am Conference room open to participants
 - 9:15 am – 12:15 pm: Presentations on the Policy and Governance in AGM
 - 9:15 am: Artisanal Gold: Global policy paradigms (Ludovic Bernaudat)
 - 9:30 am: Determinants of mining conflict in Latin America (Zarai Toledo)
 - 9:45 am: Legal and policy challenges: Sub-Saharan Africa (Dr. Jennifer Hinton)
 - 10:00 am: Emerging Asia: Implications for artisanal gold (Marcena Hunter)
 - 10:15 am: *Coffee break (30 mins)*
 - 10:45 am: Illicit financial flows, artisanal gold and conflict (Estelle Levin)
 - 11:00 am: Global mercury trade and regulation (Dr. Jane Dennison)
 - 11:30 am: Legal formalization and mining livelihoods (Susan Keane)
 - 11:45 am: EITI-ASM revenue transparency (Angone Mabolia)
 - 12:00 pm: Extracting Equality: child labour in AGM (Richard Gutierrez)
 - Lunch break (12:15 pm - 1:15 pm): [Liu Institute for Global Issues](#)
 - 1:15pm – 1:45pm **Special session: Science-Policy integration and solutions**

- Global change and decision making (Dr. Hadi Dowlatabadi, Canadian Research Chair)
- Session hosted at the [Liu Institute for Global Issues](#)
- *Afternoon session (2:00 pm– 5:00 pm):* Second round of discussions for an integrated assessment and gap analysis on Policy and Governance.
 - 2:00 pm – 5:00 pm: Roundtable Session 1: State of the Science and AGM
 - 2:00 pm – 2:30 pm: Global Policy Paradigms: Mining the knowledge gaps
 - Presentation by Anthony Persaud / Kirsten Dales
 - 2:30 pm – 2:45 pm: Self-introduction of roundtable chairs and rapporteurs
 - 3:00 pm – 5:00 pm: Second round of discussions – **Global Policy Paradigms**
- *Evening (7:00 – 9:00 pm):* Free evening and option for dinner Downtown Vancouver
- **December 3rd, 2015 - Stakeholder panel: [Robert H. Lee Alumni Centre](#)**
- *Morning Session (9:00 am- 12:00 pm):* Groups meet to finalize presentations (with support from advisory committee members) to be presented by **Roundtable Chairs** during the plenary with stakeholders in the afternoon session.
- Lunch break (12:00 pm -1:00 pm): [Peter Wall Ideas Lunch and Wine Bar](#)
- *Afternoon session (1:00 pm to 5:15 pm):* Plenary section for targeted discussions with a strategic audience of scholars, leading development practitioners and policy makers
 - 1:00 pm – 1:30 pm: Participant introductions
 - 1:30 pm – 2:30 pm: **State of the Science** priorities and knowledge gap panel
 - Presentations by Roundtable Chairs / Emerging scholars and practitioners of roundtable sessions Day 1
 - Panel discussion with roundtable participants
 - *2:30 pm – 3:00 pm – Coffee Break (30 mins)*
 - 3:00 pm – 4:00 pm: **Global Policy Paradigms** priorities and knowledge gap panel
 - Presentations by Roundtable Chairs / Emerging scholars and practitioners of roundtable sessions Day 2
 - Panel discussion with roundtable participants
 - 4:00 pm – 5:00 pm: **Plenary – Solutions for Miners, Minerals and Minamata**
 - Open discussion for solutions and the way forward
 - 5:00 pm – 5:15 pm Overview of key priorities: **Agenda for Action**
 - Conclusions of priority areas for future intervention and investment

- *Evening session (7:00 pm - 9:00 pm)*: Knowledge sharing and public awareness-raising in a cultural setting, at the Museum of Anthropology featuring comprehensive collections and artifacts, linked with gold, mining, and alchemy.
 - 7:30 pm – 7:35 pm: Canadian International Resources Development Institute (CIRDI)
 - Welcome CIRDI CEO, Cassie Doyle
 - 7:35 pm - 7:45 pm: **Ancient Alchemy: Gold and Mercury throughout the ages** - exhibition targeted towards visualizing artisanal mining livelihoods, historical challenges, and modern solutions.
 - 7:45 pm - 8:00 pm: **Agenda for Action: Elements towards a Solution**
 - 8:00pm – 9:30pm: Public Reception and Cocktail, guests free to explore exhibits.

Annex A: Logical framework for results-based management

Roundtable objective: The roundtable objective is to i) *Identify* knowledge gaps, ii) *prioritize* research areas and iii) *propose* solutions addressing multi-scale issues to support knowledge mobilization strengthen partnerships and target key areas for intervention and future research grant development.

