# INTRODUCTION: ARTISANAL AND SMALL-SCALE MINING (ASM) AND SUSTAINABLE DEVELOPMENT GOAL 8 (SDG8)

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## INTRODUCTION

People are at the heart of how artisanal and small-scale mining (ASM) organizes, functions, and succeeds as a significant contributor to major global mineral supply chains. Consider the labor and trade networks involved from an alluvial diamond mine in western Central African Republic to the capital Bangui and onwards to a diamond buying house in Antwerp. For diamonds alone, artisanal production makes up 25 percent of the total global market. Also consider the labor and trade networks that are required to supply 18-30 percent of the world's cobalt, 20 percent of the world's gold, and 80 percent of the world's sapphires. Yet, the role of artisanal and small-scale miners in producing these substantial percentages of the world's minerals garners little attention. Even less so is attention paid to the conditions in which most of this informal economy's laborers operate, except for emotive topics such as child labor or conflict. The *2020 State of the Artisanal and Small-Scale Mining Sector* report fills some of these important gaps in understanding and identifies how ASM's contribution to the achievement of Sustainable Development Goal 8 (SDG8) Decent Work and Economic Growth could be maximized.

The review here of ASM and SDG8 begins this task by laying out an understanding of ASM as more than linear supply chains. Rather the concept of ASM as a productive ecosystem is suggested; one that is replete with overlapping and inter-dependent social and economic relationships. The purpose of this conceptual vision is to assist readers in imagining the layers of labor which converge to create many of the world's major mineral supply chains. The section then examines the three main elements of SDG8—economic growth, employment, and decent work. What are the challenges and opportunities in fostering these SDG8 elements within the current ASM space? How could the global community envisage maximizing ASM's contributions to attaining SDG8 in the future? The section concludes by framing the methodology and approach to the five focus areas and their supporting case studies that follow.

## ASM: an ecosystem

44.75 million people working across more than 80 countries make their living directly in ASM. While most of the world's large-scale miners enjoy relative security, artisanal and small-scale miners work almost exclusively in difficult and dangerous conditions, and their contributions to the supply minerals into global supply chains for everyday use remain hidden. Indeed, artisanal and small-scale miners are vital in providing raw minerals for modern day communications, low carbon and clean energy technologies (World Bank 2020), and luxury jewelry goods. Illustrative examples include gold and gemstones found in women's jewelry; tin and tantalum for laptops, smartphones, and electronic devices; cobalt used in the batteries of electric vehicles; phosphates for fertilizers vital to agriculture; and stone aggregate for road construction and housing.

When combining ASM's direct labor figure with its indirect one—at least a further 134 million and perhaps as many as 269 million people depending on the multiplier used are supported in service and downstream industries (World Bank 2019a, 71)—the scale and possibility of ASM's contribution to economic growth takes on greater significance. In fact, with 80-90 percent of ASM activity operating informally, ASM joins the 2 billion people globally—over 61 percent of the world's workers—estimated to earn their living in the informal economy (ILO 2018). The ability of ASM to offer income in rural and impoverished settings, to propel global economic growth through mineral trade, and its high degree of informality, should motivate the international community to imagine the remarkable potential, if properly formalized, for more productive employment and decent work opportunities in ASM.

Alone, quantifying ASM's contribution to employment is persuasive enough to demonstrate its potential as a development catalyst. Imagine then the further development insights gleaned when quantitative data is combined with qualitative data on the types of employment and the diversity of the workforce. Illustrative examples include young college graduates who find it easier to work in ASM than finding a job in Ghana's capital, Accra (Hilson and Potter 2005); teachers who earn more as a full-time ASM laborer in Rwanda (Perks 2019); and women leaving difficult relationships or widowed as a result of civil war who can find economic autonomy in the shadows of an artisanal mine in DRC and Burkina Faso, respectively (Kelly et. al. 2014; Werthmann 2009). In fact, mixed-methods research, as captured in a range of academic works (Banchirigah 2008; Fisher 2007; Van Bockstael 2014; Perks 2014; Verbrugge 2015; Lahiri-Dutt 2018; McQuilken and Hilson 2018), illustrates the methodological value in understanding not only how many people work in ASM but who they are, their motivations, and their relationships to one another. For instance, in Rwanda, the search for a 'better life' (the closest that miners come to using the word development) drives their participation in a productive economy, despite mines being replete with labor-related risks and other negative impacts (Perks 2020). By drawing on the voices of miners, efforts to improve development outcomes in ASM communities can more effectively align with the personal goals of miners themselves.

Yet beyond the mine site lay a range of indirect labor activities still in need of better documentation and understanding. For ASM activities depend on, and support, a variety of services and liveli-

hood activities through the indirect labor demand linkages. Examples include: foresters managing woodlands and woodcrafters making sieves and sluice boxes for gold and diamond panners (McQuilken and Hilson 2018; Vlassenroot and Van Bockstael 2008); metal workers forging picks and shovels, alongside importers of mechanized equipment including generators and floating pontoon dredgers (Aspinall 2001; Bulkan and Palmer 2016; Jonkman 2019); and finally, the local farmers and service people making and selling food and other basic provisions at mine sites, or in their adjacent, bustling local markets. As stated at the start of this review, people are at the heart of the ASM economy; this brief snapshot alone presents the scale and diversity of their labor.

Once ASM is understood as an ecosystem—with layers of socioeconomic activity operating via interdependent production networks (Henderson et al. 2002; McQuilken and Hilson 2018; McQuilken 2018)—solutions to some of the sector's most pressing labor problems can be better conceived. It is fair to say that many of the past attempts to address ASM's most glaring decent work challenges have fallen short in part for lack of an appreciation of the social factors that influence personal and familial decision-making. With hindsight, such a shortcoming is hardly surprising given that as McQuilken and Hilson (2018) explain most of the global supply and value chain methodologies are grounded in the business and management literature that adopts a linear and value focused approach to mapping products to the market. One glaring case with respect to ASM was first generation mercury elimination programs in the 1980s and 1990s, where artisanal gold miners were encouraged to adopt new technologies that substituted the need for mercury as an amalgam. Whilst entirely correct in their technical solutions, the disregard for understanding why mercury was used, how it arrived in mining communities, and by whom, rendered these programs guilty of delivering overly technical solutions that, due to the absence of understanding of the drivers to mercury use, left them to largely fail (Yakuba, 2003; Veiga, 2004; Hilson, 2007). As Veiga and Fadina (2020) point out, the high degree of social influence held by gold buyers over miners' use of mercury compounded by superstitions held of equipment introduced to substitute mercury, were equally, if not more, responsible for stalling early progress on the mercury elimination agenda in ASGM. A further case is that of child labor where banning children from sites has done little to curb their entry, and only crippled in many instances women's ability to work (Hilson 2012). Rather by working to understand the drivers to child presence at mine sites, as has been the case in the Democratic Republic of the Congo (DRC), options for childcare, after school programs, and incentives to families to keep children in school, have proven profoundly successful policy measures in permanently keeping children out of the mines and keeping women in the ASM workforce (World Bank 2019b; Pact 2016).

Indeed, it is proposed that with a much richer understanding of how the ASM economy is influenced by social relationships both inside and outside the mine site, attempts to improve economic growth, productive employment, and decent work outcomes stand a better chance of success. Through the five themes, the *2020 State of the Sector Report* illustrates these possibilities for enabling the achievement of SDG8 in ASM through a variety of practical case studies. Before examining the five themes, the remainder of this section briefly explores the role of formalization in cementing SDG8 progress, followed by a final section outlining the methodology of the report.

## ASM formalization: economic growth, employment, and decent work

The 2020 State of the Sector Report argues that if harnessed effectively, ASM has the potential to offer more inclusive and sustainable economic growth, productive employment, and crucially, decent work for tens of millions of people worldwide. It is important first to clearly state the meaning of these three components which make up SDG8, and to explore briefly how they are linked. Box 1 outlines their definitions.

What can be said about these three components of SDG8 in the context of ASM? Mineral producing countries often sustain higher economic growth

BOX 1: **SDG8 Key Components**

**Economic growth** is defined as per capita economic growth in accordance with national circumstances, and in particular, at least 7 percent gross domestic product (GDP) growth per annum in the least developed countries (Ritchie et al. 2018).

**Productive employment** is defined as employment yielding sufficient returns to labor to permit the worker and her/his dependents a level of consumption above the poverty line. The deficit of productive employment consists of those who are in the labor force but do not have productive employment (ILO 2012).

**Decent work** means opportunities for everyone to get work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration. It is also important that all women and men are given equal opportunities in the workplace (UN 2018).

rates than those whose economies do not depend on resource extraction. In this regard, the development of mining sectors in emerging economies has certainly been an important contributing factor to rapid growth, with sub-Saharan Africa during the 1990s and 2000s as an illustrative case (Africa Mining Vision, 2009). With the exception of very few mineral economies, growth has been attributed exclusively to large-scale, industrial mining with its capacity to generate revenues through exports and taxation. Given the informal nature of most ASM, its contribution is either: (i) lost (across borders) or (ii) subsumed (as industrial mining) in national statistics. Imagine then the potential to contribute even further to annual growth rates, should ASM be brought more comprehensively into the national economy. Section 3 opens by underscoring the economic importance of ASM and makes a clear call for better accounting and disaggregation of ASM related data in national statistics.

On the other hand, there is an abundance of evidence pointing to ASM's contribution to SDG8's second component, that of employment. In fact, employment-generation is likely ASM's most universally acknowledged and defining feature. Since the 1980s, low educational and financial barriers to entry alongside easy recruitment from peers has made ASM a bourgeoning economic activity in rural areas across the world. Rich and poor, male and female alike converge in the ecosystem, each finding an occupation. Yet, debate remains on whether ASM provides *productive* employment, namely as academics and practitioners alike (Nöestaller 1994; Hilson and Pardie 2006) recognize the strong potential for miners to become trapped in cycles of poverty after entering the sector. The causes of poverty abound: unfair mineral pricing in favor of traders; high rent extraction performed by financiers and pit owners on money lending; and inflation of basic goods transported at a high cost into remote, isolated mining areas. Yet evidence also points to the above-average earnings those in ASM make in places such as the DRC, Myanmar, and Uganda respectively (Perks 2011; Prescott et al. 2020; UNDP 2018) raising questions about how distorted local markets can increase household expenditure and impede savings as well as the need for micro-saving and credit facilities that are tailored to miner's income and spending patterns. Evidence on the value of financial literacy programs to miners suggests there is more scope to solidify outcomes of employment. Many of these topics—improving transparency of pricing, financial literacy and savings education, and disruption of trade chains in favor of miners' greater share—all emerge in the case studies throughout this report. They shed light on successful approaches and models to improve SDG8, worthy of replication and scaling up.

Decent work is by far the most glaring and immediate SDG8 area where ASM should improve. As explored in the thematic sections, the negative social and environmental impacts of ASM are portrayed frequently enough in the media to cement the sector's reputation as risky and dirty. Whether fatalities through landslides and explosions or chil-

dren mining alongside their parents or mercury leaking unabated into local river streams, there are many ways in which ASM falls short of decent work objectives. It would not be wrong however to admit that many of these impacts are continuously overlooked by governments and to a certain extent sourcing companies due to ASM's other features: job and wealth creation. Miners themselves would perhaps even admit that these risks come with the territory, a "fait accompli" position on the working conditions they find themselves in. By opening the report's focus area sections with that of occupational health and safety (OHS), the report intends to draw attention back to the considerable work left to improve ASM working conditions. It is not for lack of legislation and policies, as the International Labour Organization (ILO) eloquently describes in Box 3. Here the ILO reminds us of the various international frameworks and legislation governing the work of mining, but equally draws attention to the lack of formalization of this economy as the major stumbling block to improvements on SDG8. In the section on gender equality, the gendered nature of the decent work agenda emerges, bringing to light a range of topics disproportionally affecting women in ASM.

The topic of formalization of ASM is then, in fact, a very good entry point for examining the challenges facing SDG8 implementation. Over the past 40 years, the concept of "ASM formalization" best embodies the many different attempts made to capture, galvanize, and improve the sector's relationship to formal economic structures. Since discussions first emerged on formalization in the late 1980s, the process has centered on three main pillars: (i) regulatory framework; (ii) financing and technological support; and most recently (iii) minimum labor standards and social organization (Davidson 1994; ILO 1999; Hentschel et al. 2002; Hilson and McQuilken 2014; Hilson et al. 2017; IGF 2018; Perks 2014). Though early formalization attempts tended to treat different topics related to decent work and economic growth in silos and focused largely on introducing technology to improve mining techniques, new models of formalization that focus more on social development aspects are emerging which take on the range of concerns in a more holistic approach. Many of the case studies in the report illustrate this well. Yet, despite this increased recognition and understanding, the challenges to achieving SDG8 targets in ASM remain significant.

BOX 2. **International Labour Organization: Labor Standards and Instruments Covering ASM**

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Since its founding in 1919, the government, employer, and worker constituents of the International Labour Organization (ILO) have developed and adopted over 400 international labor standards and instruments that establish an international legal framework on labor issues covering all sectors of the economy, including large-scale and artisanal and small-scale mining.

The ILO Declaration on Fundamental Principles and Rights at Work (1998) (ILO, 1998) commits all member States to eliminate child labor, forced labor and discrimination, and to respect and promote freedom of association and effective recognition of the right to collective bargaining. These fundamental principles and rights at work apply to all people in all States—regardless of the level of economic development—and are also widely used by investors and mining companies in their policies and processes related to responsible business conduct.

However, effective implementation and enforcement of national laws, including those based on ILO standards, remain a critical challenge. Most women, children, and men in ASM operate in the informal sector, and in many mining countries, they are not covered by labor legislation. This prevents them from enjoying and realizing their fundamental principles and rights at work.

Given the hazardous nature all mining entails, the tripartite constituents of the ILO have adopted the Safety and Health in Mines Convention, 1995 (No. 176) (ILO, 1995a). This Convention applies to all forms of mining, including surface and underground sites, as well as to machines and structures used for the exploration, extraction, and preparation of minerals. It sets out the responsibilities of employers and the rights and duties of workers and requires ratifying member States to prescribe measures in national laws and regulations to ensure its application, which should be supplemented by technical standards, guidelines, or codes of practice where appropriate. The Convention requires the designation of a competent authority to monitor and regulate safety and health in mines as well as to compile and publish statistics on accidents, occupational diseases, and dangerous occurrences.

Convention No. 176 is accompanied by the Safety and Health in Mines Recommendation, 1995 (No. 183) (ILO 1995b), which provides practical guidance for the implementation of the Convention. It states that measures should be taken to encourage and promote specific assistance by the competent authority to small mines to assist in the transfer of technical know-how; establish preventive safety and health programs; and encourage cooperation and consultation between employers and workers and their representatives.

To provide practical guidance in support of the provisions of Convention No. 176 and Recommendation No. 183 on Safety and Health in Mines, the ILO published a *Code Of Practice On Safety And Health In Opencast Mines* (ILO 2018) and a *Code Of Practice On Safety And Health In Underground Coalmines* (ILO 2006). Similarly, the *Safety & Health In Small-Scale Surface Mines: A Handbook* (ILO, 2001) was produced as a practical tool setting out simple principles for use in the absence of specific regulations, or in conjunction with them.

The ILO has also adopted many other international labor standards relevant to ASM. These include standards on occupational safety and health, working conditions, child labor, forced labor, freedom of association, right to organize and collective bargaining, equal remuneration, social protection, human resources development, labor inspection, discrimination, and violence and harassment in the world of work.

The ILO Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204) (ILO 2015) is particularly relevant to ASM formalization efforts. The standard provides guidance for member States to facilitate the transition of workers and economic units from the informal to the formal economy, promote the creation, preservation, and sustainability of enterprises and decent jobs in the formal economy, and prevent the informalization of formal economy jobs.

The application of international labor standards may seem overly challenging in the context of ASM, which is largely informal and/or illegal. However, the recognition of small-scale mining as an important economic sector that contributes to domestic growth should encourage the development of a sound legal and regulatory framework that can help overcome the social and legal constraints it faces (ILO 1999b). The sector should be encouraged 'to operate within and be protected by the law, enhancing its prospects of being safe, efficient, productive and, above all, sustainable' (ILO 1999a, p.56).

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## Methodology and report structure

The 2020 State of the Sector Report is structured according to five focus areas, which assemble a selection of the 12 SDG8 targets. The focus areas were developed through consultation to identify the most pressing topics with respect to SDG8. They include those that have received extensive attention but remain critical, such as eliminating mercury (Section 4) and ensuring gender equality (Section 5) to addressing occupational health and safety (OHS) in the sector (Section 2), a topic with little coverage to date. Each focus area begins with an overview, positioning current knowledge and progress on the focus area to frame the accompanying case studies. Drawn from a wide range of ASM practitioners and researchers, the case studies provide an inspiring collection of efforts to improve SDG8 in ASM. Contributions were solicited through a range of public forums and communication channels, including an invitation to contribute during the 15th Annual General Meeting (AGM) of the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development in Geneva and an open call through the Delve newsletter and social media channels. Interested contributors were asked to complete a short online form to submit the title and topic of their case study and relevance to SDG8 before then participating in an online presentation by Delve of the case study development process. The presentation and discussion shared more details of the different contribution formats (project case studies, short analysis of particular topics, qualitative or quantitative data, and recommendations and ideas for enhancing collaboration). All of those who submitted their proposed inputs via the online form were accepted for publication. Editorial support was provided by Delve through two rounds of review to develop the final text.

The first SDG8 focus area tackled by the report focuses on improving occupational health and safety, asking how unsafe is ASM? The section boldly opens its first case study by suggesting that the ASM sector in 1999 was as unsafe as large-scale coal mining in the USA in the early 1970s but safer than large-scale gold mining in South Africa in the 1980s. A key message emerging from the case study's data analysis is to urge the global ASM community to reconsider the fatalistic position that ASM is just inherently unsafe. Instead, the authors challenge policy makers, practitioners, companies and governments alike to consider how, if in the case of American coal and South African gold injury and fatality rates have appreciably improved over the decades, it is possible to galvanize global efforts to improve OHS in order to save lives. Indeed, with appropriate long-term investment and support programs, and with approaches as demonstrated in the section's other case studies, there is no reason why decent (and safe) work for all cannot also be a reality for the 44.75 million people engaged directly in ASM worldwide.

The second focus area is that of sustained economic growth and productivity. The section's strongest contribution is on highlighting the enormous data gap impeding efforts to measure the economic importance of ASM, its contribution to GDP, and the multiple linkages to other industries and services. The section takes a more methodological lens. While the case studies clearly show these important aspects of ASM as a powerful driver of economic growth and increased productivity, the chapter concludes with a clear call for better data at the national level in ASM producing countries.

The third focus area examined is that of sustainability, noting that whereas a contradiction may lie in imagining extraction of a nonrenewable resource as potentially sustainable, ASM can advance many areas of SDG8's sustainability agenda, particularly in rural economies. For example, with better data on locally produced construction minerals and an understanding of opportunities for value addition, and circularity in production and manufacturing processes, ASM assists in supplying materials for much needed infrastructure, such as roads, affordable housing, and health facilities. Another important angle of sustainability relates to the environment. Most significantly Section 4 deals with mercury elimination from artisanal and small-scale gold mining (ASGM), given this activity is the world's biggest mercury polluter. The case studies on mercury elimination show how data can be used to estimate this impact as well as develop more environmentally sound working practices. The objective being to help miners meet the highest levels of

environmental stewardship in ASGM while simultaneously enjoying financial efficiencies through new mercury-free methods of processing gold.

The fourth focus area discusses gender equality. Here women's "invisibility" in ASM is discussed up front and made evident by the lack of updated statistics of women's participation in the sector. The case studies show how data methods, which improve baseline understandings of gender gaps in ASM sites, can be powerful evidence bases for more targeted behavior change programs.

The fifth focus area is eradication of child labor and promotion of youth employment. With respect to child labor, the section explores the need for better understandings of the drivers to child participation in ASM. The youth employment discussion focuses on identifying the types of skills and training needed to create decent youth employment in ASM and related service sectors. The case studies illustrate some important approaches that focus on filling the gaps in national educational systems and opportunities for prioritizing local employment and upskilling in the sector needed to realize SDG8.

Finally, the report concludes with six reflections accompanied by two further case studies on the theme of collaborating for change: a central aim of producing this report. The reflections bring together salient points raised across the various sections and further reflect on the value of partnership and collaboration during the pandemic. The analyses serve to demonstrate the critical importance of ASM to achieving SDG8 and highlight the resilience, innovation, and determination of communities and their supporters to strive for economic growth, productive employment, and decent work.

**REFERENCES**


African Union. 2009. *Africa Mining Vision*. Addis Ababa: Ethiopia. https://au.int/en/ti/amv/about

Aspinall, C. 2001. *Small-Scale Mining in Indonesia*. Minerals Mining and Sustainable Development. International Institute for Environment and Development.

Banchirigah, S.M. 2008. "Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots." *Resources Policy* 33(1), March 2008, 29-38. https://doi.org/10.1016/j.resourpol.2007.11.001

Bulkan, J., and Palmer, J. 2016. "Rentier nation: Landlordism, patronage and power in Guyana's gold mining sector." *The Extractive Industries and Society.* (3)3. 676-689

Davidson, J. 1993. "The transformation and successful development of small-scale mining enterprises in developing countries." *Natural Resources Forum*. 17(4). 315-326. https://doi.org/10.1111/j.1477-8947.1993.tb00192.x Delve. 2020a. *Delve COVID-19 Impact Reporting*: https://delvedatabase.org/covid-data

Delve. 2020b. *COVID-19 and Artisanal and Small-Scale Mining (ASM)*. Presentation to the OECD Multi-stakeholder Steering Group. September 8, 2020.

Fisher, E. 2007. "Occupying the Margins: Labour Integration and Social Exclusion in Artisanal Mining in Tanzania." Development and Change 38(4), July 2007, 735-760. https://doi.org/10.1111/j.1467-7660.2007.00431.x

Henderson, J., P. Dicken, M. Hess, N. Coe and H.W-C. Yeung. 2002. "Global Production Networks and the Analysis of Economic Development." *Review of International Political Economy* 9(3): 436–64.

Hentschel, T., Hruschka, F., and Priester, M. 2002. *Global Report on Artisanal and Small-Scale Mining*. Mining, Minerals and Sustainable Development Project Working Paper No. 70. London: International Institute for Environment and Development.

Hilson, G. and Potter, C. 2005. "Structural Adjustment and Subsistence Industry: Artisanal Gold Mining in Ghana." *Development and Change* 36(1): 103–131.

Hilson, G., and Pardie, S. 2006. "Mercury: An agent of poverty in Ghana's small-scale gold-mining sector?" Resources Policy 31(2), June 2006, 106-116. https://doi.org/10.1016/j.resourpol.2006.09.001

Hilson, G. 2007. "What is wrong with the Global Support Facility for small-scale mining?" Progress in Development Studies 7(3), 225-249. https://doi.org/10.1177/146499340700700304

Hilson, G. 2012. "Family Hardship and Cultural Values: Child Labor in Malian Small-Scale Gold Mining Communities." *World Development*, 40(8), 1663-1674. https://doi.org/10.1016/j.worlddev.2012.03.017

Hilson, G., and McQuilken, J., 2014. "Four decades of support for artisanal and small-scale mining in sub-Saharan Africa: A critical review." *The Extractive Industries and Society* 1(1). 104-118.

Hilson, G., Hilson, A., Maconachie, R., McQuilken, J., Goumandakoye, H. 2017. "Artisanal and small-scale mining (ASM) in sub-Saharan Africa: Re-conceptualizing formalization and 'illegal' activity." *Geoforum* 83: 80-90. https://doi.org/10.1016/j.geoforum.2017.05.004

IGF (Intergovernmental forum on Mining, Minerals, Metal and Sustainable Development). 2018. *Global Trends in Artisanal and Small-Scale Mining (ASM): A Review of Key Numbers and Issues*. Intergovernmental forum on Mining, Minerals, Metal and Sustainable Development (IGF), International Institute for Sustainable Development, Winnipeg.

ILO (International Labour Organization). 1995a. *Safety and Health in Mines Convention, 1995 (No. 176)*. Geneva: ILO. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C176

ILO (International Labour Organization). 1995b. *Safety and Health in Mines Recommendation, 1995* (No. 183). Geneva: ILO. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:::NO:12100:P12100_ILO_CODE:R183:NO

ILO (International Labour Organization). 1998. *ILO Declaration on Fundamental Principles and Rights at Work*. Geneva: ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---declaration/documents/publication/wcms_467653.pdf

ILO (International Labour Organization). 1999a. *Report for discussion at the Tripartite Meeting on Social and Labour Issues in Small-scale Mines*. Geneva: ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_714371.pdf

ILO (International Labour Organization). 1999b. *Social and Labour Issues in Small-scale Mines. Report for Discussion at the Tripartite Meeting on Social and Labour Issues in Small-scale Mine*s. International Labour Organization, Geneva: Sectorial Activities Programme, International Labour Organization. https://www.ilo.org/sector/Resources/publications/WCMS_677992/lang--en/index.htm

ILO (International Labour Organization). 2001. *Safety & health in small-scale surface mines: A handbook. Geneva*: ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_162738.pdf

ILO (International Labour Organization). 2006. *Safety and health in underground coalmines*. Geneva: ILO. https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_110254/lang--en/index.htm

ILO (International Labour Organization). 2012. *Understanding deficits of productive employment and setting targets: a methodological guide*. International Labour Office, Employment Sector Geneva: ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_177149.pdf

ILO (International Labour Organization). 2015. *Transition from the Informal to the Formal Economy Recommendation*, 2015 (No. 204). Geneva: ILO. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R204

ILO (International Labour Organization). 2018. *Women and Men in the Informal Economy: A Statistical Picture. Third Edition*. International Labour Office: Geneva. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_626831.pdf

ILO (International Labour Organization). 2020. *Employment by sex and*

*economic activity—(thousands)—Annual*. ILOSTAT. https://ilostat.ilo.org/data.

Jonkman, J. 2019. "A different kind of formal: Bottom-up state-making in small-scale gold mining regions in Chocó, Colombia." *The Extractive Industries and Society*. 6(4). 1184-1194. https://doi.org/10.1016/j.exis.2019.10.014

Kelly, J., King-Close, T. and Perks, R. 2014. "Resources and Resourcefulness: Roles, Opportunities and Risks for Women Working at Artisanal Mines in South Kivu, Democratic Republic of the Congo." *Futures* 62A: 95–105. Doi.org/10.1016/j.futures.2014.04.003

Lahiri-Dutt, K. 2018. *Between the Plough and the Pick*. ANU Press, Canberra, Australia. https://www.jstor.org/stable/j.ctt22h6r60 Massay, N. and Villegas, C. 2020. *Moyo Gems: Supporting women artisanal miners in Tanzania to achieve a fairer price*. In (eds.) World Bank 2020 State of the Artisanal and Small-Scale Mining Sector Report. Washington, D.C.: World Bank.

McQuilken, J. and Hilson, G. 2018. "Mapping Small-scale Mineral Production Networks: The Case of Alluvial Diamonds in Ghana." *Development and Change* 49(4): 978-1009. https://doi.org/10.1111/dech.12403

McQuilken, J. 2018. *Small-scale mining and production networks in sub- Saharan Africa : reconceptualising a framework for 'pro-poor' ethical mineral certification*. Doctoral thesis, University of Surrey. https://epubs.surrey.ac.uk/848629/

Nöestaller, R. 1995. Historical Perspectives and Key Issues of Artisanal Mining. Presentation. International Roundtable on Artisanal Mining organized by World Bank. https://delvedatabase.org/resources/historical-perspective-and-key-issues-of-artisanal-mining

OECD (Organisation for Economic Co-operation and Development). 2019. *Interconnected supply chains: a comprehensive look at due diligence challenges and opportunities sourcing cobalt and copper from the Democratic Republic of the Congo*. OECD Publishing, Paris. <https://mneguidelines.oecd.org/interconnected-supply-chains-a-comprehensive- look-at-due-diligence-challenges- and-opportunities-sourcing-cobalt-and-copper-from-the-drc.html>

Pact. 2016. *Watoto Inje ya Mungoti Children Out of Mining final report 2016*. Pact. https://www.pactworld.org/library/children-out-mining

Perks, R. 2011. "'Can I Go?': Exiting the Artisanal Mining Sector of the Democratic Republic of Congo." *Journal of International Development* 23, 1115–1127. https://doi.org/10.1002/jid.1835

Perks, R. 2014. *Mining, Security, and Development in Rwanda: Critical Reflections on the Past, Present and Future*. Phd Thesis. Reading University, United Kingdom.

Perks, R. 2019. ""Mining is in the belly": The pursuit of individual wealth in Rwanda." *Resources Policy* 63:101423 https://doi.org/10.1016/j.resourpol.2019.101423

Prescott, G.W., Maung, A.C., Zinmar Aung, Carrasco, L.R., Don T. De Alban, J., Diment, A.N., Ko, A., Rao, M., Schmidt-Vogt, D., Monn Soe, Y., Webb, E.L. 2020. "Gold, farms, and forests: Enforcement and alternative livelihoods are unlikely to disincentivize informal gold mining." *Conservation Science and Practice* 2(3), March 2020. https://doi.org/10.1111/csp2.142

Ritchie, Roser, Mispy, Ortiz-Ospina. 2018. *Measuring progress towards the Sustainable Development Goals*. SDG-Tracker.org. https://sdg-tracker.org/economic-growth#:~:text=UN%20definition%3A%20Promote%20development%2Doriented,through%20access%20to%20financial%20services

UN (United Nations). 2020. *The Sustainable Development Goals Report, 2020*. United Nations. https://unstats.un.org/sdgs/report/2020/

UN (United Nations). 2018. *Decent Work and Economic Growth: Why it Matters*. UN. https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/09/Goal-8.pdf

UNDP (United Nations Development Programme). 2018. *Baseline Assessment of Development Minerals in Uganda Volume 1 March, 2018*. ACP-EU Development Minerals Programme. Implemented in Partnership with UNDP. https://www.ug.undp.org/content/uganda/en/home/library SustainableInclusiveEconomicDevelopmentProgramme-BaselineAssessmentofDevelopmentMineralsinUgandaReports.html#:~:text=Baseline%20Assessment%20of%20Development%20Minerals%20in%20Uganda%20%E2%80%93%20Reports,-24%20May%202018&text=The%20ACP%2DEU%20Development%20Minerals,)%2C%20and%20implemented%20by%20UNDP.

Van Bockstael, S. 2014. "The persistence of informality: perspectives on the future of artisanal mining in Liberia." Futures 62, Part A, October 2014, 10-20. https://doi.org/10.1016/j.futures.2014.02.004

Veiga, M.M. 2004. "Equipment Specifications for Demonstration Units in Zimbabwe." Global Mercury Project. Vienna: United Nations Industrial Development Organization. https://www.iwlearn.net/documents/4831
Veiga, M., and Fadina, O. 2020. "A review of the failed attempts to curb mercury use at artisanal gold mines and a proposed solution." The Extractive Industries and Society 7(3), July 2020, 1135-1146. https://doi.org/10.1016/j.exis.2020.06.023

Verbrugge, B. 2015. "The Economic Logic of Persistent Informality: Artisanal and Small-Scale Mining in the Southern Philippines." Development and Change 46(5), September 2015, 1023-1046. https://doi.org/10.1111/dech.12189

Vlassenroot, K and Van Bockstael, S. 2008. *Artisanal diamond mining Perspectives and challenges*. Academia Press. ISBN: 9789038213514. https://www.researchgate.net/publication/260159563_Artisanal_Diamond_Mining_Perspectives_and_Challenges

Werthmann, K. 2009. "Working in a boom-town: Female perspectives on gold-mining in Burkina Faso." *Resources Policy* (34) 18–23 doi:10.1016/j.resourpol.2008.09.002

WGC (World Gold Council). 2020. *Gold Mining's Contribution to the UN Sustainable Development Goals*. World Gold Council: London. https://www.gold.org/about-gold/gold-supply/responsible-gold/gold-minings-contributions-sdgs

World Bank, n.d. *Women and Artisanal and Small-Scale Mining (ASM)*. World Bank Group Energy & Extractives, No. 4: https://olc.worldbank.org/sites/default/files/WB_Nairobi_Notes_4_RD3_0.pdf

World Bank. 2019a. 2019 *State of the Artisanal and Small-Scale Mining Sector*. Washington, D.C: World Bank. https://delvedatabase.org/resources/state-of-the-artisanal-and-small-scale-mining-sector

World Bank. 2019b. *Implementation Completion and Results Report. IDA H5890 TF10744 On A Grant In The Amount of SDR 33.1 Million (US$50 Million Equivalent) To The Democratic Republic Of Congo For The Growth With Governance In The Mineral Sector (P106982)*. April 18, 2019. Energy and Extractives Global Practice. Africa Region. World Bank

World Bank. 2020. *Tackling the Impacts of the COVID-19 Crisis on Artisanal and Small-Scale Mining Communities*. https://www.youtube.com/watch?v=MR13FY7Niv0&feature=emb_logo

Yakuba, B.R. 2003. *Regularisation of Small Scale Mining in Ghana: Technical Approach and Its Shortcomings*. Presentation. Communities and Small Scale Mining (CASM) 3rd AGM and Learning Event. Elmina, Ghana. September 7-10, 2003. http://www.artisanalmining.org/Repository/01/The_CASM_Files/CASM_Meetings_International/2003_Elmina_AGM/Presentations/Elmina%202003%20-%20Yakubu.pdf