Outcome 1: Increased access to information on AGM science-policy challenges and opportunities for the Minamata Convention at local, national and global scales

Outputs	Activities	Executing partners	Indicators
1.1. Background paper 1: (State of the Science) drafted, reviewed and finalized by leading scientists and practitioners identifying knowledge gaps on multi-scale technical challenges for Miners, Minerals, and Minamata	1.1.1. Draft, review and finalize literature review on major technical challenges with environmental fate and transport, legacy effects and geographic monitoring, and technical challenges for artisanal gold mining	Advisory Committee; Emerging scholar and practitioner team; and expert reviewers	<ul style="list-style-type: none"> • No. of draft manuscripts developed for review (1/1) • No. of expert reviews provided for draft manuscript (5/5) • No. of revised background paper delivered (1/1) • No. papers published in peer review journal (1/1)
1.2. Background paper 2: (Global policy paradigms) drafted, reviewed and finalized by leading scientists and practitioners identifying knowledge gaps on multi-scale governance challenges for Miners, Minerals, and Minamata	1.1.2. Draft, review and finalize background paper on local, national and global systems study cases on policy, labour, trade and governance challenges for artisanal gold mining	Advisory Committee; Emerging scholar and practitioner team; and expert reviewers	<ul style="list-style-type: none"> • No. of draft manuscripts developed for review (1/1) • No. of expert reviews provided for draft manuscript (5/5) • No. of revised background paper delivered (1/1) • No. papers published in peer review journal (1/1)
1.3. Knowledge sharing platform designed and established to promote exchange of information between researchers, practitioners, decision makers and the public	1.1.3. Design and establish knowledge sharing platform to promote information exchange between researchers, practitioners, and collaborators	Estelle Levin LLC, Centre for Artisanal Mining Innovation and UNEP	<ul style="list-style-type: none"> • No. of knowledge sharing platforms established (1/1) • No of cases studies developed and published (10/10) • No. of contributions by participants and collaborators managed • No. of knowledge platform users

Outcome 2: Increased ability to identify and prioritize science-policy knowledge gaps and propose solutions through a multi-scale systems approach

Outputs	Activities	Who	Indicators
<p>2.1. Key science-policy knowledge gaps in AGM <i>identified</i> through multi-scale systems approach with technical experts, scholars, United Nations and leading practitioners and leading development practitioners</p>	<p>2.2.1. Design, promote and execute international research roundtable to identify key science-policy knowledge gaps through multi-scale systems approach</p>	<p>Core team members, Advisory Committee; communications team; roundtable participants</p>	<ul style="list-style-type: none"> • No. of international research roundtables executed (1/1) • No. of key knowledge gaps identified for both science and policy perspectives (8/8)
<p>2.2. Science-policy research areas in AGM <i>prioritized</i> through facilitated discussion with roundtable participants</p>	<p>2.2.1. Attend, contribute to discussions and prioritize science-policy knowledge gaps for AGM sector considering multiple scales and interactions of social-ecological systems</p>	<p>Core team members; roundtable participants; Emerging scholars-practitioners; advisory committee</p>	<ul style="list-style-type: none"> • No. of roundtable sessions conducted (3/3) • No. comprehensive frameworks on AGM research needs and governance delivered (1/1) • No. of academic papers published (2/2)
<p>2.3. Capacity of roundtable participants <i>developed</i> to assess AGM through multi-scale systems approach and propose solutions</p>	<p>2.2.3. Develop and implement multi-scale assessment criteria to identify leverage points within identified AGM systems of inquiry</p>	<p>Core team members; roundtable participants, communications strategy team</p>	<ul style="list-style-type: none"> • No. of sensitized roundtable participants to systems based assessed protocol (35/35) • No. of roundtable discussions with multi-scale assessment criteria conducted (12/12)

Outcome 3: Increased awareness of multi-scale livelihood, conservation and development priorities for AGM communities

Outputs	Activities	Who	Indicators
3.1. Awareness of livelihood, conservation and development priorities for AGM raised through knowledge mobilization strategy, infographics and public outreach materials	3.3.1. Develop and deliver knowledge mobilization strategy and infographic outreach materials to raise awareness of livelihood, conservation and development priorities for AGM	Roundtable participants; core team; Emerging scholars and practitioners; expert reviewers; Visual Capitalist	<ul style="list-style-type: none"> • No. of knowledge mobilization strategy documents developed (1/1) • No. of infographics developed and delivered (3/3) • No. of visual recorder artistic works produced (2/2) • No. of papers on AGM submitted to academic journals and periodicals (2/2)
3.2. Agenda for priority action to global interventions on AGM at local, national and global scales developed	3.3.2. Draft and finalize agenda for action to support the AGM sector at local, national and global scales	Core team, Emerging scholars and practitioners, Roundtable chairs, CAMI	<ul style="list-style-type: none"> • No. of Agenda for action policy document delivered to advance roundtable priorities (1/1) • No. of MoUs established between counterparts (1/1)
3.3. Public outreach event designed, promoted and implemented at the University of British Columbia (UBC) to raise awareness about artisanal mining and the Minamata Convention on Mercury	3.3.3. Design, promote and implement public outreach event to raise awareness of multi-scale livelihood, conservation and development priorities for AGM communities		<ul style="list-style-type: none"> • No. of AGM public outreach events executed (1/1) • No. of people attending to the public cultural event (80/80)

Annex B:

