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Artisanal and Small-Scale Mining, and COVID-19 in Sub-Saharan Africa: A Preliminary Analysis

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Abstract

This article offers preliminary reflections on the potential impact of COVID-19 on artisanal and small-scale mining (ASM) activities – low-tech, labor-intensive mineral extraction and processing – in sub-Saharan Africa. In doing so, it revisits the core ideas put forward in the literature in support of showcasing the sector more prominently in the region’s rural development strategies. For decades, scholars have been gathering evidence that points to ASM being the most important rural nonfarm activity in sub-Saharan Africa, as well as how, in providing a supplementary source of income, the sector helps millions of the region’s impoverished farm-dependent families cope with unexpected economic stresses and shocks. Sub-Saharan Africa has managed to avoid high numbers of COVID-19 infections and deaths thus far but it has already felt the economic impacts of the pandemic, perhaps nowhere more than in its remote rural areas, which are already poverty-stricken and produce food at mostly subsistence levels. Intensifying support for ASM, an economic activity which again, many rural Africans are already involved in and familiar with the benefits it provides, in rural development and adaptation plans linked to COVID-19, should be prioritized by the region’s governments and donors. Findings from ongoing research in Mali, Liberia and Ghana – the locations of three of the largest and most dynamic ASM economies in sub-Saharan Africa – reveal that despite its proven ability to stabilize and catalyze development in the region’s rural economies, that even this sector has been affected by COVID-19. They more importantly shed light on how the pandemic has impacted ASM-dependent communities, and importantly, offer clues on how to make the sector more robust and better position it to steer rural communities through the crisis.

1. Introduction

In sub-Saharan Africa, few industries stand to be impacted more by the global COVID-19 pandemic than artisanal and small-scale mining (ASM).¹ Predominantly informal, the region's ASM sector employs over 25 million people directly (Table 1), as well as creates millions of additional economic opportunities in the interconnected downstream and upstream industries it spawns (Buxton, 2013). The list includes a range of equipment suppliers; distributors of mercury, which is used to amalgamate gold, the metal most widely-mined in the region on an artisanal and small scale; an array of vendors on-site, ranging from food caterers through to sellers of various items of clothing and fuel; and hotel and other accommodation services. Several studies (e.g. Werthmann, 2009; Cook and Healy, 2012; Hilson and Garforth, 2013; Van Bockstael, 2014) provide a glimpse of the dynamism and depth of the ASM supply chains and support systems now rooted in sub-Saharan Africa. The networks they comprise are multi-layered, with sizable local, regional and international components, most of which are populated by numerous actors (see e.g. Siwale, 2018; McQuilken and Hilson, 2018). The continued expansion of these networks is owed to a series of deeply-embedded trust-based relationships forged between individuals, often across different levels of supply chains and multiple territories, and the ability of these actors to move freely throughout. But at the same time, ASM networks, large sections of which are, as mentioned, predominantly-informal, are susceptible to shocks and stresses. Specifically, disruptions, whether triggered by small developments or those resulting from larger, unprecedented, threats such as COVID-19, run the risk of fracturing the trust, verbal agreements and routinized behaviours which, in many areas of sub-Saharan Africa, are so vital to holding ASM networks together.

Table 1: Estimates of ASM employment in selected countries in sub-Saharan Africa

Country	Directly Working in ASM	Estimated Number of Dependents	Main minerals mined on a small and artisanal scale
Angola	150,000	900,000	Diamonds
Burkina Faso	200,000	1,000,000	Gold
Central African Republic	400,000	2,400,000	Gold, diamonds
Chad	100,000	600,000	Gold
Côte d'Ivoire	100,000	600,000	Gold, diamonds
DR Congo	200,000	1,200,000	Diamonds, gold, coltan
Eritrea	400,000	2,400,000	Gold
Ethiopia	500,000	3,000,000	Gold
Ghana	1,100,000	4,400,000	Gold, diamonds, sand
Guinea	300,000	1,500,000	Gold, diamonds
Liberia	100,000	600,000	Gold, diamonds
Madagascar	500,000	2,500,000	Colored gemstones, gold
Malawi	40,000	-	Colored gemstones, gold
Mali	400,000	2,400,000	Gold
Mozambique	100,000	1,200,000	Colored gemstones, gold
Niger	450,000	2,700,000	Gold
Nigeria	500,000	2,500,000	Gold
Sierra Leone	300,000	1,800,000	Gold, diamonds
South Sudan	200,000	1,200,000	Gold
Tanzania	1,500,000	9,000,000	Colored gemstones, gold, diamonds
Uganda	150,000	900,000	Gold
Zimbabwe	500,000	3,000,000	Gold, diamonds, colored gemstones

Sources: Data extracted from Dreschler (2001), Mutemeri and Peterson (2002), and UNECA (2011)

Few experts have weighed in on how COVID-19 could impact ASM and its support networks in general, let alone in sub-Saharan Africa – the poorest region of the world – specifically. This should come as no surprise, given the low level of priority host governments have given to formalizing and supporting ASM in policy over the years. Most have tended to criminalize the sector’s operators for failing to secure the requisite permits and licenses – despite there being legitimate reasons as to why this is the case (see e.g. ILO, 1999; Hentschel et al., 2002, Van Bockstael, 2014; Hilson et al., 2018) – and over the environmental problems and social “ills” commonly associated with unregulated activities.² At this point, scholarship which weighs in on the impacts of COVID-19 in sub-Saharan Africa is unable to shed much light, as it has not sufficiently developed to the point where it can offer grounded reflections and forecasts on how it will impact specific economic sectors such as ASM. At best, it provides a snapshot of selected countries’ responses to the pandemic and draws attention to the threats it poses to the region’s fragile medical, financial and social structures (Napata et al., 2020). While interests in how COVID-19 has impacted ASM in sub-Saharan Africa may be growing, travel restrictions and curfews imposed by host governments have made accessing the remote areas where activities are found challenging. Additionally, the predominance of development practitioners and business consultants over independent researchers poses methodological epistemological questions regarding the collection of empirical data and the potential for bias.

Work which chronicles the impacts of COVID-19 in sub-Saharan Africa is failing to keep pace with the wider body of literature on the pandemic that is mounting across the health sciences. This burgeoning body of scholarship focuses mostly on subjects which resonate most powerfully with the general public, such as social distancing, quarantining and the pandemic’s impact in care homes (Iacobucci, 2020; Mahase, 2020; Mazza et al., 2020; Wilder-Smith and Freedman, 2020). It furthermore draws upon experiences from countries that have attracted international media headlines for various reasons: China, for being “ground zero” and therefore, appeasing the general interest in its various responses, including lockdown (Kang et al., 2020; Tang et al., 2020); the United States and United Kingdom for their unprecedented delay in responding to the outbreak of the virus and public perceptions of both governments’ strategies (Bacon et al., 2020; Geldsetzer, 2020; Hunter, 2020); Spain and Italy for being among the worst-affected locations (Cacciola, 2020; Mazza et al., 2020; Saez et al., 2020); and South Korea for its efficiency in testing and preventing the spread of the disease (Lee and Lee, 2020; Lee and You, 2020).

Although difficult at this stage to forecast where the COVID-19 literature will go from here, interest in the pandemic’s impact in sub-Saharan Africa does appear to be growing. A series of insightful editorial pieces published in the *Lancet*, which raise several questions about the ability of sub-Saharan Africa to cope with a covid-19 pandemic, have laid important groundwork. They raise a number of *what if* questions, voicing, *inter alia*, concerns about the ability of the region’s healthcare systems to cope with COVID-19 outbreaks, the high proportion of the population with compromised immunity due to diseases such as tuberculosis and HIV/AIDS, and possible spread via airplanes arriving from China at international travel hubs such as Nairobi and Addis Ababa (Gilbert et al., 2020; Makoni, 2020; Mehtar et al., 2020; Nkengasong and Mankoula, 2020). Although speculative and largely scenario-based, a series of complementary scholarly articles and technical reports have also emerged, voicing similar concerns about the spread of the disease and the state of healthcare systems in sub-Saharan Africa. Key takeaways from this body of literature include the following:

- A low per capita government health spending in sub-Saharan Africa, at US\$70 supplemented by US\$10 of external assistance. This is a fraction of the US\$442, US\$3040 and US\$8078 figures for China, the European Union and United States, respectively (Miller et al., 2020).

- A forecast of the region requiring, in a “best case” scenario in which suppression occurs and intense early physical distancing interventions are put place, US\$44 billion for testing, personal protective equipment, and treatment for those requiring hospitalization and intensive care. If left unchecked, however, it is predicted that the medical supply gap would be in the range of US\$446 billion (UNECA, 2020).
- Concerns about the spread of COVID-19 from China. With an estimated two million Chinese nationals living and working in the region, and tens of thousands of Africans travelling in the opposite direction for business and education, the potential for infection is high. There were, even months into the pandemic, still on average eight flights daily from Chinese cities such as Guangzhou and Beijing to African travel hubs such as Nairobi and Addis Ababa (Kapata et al., 2020).

The points raised by this body of analysis certainly have some bearing on the region’s ASM activities and by no means should be taken lightly by the sector’s operators. But it is the ideas at the heart of a rapidly-galvanizing and more focused strand of literature on the economic impacts of COVID-19 in sub-Saharan Africa that are most applicable, at least in the immediate term. This strand of literature touches on the more obvious, macro-level economic impacts which have started to manifest and could rapidly intensify. The main discussion points are African airlines, which lost an estimated US\$4.4 billion in revenue in the first quarter of 2020 due to diminished travel linked to the pandemic; the travel and tourism sector in Africa, which in a moderate impact scenario, could lose US\$50 billion in revenue and be forced to shed two million direct and indirect jobs; and diminished returns from capital-intensive resource extraction – due to declining prices of raw materials, such as oil and copper – which over one third of the continent derives most of its revenue through exports (African Union, 2020; OECD, 2020).

There are, however, two very specific – and largely, inseparable – economic concerns which make an immediate and detailed analysis of the potential impacts of COVID-19 on ASM activities and operators in sub-Saharan Africa imperative. The first is ASM’s economic impacts (specifically, the need to revisit these), which tend to be downplayed, despite mounting evidence (e.g. Maconachie and Binns, 2007; Banchirigah and Hilson, 2010; Lanzano, 2018; Buss et al., 2019) of the sector being the region’s most important rural nonfarm activity. Throughout the region, ASM dovetails family-based agricultural activities, generating revenue which is used to hire farm labour and purchase crucial inputs such as fertilizers and pesticides needed to maintain crop yields (Maconachie, 2011; Hilson, 2016). But while rural households across sub-Saharan Africa have long shown an ability to draw upon such diversified livelihood portfolios to buffer against shocks and stresses (Fisher et al., 2009; Maconachie and Hilson, 2018), it is unclear if even areas where farming and ASM are well-established and interconnected can withstand the severity of change which COVID-19 and the responses taken to contain it could bring about. Before the onset of COVID-19, many of the region’s agricultural systems were already in a precarious state. The data that are available confirm this to be the case: according to the World Bank, in sub-Saharan Africa, agriculture is the principal source of income for 53 percent of the region’s population,³ family farms feed two-thirds of its people⁴ and an estimated 96 percent of this production is rain-fed (FAO, 2020). If, therefore, the reports of the region’s subsistence farm production and sales being heavily affected by the disruptions (to transportation, financial flows and crop/livestock collection) in local and regional agricultural supply chains are even remotely accurate (e.g. Schmidhuber et al., 2020; Woodhill, 2020; World Bank, 2020), there will be considerable pressure on nonfarm activities such as ASM to generate the income families will need to navigate the crisis.

On the one hand, responding, comprehensively, to the claim that “The impact of COVID-19 on the rural poor and food systems needs to be understood as a cascading health, economic, livelihoods and

food security crisis with short-, medium- and longer-term implications” (Woodhill, 2020, p. 2) in areas of rural sub-Saharan Africa where ASM is visibly important, economically, would require prioritizing the formalization of, and delivery of support to, the sector throughout the region. Such a move, however, would be unprecedented, given the reluctance of policymakers to do so in the past. But on the other hand, failure to act could prove even more catastrophic, given the precariousness of, and unpredictable returns from, the region’s ASM activities themselves, a fate linked to their informal nature, a second major economic concern. This has long been identified as a major problem in sub-Saharan Africa (FAO, 2020b), where most firms “are small and mostly informal, have few paid employees, are highly dependent on community-based financing, and many of them are owned by women” (World Bank, 2020, p. 70). According to the International Labour Organization (ILO), an estimated 89.2 percent of the population of sub-Saharan Africa is employed in the informal economy (ILO, 2020). The COVID-19 epidemic provides a rare opportunity to study more closely the importance of ASM in rural sub-Saharan Africa, and to showcase in particular how it helps to bring stability to the lives of millions of the region’s farm-dependent families. This would strengthen the case for making the sector’s formalization more of a centrepiece of the region’s development strategy moving forward.

The purpose of this article is to reflect more closely on the potential impact of COVID-19 on ASM activities in sub-Saharan Africa, and more broadly, the implications this has for the rural communities and regional networks they are a part of. Section 2 of the paper builds on the points presented thus far, weighing in further on the concerns being raised about the economic impacts of COVID-19 in sub-Saharan Africa, and situating ASM in the discussion on agriculture and informality. With many experts marvelling at how well sub-Saharan Africa has coped with and managed COVID-19 (e.g. Anjorin, 2020; Nkengasong and Mankoula, 2020), evidenced by the region’s low numbers of infections and related deaths, it seems appropriate here to reemphasize ASM’s indispensable role: it being an integral economic activity in many of the region’s rural societies, and despite its informality, an industry on which millions of families rely upon for finance. These ideas could resonate more powerfully at a time when donors, host governments and society at large are desperate for lasting solutions to a global pandemic and the litany of economic problems it has caused. Section 3 showcases further ASM’s economic importance in sub-Saharan Africa, drawing upon findings from ongoing research from Mali, Ghana and Liberia. The locations of three of the region’s largest and diverse ASM economies, these three countries offer a glimpse of how dependent people are on the sector, and an idea of how COVID-19 has impacted their livelihoods. Section 4 concludes by reemphasizing the importance of making ASM more of a focal point of rural development strategy in sub-Saharan Africa and reflects on what steps must be taken to achieve this.

2. COVID-19 in sub-Saharan Africa: Magnifying and repackaging existing development challenges

The word which best describes the position of scholars who have contributed to the body of analysis which weighs in on the impacts of COVID-19 in sub-Saharan Africa is *intrigue*. How this region of the world, with its fragile healthcare facilities, crowded urban slums and widespread poverty, has managed to avoid high infection and death rates has become a hot topic of conversation among many researchers, donors and policymakers. The explanations given range from deaths and infections linked to COVID-19 in sub-Saharan Africa being grossly unreported,⁵ through to the region being better prepared for dealing with the epidemic than perhaps believed, having endured and been forced to cope with crises – including epidemics – with regularity (Kapata and Ihekweazu, 2020; Martinez-Alvarez et al., 2020). This body of literature speculates on what *could* happen in sub-Saharan Africa if the pandemic were to spread uncontrollably and overrun fragile support systems, and what the economic consequences of this would be.

The COVID-19 pandemic also very importantly provides a rare opportunity to repackage the region's pressing development concerns in ways which resonate more powerfully with policymakers, donors and the global public. This extends to ASM, which intersects so many of these concerns. After expanding on these points, this section of the paper seeks to rebrand the region's ASM sector, arguing that its formalization and supporting its operators should be viewed by policymakers as a strategy for building rural resilience at the household level. Such a strategy aligns closely with the message reverberating in the growing body of literature on COVID-19 in sub-Saharan Africa: that adaptation is a key to preventing in the region what has unfolded elsewhere.

(a) Development in sub-Saharan Africa: Is COVID-19 causing the agenda to come full circle?

On 14 February 2020, Egypt became the first country in Africa to record a case of COVID-19; since then, 52 countries on the continent have reported cases. In addition to Egypt, South Africa, Morocco and Algeria were, at the time of writing, the locations of Africa's highest number of infections, and while there have been reported cases in provinces, the pandemic appears to be mostly confined to the continent's capital cities (OECD, 2020). At the end of May 2020, the number of reported COVID-19-related infections and deaths in Africa were in the range of 120,000 and 3500, respectively.⁶ By November 2020, the number of cases of infection had climbed to over 1.3 million; significantly, since July 2020, the number of reported cases of infection has plummeted sharply.⁷ This represents a mere fraction of what had been reported in developed countries such as the United Kingdom, Italy, Spain and the United States, although the jury is still out on the accuracy of the data. Officials at the World Health Organization, however, fear that the data run the risk of instilling a false sense of hope, as the lower rate of transmission in Africa suggests a more prolonged outbreak over many years. According to their projections, based on data and experiences from 47 of the continent's countries, if containment measures – contact tracing, isolation, physical distancing and personal hygiene – are not actively pursued, at least 190,000 of the population could die from COVID-19, and an additional 29-44 million of its people may become infected.⁸

But while the extent of the health-related complications linked to COVID-19 in Africa may be unclear at this stage, the same cannot be said about its economic impact. The problem, as ILO officials put it, is that the continent is "Starting from a Weak Position," struggling to address its significant inequalities and persistent fiscal deficits and debt vulnerabilities (ILO, 2020, p. 1). Sub-Saharan Africa is in a particularly "weak position" and is highly-vulnerable at present: its average multidimensional poverty rate is 57.5 percent, it is the location of 27 of 28 of the world's poorest countries, and the region's number of extremely poor was an estimated 413 million in 2015.⁹ Remittance inflows to the region, estimated at US\$46 billion in 2019 and projected to rise to US\$65 billion by 2021, are expected to decline by 23.1 percent in 2020 due to COVID-19 (Bisong et al., 2020). Economic growth in sub-Saharan Africa is projected to be -1.6 percent in 2020, the lowest on record, which would amount to a net loss of US\$90-200 billion (Miller et al., 2020).

Perhaps more critically, the pandemic has accentuated the region's unsustainable economic growth model, which is simply not built to tackle the poverty and inequalities which are expected to become even more serious during the aftermath of the epidemic. Sub-Saharan Africa has long been an economy dominated by the large-scale extraction of raw materials; this has spawned a resource curse throughout (see Olanya, 2015; Kuntsen et al., 2017; Dwumfour and Ntow-Gyamfi, 2018; Manzano and Gutiérrez, 2019). Scholars have repeatedly drawn attention to this problem, highlighting in particular the risks that an overdependency on capital-intensive resource extraction and a lack of economic diversification pose to the region's long-term development. But concerns of there being 24 countries in sub-Saharan Africa that are considered "resource dependent" (IMF, 2019), including seven (Equatorial Guinea, Angola, Nigeria, Chad, Congo Brazzaville, Gabon and Cameroon) where oil

accounts for over 70 percent of export revenue, have been tempered by claims made over the years that a development strategy with export-driven, capital-intensive resource extraction as its centrepiece is a key to luring badly-needed foreign investment to, and alleviating poverty in, the region (IFC, 2014; World Bank, 2015; ADB, 2015). The COVID-19 pandemic, however, promises to reignite discussion about the region's unhealthy overdependency on rents from large-scale resource extraction. Concerns voiced by IMF officials about the pandemic causing a "Triple Shock" in sub-Saharan Africa – 1) economic disruptions from domestic health shocks, disruptions to supply chains and reductions in labor supply, 2) spillovers from the global fallout of COVID-19, and 3) commodity price shocks (IMF, 2020) – are quickly being realized, as is the vulnerability of its economies, exposed by rapidly-devalued raw materials. Problems are most visible in its petro-states: at the end of March (2020), the price of oil reached its lowest (US\$22.58) in nearly two decades, the result of a sharp decline in global demand (no international travel or people commuting to work due to lockdowns, for example).¹⁰ But the problem extends to solid minerals (the exception being gold). By the end of March 2020, the prices of aluminum, copper, nickel and zinc had plummeted, 15.1, 21.3, 19.5 and 19.4 percent from 2019 levels, respectively (UNCTAD, 2020). These worrying developments could also reignite discussion which challenges, more concisely than ever before, claims made *hitherto* that in sub-Saharan Africa, large-scale mining and/or oil production create jobs and are economic engines capable of catalyzing upstream, downstream and horizontal linkages (Pedro, 2006, 2016; Bloch and Owusu, 2012). Some literature has already emerged that challenges the enclave thesis – arguing that capital "hops," as opposed to "flows" into "usable" Africa, dynamics which stifle the formation of linkages (Ferguson, 2005; Ackah-Baidoo, 2012) – which, ironically, the performance of the region's large-scale mines during the pandemic is further legitimizing. In addition to scaling back unnecessary production and furloughing staff where possible (Laing, 2020), large-scale mines have become even *more* inward-looking and enclave-like, using the downtime caused by COVID-19 to enhance digital solutions and implement more "smart technology" such as drones.¹¹ As witnessed at mines such as Bonikro in Côte d'Ivoire, even in isolation and with a reduced workforce, production is still thriving, with flights being chartered by management to transport gold to refineries in South Africa and Switzerland directly.¹²

The pandemic has also put the region's rural communities in the spotlight: as returns from large-scale resource extraction continue to decline, attention will inevitably shift to these localities, which should also put into focus the ASM sector embedded here. The goal must be to ensure that food security is maintained and deepened poverty is avoided, and how best to sidestep the "crisis within a crisis" scenario – that is, an exacerbation of lingering economic and social problems brought about by drought, floods and locust attacks on crops – which threatens to unfold in a number of rural stretches in sub-Saharan Africa. From the analysis thus far, the problem facing the region's farm-dependent rural households can be summarized as follows. First, there is a production and distribution dimension, as disruptions in domestic food supply, along with losses of investment and labor, mean that crop outputs are fewer and no longer reach local markets and dependent groups as quickly or as efficiently as before.¹³ The food supply chain is a complex web that involves producers, consumers, agricultural and fishery inputs, processing and storage, transportation and marketing. Border closures, quarantines, and market, supply chain. Trade disruptions brought about by COVID-19 could restrict people's access to sufficient, diverse, and nutritious sources of food, especially in countries hit hard by the virus or already affected by high levels of food insecurity (World Bank, 2020). With 23 percent (237 million people) in sub-Saharan Africa already being "undernourished," according to the Food and Agricultural Organization (FAO, 2020), it would appear that immediate action is needed if a "crisis within a crisis" is to be avoided.

Second, there is a purchasing dimension, specifically the issue of employment, without which people find themselves struggling to produce food. As explained, close to 90 percent (89.2 percent) of the population of sub-Saharan Africa is employed in the informal economy (ILO, 2020), its agricultural sector being no exception. An estimated 90 percent of employment in the region's rural areas is also informal (Bonnet et al., 2019), which means that labourers are expendable as production and demand for transportation declines. While aid is being pledged by the European Union and the World Bank to support these fragile agro-systems, it is far from being a lasting rural development solution nor capable of jumpstarting, on its own, economic activities should the food security situation worsen as anticipated. One possible solution would be to broaden and democratize extant formalization efforts, and intensify support to the ASM activities which these agricultural activities interface, which, it is argued here, could go a long way toward strengthening the social safety net across vulnerable rural sections of sub-Saharan Africa. It seems inexplicable that most African governments and donors have failed to formalize a sector (i.e., ASM) which employs at least 25 million people and creates hundreds of millions more economic opportunities through a complex and perpetually-expanding network of suppliers, and position it to serve as a platform to stimulate growth.

(b) Stepping Up: Showcasing the ASM sector

In addition to sustaining agriculture, employing millions of Africans directly and creating hundreds of millions of others through the sprawling networks it creates, ASM has, through continuous injections of finance reinvested locally by operators, stabilized rural economies and improved food security at the local level (see e.g. Davidson, 1993; Labonne, 1994; ILO, 1999; UNECA, 2003; Werthmann, 2009; Hilson and Garforth, 2013; Kelly, 2014; Hilson and Maconachie, 2020). The sector's formalization and support has been, and continues to be, a stated focus of World Bank mining sector reform and technical assistance projects implemented in sub-Saharan Africa (see Table 2). Its needs, however, have almost always been deprioritized in favour of work aimed at facilitating the expansion of capital-intensive large-scale mineral exploration and extraction. But with the region's large-scale mines recoiling due to COVID-19 as indicated, and scaling back on their production and furloughing workforces, an avenue has opened, unexpectedly, to usher through a development agenda which builds on the foundation that ASM provides for millions of African families. The ASM sector is largely – globally and especially in sub-Saharan Africa – poverty-driven, providing incomes to otherwise-jobless people (Barry, 1996; Hilson, 2009). The poverty-driven nature of ASM is bound to magnify as economic conditions deteriorate in the region during the COVID-19 pandemic.

A critical reappraisal of the role a supported and formalized ASM sector can play in development across sub-Saharan Africa would also better position policymakers to tackle some of the more pressing social problems that have long plagued the region's rural environments. These concerns, many of which are at the heart of the SDGs, have also been identified as priority issues in the region's ASM sector and are therefore attracting considerable scholarly interest. Formalizing and supporting ASM, therefore, could be viewed as not just simply a way in which to make rural households in sub-Saharan Africa more food secure but also as part of a solution to tackle a plethora of the region's development challenges which COVID-19 will intensify if left unaddressed.

Table 2: Spending on ASM components as part of selected World Bank mining sector reform and technical assistance programs in in sub-Saharan Africa

Country	Project	Year	Total Award (USD)	Total ASM Component Award (USD)	Details
Ghana	Artisanal and Small-Scale Mining Formalization	2019	\$47.8m	\$47.8m	The project objective is to create enabling conditions for the orderly, safe, sustainable, and environmentally sound development of ASM. It focuses on three pillars, that align with the wider country strategy: <ul style="list-style-type: none"> - Improving economic institutions by building the capacity of the government to maximise the contribution of ASM to the economy. - Improving competitiveness and job creation through support of the sustainable growth of ASM. - Protecting the poor and vulnerable by regulating the practice of ASM, e.g. the exploitation of women and child labour. -
Mali	Mali Governance of Mining Sector	2019	\$40m	\$10m+	Aims to improve the contribution of the mining sector to long-term development by emphasising growth and diversification of mineral production, improved governance and extractive revenues, and mining-induced local economic development. One of the six project-level indicators is the rationalisation of ASM counted by the number of ASM cooperatives established and supported.
				\$6m \$3.4 <i>Does not specify value for some project components that include ASM</i>	
Mozambique	Mining and Gas Technical Assistance Project (MAGTAP)	2013	\$78m	\$2.5m	Only Component A 'Mining Governance Capacity Building and Reform' includes specific activities to develop an 'ASM strategy' including extension services, advice on obtaining licenses, formalisation projects, establishing cooperatives, testing of services, and support on improving environmental and social performance.
			\$50m (SDR 32.6m) \$8.15 (from DFID)	\$1m (unspent)	

10986 Words

		2017	\$28m (SDR 19.9m) \$1m (from DFID)	\$2.5m	
Tanzania	The Sustainable Management of Mineral Resources Project (SMMRP)		\$95m	\$43.7m	Original 2009 project objective was to strengthen the Government’s capacity to manage the mineral sector and improve the socioeconomic impacts of large-scale and small-scale mining and enhance private local and foreign investment. The second US\$45m disbursement in 2015 was solely for ASM.
		2009	\$50m (SDR 33.5m)	Unknown.	
		2015	\$45m (SDR 32.7m)		

Notes: Figures are likely rounded in the original source and therefore do not total completely; m = million; Tanzania rate \$1.00: SDR 1.37950; DFID = UK Department for International Development.

Sources: World Bank, 2015b, 2017, 2019a, 2019b

It begins with youth unemployment, widely believed to be one of the most serious development problems brewing in sub-Saharan Africa at present. As pointed out by the World Bank (2014), the problem is inextricably tied to its development model, specifically how growth associated with the “[large-scale] mineral sector is not expected to create very many jobs” (p. 5) because of its capital-intensive and mechanized nature. The region’s labour force is simply unable to absorb the millions of youth who enter it annually (Ackah-Baidoo, 2016). The data paint a bleak picture: most of its job seekers find employment on family farms (62 percent) or in household enterprises (22 percent), “which may be collectively described as the informal sector” (World Bank, 2014, p. 5), although young people are twice as likely as adults to be in temporary employment and for those employed in rural areas, 40 percent more likely to be engaged in casual work without a contract (FAO, 2020). The “situation of [these] wage workers in the agricultural sector” who “remain largely invisible to policy and decision-makers,” FAO officials further explain, being “already among the poorest workers and often employed on a seasonal, casual or temporary basis...makes them even more vulnerable to the economic shocks brought on by the COVID-19 pandemic” (p. 1). Many of the region’s youth, however, have long engaged in ASM alongside farming (Maconachie and Hilson, 2011; Funoh, 2014), using their earnings to pursue other ventures, contribute financially to their households, and to pay university tuition (Hilson et al., 2007; Villegas et al., 2012). Hilson and Osei (2014) reflected on how, given the popularity of ASM among African youth, formalizing the sector’s activities could “provide some short-term relief for a number of host governments desperately looking to buy time in order to ‘re-think’ how to tackle mounting youth unemployment” (p. 85). While donors and host governments have routinely recognized the synergies between ASM and agriculture in sub-Saharan Africa over the years (see e.g. UNECA, 2002; UNECA, 2017), they have been reluctant to move beyond rhetoric and to use this interface as an entry point for tackling a multifaceted problem such as youth unemployment. COVID-19 should change this position.

The same can be said about a second crucial development challenge in sub-Saharan Africa: gender empowerment and mainstreaming. Over the past two decades, several studies (Labonne, 1996; Yakovleva, 2007; Weldegiorgis et al., 2018) have emerged which explore in considerable depth the work undertaken by women at ASM sites across the region, and the impact it has had on their lives. This growing body of analysis has not only exposed how women face significant structural and cultural barriers, and are exposed to violence, at their work but has also served as a window into their lives. It reveals how women face other burdens and are forced to balance pressures to generate income – which they do through their ASM work – with homecare duties and responsibilities around food production. But while there has been significant push by donors and host African governments to remove women from ASM across sub-Saharan Africa, buoyed by accounts of their exploitation in the sector and that moving them into “alternative livelihoods” will fix their woes, some of the more recent literature (AMDC, 2015; Rutherford et al., 2017; Hilson et al., 2020) is far more sympathetic of their circumstances. Many women engaged in ASM argue that this work, although arduous and sometimes dangerous, has yielded finance that has had a transformative impact on their lives. This income stream promises to become even more important in the months ahead, given how “women shoulder the main responsibility for caregiving in their households and rural communities, [and therefore,] they are more likely to be burdened with additional household tasks that increase when more people stay at home during a quarantine” (FAO, 2020, p. 3).

For decades, rural African households have exhibited remarkable resilience coping with shocks and stresses, some of which have been severe (Reardon et al., 1988; Reardon and Taylor, 1996; Ellis, 1998; Little et al., 2001). For millions of families, ASM has been a crucial component of their diversified livelihood portfolios, a phenomenon which, again, several scholars have cast light on over the past decade. The threats posed COVID-19 pandemic, however, promise to be far more sizable than any of

the changes rural African communities have been forced to adapt to previously. The closest point of reference is the Ebola outbreak in West Africa (2014-2016). Here, a group of countries, despite ranking at the bottom of the Human Development Index and having some of the most impoverished healthcare systems in the world, managed to contain an epidemic fairly-well. Moreover, large segments of their rural populations successfully diversified their income bases relatively seamlessly (Maconachie and Hilson, 2018; Bisong et al., 2020). The epidemic did, however, leave a trail of economic destruction and caused thousands of deaths.

(c) COVID-19 and ASM in sub-Saharan Africa: Sifting through Blogs, Websites and Headlines

Since the onset of COVID-19, many scholars, writers, donors and NGO officials have managed to make time to offer rapid reflections on the state of the ASM sector in sub-Saharan Africa and more generally. Although ASM still occupies a relatively marginal presence within the wider world of global development, the number of NGOs and development donors focusing at least part of their efforts on the sector and its participants has grown sharply over the past decade. As the world's inboxes have become flooded with emails, blogposts and invitations to participate in webinars and discussions on *the impact of COVID-19 on senders'* topics of expertise, analysis of the fate of ASM, which intersects most development topics, from child labour, through informality, to local economic development, seems inevitable.

There are two major interventions worth noting at this point, the first being the DELVE database, which aims to "improve the quality, availability and accessibility of data in the ASM sector."¹⁴ DELVE has launched a dedicated COVID-19 space on its website to serve as an information clearinghouse, gathering and linking to blogs, websites, webinars, and policy papers produced by various organizations. While the viewpoints of some NGOs in the Global South are represented here, much of the expert commentary retrievable via these links is based on rudimentary news reports and biased secondary information, collected by business contacts and individuals collaborating with organizations that have a field presence but which are based in the Global North. It is a reflection of a concerning trend within the wider ASM sphere: the fact that significant amounts of data are collected by NGOs and consultants, based on work conducted with varying degrees of methodological rigour, and which are rarely made public. Failure to disclose these data in a timely fashion has hindered critical analysis of policy reports and development projects carried out by third parties such as academics,¹⁵ in turn impairing efforts to launch evidence-based initiatives in the future. Funds were recently released by DELVE to conduct a baseline analysis (between May and August 2020) that provides a glimpse of how ASM communities worldwide have been affected by COVID-19 (see <https://delvedatabase.org/covid-data>). These quantitative data, gathered from 22 countries (15 in Africa) by parties based in both developed and developing countries, offer important clues about the dynamics of ASM supply chains, the individuals engaged in the sector, production levels and the needs of operators. In bringing sections of various supply chains to a standstill, COVID-19 has exposed key actors, as well revealed fresh details about transactions and relationships between stakeholders in ASM networks. The pandemic has presented researchers, such as those who participated in the DELVE COVID-19 data collection exercise, with a rare opportunity to collect data on ASM which, under any other circumstances, could not be gathered.

The second outlet is provided by the Artisanal Gold Council (AGC), a NGO established to raise awareness about the roles played by artisanal miners in the global gold supply chain and which has since transformed into a leading development practitioner-based unit providing technical assistance to governments in the context of the *Minamata Convention on Mercury*.¹⁶ It established a dedicated "COVID-19 Portal" on its website, the most eye-catching feature of which is a gold price database. It shares information gathered by AGC staff and their contacts from around the globe, on the impact of

COVID-19 on gold prices offered to artisanal miners. While a valuable initiative, at this stage, it is difficult to see how these disparate pieces of information can be compared and analyzed. The data consist mainly of a location, a date, a reported purity grade of the gold, a price per gram impure in the local currency, a price for pure gold in US dollars, and a percentage of the spot (i.e. live gold) price. It is often unclear, however, where these data originate from: some appear to come from miners, while other information was gathered from individuals based at processing plants, onsite buyers, national and international AGC staff, and officers based at various partner NGOs.

The positionalities of these actors and their roles as potential gatekeepers of development projects could influence the generated data. It is also likely that individual data collection standards are somewhat idiosyncratic: formal AGC guidance documents or a handbook are not publicly available. Moreover, the percentages of the spot price offered to miners vary considerably, crossing the threshold of 90 percent in some cases, while dipping below 50 percent in other instances. It is unclear what the pre-COVID-19 prices in these areas were, nor how the complex and permanently-evolving interplay of ASM volume and buyers' capital are impacting offered prices. For example, does a price recovery in an area where 85 percent of the spot price is reported post-COVID-19 mean that the price has recovered, or is this attributable to a sudden plunge in the number of artisanal miners working at a particular site (many artisanal miners are domestic and international labor migrants), which has the effect of pushing prices upwards? While the AGC is undoubtedly providing a great public service, the database runs the risk of reifying the collected information as comparable and analyzable, when in reality they provide no greater clarity than the litany of qualitative statements which, generally speaking, capture how artisanal miners are having trouble with accessing pre-COVID levels of financing.

But while the information on the DELVE and the AGC databases may be evolving at this point, it does reinforce a series of important issues about supply chains, formalization and gender that have dominated the agenda on ASM in sub-Saharan Africa over the past decade. If ASM is to be viewed and treated in policy as a vehicle to help rural communities across sub-Saharan Africa buffer against COVID-19, fresh data – both qualitative and quantitative – will be needed that map on to these key areas and which are capable of informing policy. The same must be done if the ASM activities on which millions of the region's people depend for their livelihoods are to be strengthened to help build resilience at the local level and steer households through the pandemic. There is specifically a need for independently-collected data which cast light on the impacts of COVID-19 and help to situate ASM in the rural economies they are a part of. These data must be collected in a methodologically-rigorous way and it is imperative that those gathering them are conscious of the high risk for bias; do so with a view to showcasing the diversity of ASM, including the materiality of the resources it is linked to and the different political economies in which operations and trade takes place; and proceed with the intention of making findings publicly-available.

The next section of the paper responds to these glaring needs by providing a snapshot of how ASM and those who depend on it for their livelihoods in sub-Saharan Africa have been impacted by national and international policy responses to COVID-19. It draws on findings from ongoing research in Mali, Liberia and Ghana, the locations of three of the region's most sizable and dynamic ASM sectors.

3. The Impacts of COVID-19 on ASM in Sub-Saharan Africa: Some Emerging Storylines

Each of the countries profiled in this section of the paper – Mali, Liberia and Ghana – has a dynamic and sizable ASM sector. The focus here, however, is on gold, one of the most widely-mined

commodities in all three countries. Research conducted across the three countries has yielded a range of data, largely because of the very different gold mining histories of each. At the one extreme is Ghana, the first country in sub-Saharan Africa to implement major mining reforms, and which today, is the region's largest gold producer, hosting an array of artisanal and large-scale operations. Its artisanal and small-scale gold mining sector is well-developed, and provides direct employment to over one million people but at the same time, has well-established boundaries between "informal" and legal (see e.g. Hilson, 2017; Yankson and Gough, 2019). At the other extreme is Liberia, which has a far more rudimentary artisanal and small-scale gold mining sector but which employs at least 100,000 people directly. Here, mineral policy continues to be heavily oriented toward diamonds, for which there is international regulatory pressure due to its membership in the Kimberley Process Certification Scheme, although there is now in all likelihood more people mining gold on an artisanal and small-scale here (Van Bockstael, 2014; Verbrugge et al., 2015; Maconachie and Conteh, 2020). Mali falls somewhere in-between, following Ghana's lead on the mining sector reform front but only doing so recently; significantly, these changes have transformed it into the third largest gold producer in Africa. Its artisanal and small-scale gold mining sector, however, is confined mostly to the traditional economy, managed and "regulated" by local mayors through a permitting system but virtually detached from centralized authority (Hilson, 2012; Brottem and Ba, 2019).

In each country, interviews (a combination of WhatsApp calls and in-person where social distancing was possible) were conducted by the authors and local research assistants (with whom the authors have worked in-country on a range of ASM projects over the past decade) with artisanal and small-scale gold miners, over a period of four months (February-May 2020). Rapport had already been established with each interviewee through previous projects; the relationships developed with these interviewees would prove critical in gathering information under such difficult circumstances. It was decided by the authors, prior to conducting the research, that in each country, 15 miners would be targeted for interview because during previous qualitative-based research, this was the number at which data saturation had typically been reached. A series of open-ended questions were developed which mapped on to each of the six major themes that would be covered by the inaugural DELVE baseline work spread across 22 developing countries: 1) health and safety, 2) gender, 3) security, 4) food security, 5) services, and 6) supply chains. Each miner interviewed was approached because, at the time the research was undertaken, he/she was in possession of a license, seen here as a crucial step in securing support of any kind. Their 'formalized' status can also be read as a socio-economic marker that shows they were relatively successful miners who were able to surpass various administrative and financial obstacles to achieve legal status.

The objective of this reconnaissance work, conducted during the early stages of the pandemic, was to provide a primer for a larger project being planned, the aim of which is to explore, through a series of quantitative and qualitative surveys, the broader impacts of COVID-19 on ASM and dependent rural communities across sub-Saharan Africa. The present research sought to share major storylines emerging from each country about COVID-19 and ASM. Special emphasis was placed on unearthing details about how families that are dependent on the sector for their livelihoods have been impacted by the pandemic, with a view to identifying potential solutions to their problems. The discussion that follows shares key findings from these interviews, focusing on the key storylines from each country. It takes the position throughout that on the basis of ASM's *existing* importance, intensified support to the sector should be viewed as a viable means of building resilience in rural sub-Saharan Africa to help cope with the economic shocks and stresses linked to COVID-19.

a) Mali: Women's Burdens Fully Realized?

Mali has been an epicenter of artisanal gold mine production for many centuries. While estimates vary, it is widely-believed that today, over one million people are employed directly in this sector in the country (Hilson, 2016). Most of this activity is scattered throughout the Kayes Region to the west, and the Sikasso Region to the south. An emerging body of research (Keita, 2002; Lenfant and Traoré, 2015; Brottem and Ba, 2019) has captured the economic importance of ASM and its synergies with agriculture in rural Mali. It also reveals that women comprise more than 50 percent of the sector's workforce; are supported heavily by one of the country's influential local women's ASM organization, La Fédération des Femmes Minières du Mali (FEMIMA); and that many pursue mine work here because of the financial autonomy it provides. The latter point in particular is significant because this employment allows them to operate outside of the country's traditional property rights, which stifles income-earning opportunities for women: as opposed to income generated on family plots, they are not obliged to hand over any earnings accumulated through work on someone else's land.¹⁷ These women, however, must balance this work with their household responsibilities, which they have managed to do.

Overall, COVID-19 cases in Mali remain low (3676 cases and 137 deaths as of 8 November 2020).¹⁸ This is owed to former President Ibrahim Boubacar Keita's decisive action, on 18 March 2020, to suspend international flights, close schools, ban public gatherings, close the country's borders, require people to wear masks in public, and impose a curfew between 9 PM and 5 AM (which took effect on 26 March 2020 and was lifted on 9 May 2020). These restrictions, however, have proved burdensome for women miners across Mali, a theme captured in the 15 interviews.¹⁹ All interviewees were women, each of whom, at the time of the research, were in possession of a "gold washer's card" that had been awarded by the local mayor (or were mining gold on a plot belonging to someone in possession of a "gold washer's card"); had ties to FEMIMA; and were operating in the regions of Kayes, Koulikoro or Sikasso. Each claimed to be abiding by the rules imposed by the government, using the masks and gloves distributed by FEMIMA, and, as one explained in an interview, "always wash hands with sanitizer [and] we keep distance from one another."²⁰ None of the women interviewed claimed to know anyone who has contracted COVID-19 but based on the responses given, have been impacted significantly by the sudden changes in policy in other ways, the most significant of which are reported here.

The first concerns the fallouts from a diminished local gold price, a topic which again, the AGC is currently exploring. As one interviewee explained, in an attempt to highlight the cascading effects this has had locally, "the value of gold had dropped, it brought poverty and there was a time that things were stopped, and prices were increased."²¹ Specifically, it appears that a lower (local) gold price, brought about by a decreased number of buyers onsite and reduced production during the time of the curfew, and inflated costs for food, crippled households financially. The following interview excerpts capture this vividly:

I make my life with this work in mining. I feed my family, I pay for their school fees, I take care of their health because here our men barely work they were working companies that stopped so now we women are the ones who take the family in charge. With the onset of the disease, the gain is reduced and prices have increased.²²

I feed my family with my work and it did not change even with the arrival of the virus...we still eat as before. But we spend more money because not a lot of groceries and stores are closed so prices have increased.²³

For the group of "women [who] make their life from this work we all feed our family from,"²⁴ as one interviewee put it, the lack of mobility, production and commerce has had a catastrophic impact in

gold-producing regions such as Kayes and Sikasso. The “movement restrictions,” another explained, “brought hard time because we can’t work as much as we can to get money and price of goods increased because nobody is bringing them from exterior.”²⁵

Second, the decline in the (local) gold price has forced ASM-dependent households to scramble for other sources of income, which are simply in short supply. Loans are regularly sought from friends and while as one interviewee explained, “we are helping each other to get through” through supporting one another, there is a reluctance to approach banks because “people are afraid if you take loan and your business doesn’t work it’s going to be a problem.”²⁶ Opportunities in ASM support industries – equipment provision and supply – have dried up because, as another explained, “overseas business stopped because they [merchants] can’t travel this time.”²⁷ Trade during the evening hours was no longer possible because the “time of working has reduced [as] nobody can be out from 9PM [as] there is a curfew.”²⁸ The cross-border trade so critical to commerce in Sikasso (with Côte d’Ivoire) and Kayes (Guinea and Senegal) was not permitted for close to two months; violation of the lockdown has led to an increased police presence at the border, which, it was explained, has given rise to additional complications. One woman, who insisted in an interview that she “can’t stay at home to watch her children” because “I have to work to feed them,” was forced to dispatch them to work “like carpenters”²⁹ and in other trades.

This has led to the third major change, which is linked to the reason why these children are at home: because of the cancellation of schools. All interviewees lamented about this, recognizing the importance of children’s safety on the one hand but on the other hand, expressing frustration over the added “responsibility” of figuring out how to care for them during the times of the day they normally engage in paid work. Some have had no choice but to turn to their husbands for money, and, after weighing the risks, have elected to stay home to care for their children. One woman rationalized this as follows:

We don’t want school to be closed because children are staying at home and I have to watch them. I can’t go to work because I have nobody to take care of them when I’m at work. That’s one of the reasons why I stay at home.³⁰

Others, though appreciating the risks, claimed to have no choice but to bring their children with them to work. One reflected on her circumstances in an interview:

...it’s not a good thing for children to stay at home. We want them to go to school, but I have children who can work in mining so they come help me to get money because it’s not easy at that time. I have to work more to feed my family and it was a big problem when activities were about to stop because it’s my only one source of income.³¹

All interviewees, however, appeared concerned over how school closure could impact children’s learning over the long-term. Their culture demands that women pay for school fees, and each explained they were doing so to ensure that their children had options in the future. Claims such as “they [the government] closed schools [and] it is not a good thing because the children must study to be able to have a better life in the future and we don’t wish to see them working like us in the traditional mine,”³² and “I personally don’t want my children to stay at home because they are our future and for my household responsibilities,”³³ were made.

These women are now in recovery mode, faced with the onerous task of recovering from an extended period of reduced production and inflated local costs. They have been forced to do this while supervising their children, who are still at home because, at the time of writing, schools were still closed nationwide.

(b) Liberia: On Food Alert

The research in Liberia is being carried out in Weaju Village, a gold-rich locality in Gola Konneh District, Grand Cape Mount County. All 15 interviewees were in possession of *Class C Licenses* (the equivalent of artisanal mining licenses, which provide security of tenure but do not permit holders to use heavy machinery), and claimed they were complying with the government's COVID-19 rules. As one interviewee put it, most sites now "have hands washing buckets and also observe social distancing while at work, have also reduced our manpower to stop crowdedness while at work, and the reduction of manpower is rotational daily."³⁴ At the time of writing, the country had only 1442 reported cases of infection and 82 deaths linked to COVID-19,³⁵ its first confirmed case announced on 16 March 2020, traced back to a government official who had travelled to Europe. In response, the Government of Liberia declared a national health emergency on 22 March, closing schools, bars and entertainment centers, as well as beaches and places of worship in Margibi County and Montserrado County.³⁶ President George Weah, a former international football star, also recorded a music video with Liberian musicians to raise awareness about the disease.³⁷ The valuable experience Liberia gained in handling the Ebola epidemic was in large part responsible for its swift implementation of the lockdown and its low number of COVID-19 cases.

These changes, however, have been felt in other ways at the ASM site level. Unlike Mali, the curfew imposed on 24 March 2020 (no movement or work from 3PM to 6AM, which at the end of May, was amended to 6PM-6AM) has not had much of an impact on mining activity itself in localities such as Weaju Village because, as one interviewee explained, "of our [remote] location [and therefore] we are not really embarrassed by state's security."³⁸ Similar to Mali, there were claims made such as "Most local gold buyers usually buy and save their gold, because investors and brokers are not into active business," "The curfew and lockdown is another factor that has caused several buyers to stay away from the mines,"³⁹ and "we have also noticed the absence of investors and brokers to buy minerals, also because of the curfew."⁴⁰

But the concern discussed the most by interviewees was food security. Like most remote mining communities in Liberia, Weaju Village is over-reliant on the steady streams of food delivered to its local markets daily. The locality, however, has been transformed by the pandemic, heavily victimized by *Local agricultural value chain disruptions*, *Loss of employment and incomes* (for traders, small transporters, workers and farmers) and *Global food supply chain disruptions* – three of the major ways in which officials at the African Development Bank project "the disease will affect Africa agri-food systems" (ADB, 2020, p. 4). As one interviewee put it succinctly, "The lockdown and curfew have also affected the prices of commodities on the mining sites, including gasoline, rice, etc., which is also another factor that has slowed down transportation activities from the towns to Monrovia."

A detailed analysis of the transportation routes to Weaju provides a glimpse of how curfews and the closure of the border with Sierra Leone have disrupted food supply chains. Food comes from Monrovia, passing through Bomi County. While the road is tarred for the first 30 miles to Tubmanburg, for the remaining 60-70 miles, it is not, which is why it can take several days for supplies to arrive. Many miners reflected on these developments during interviews, weighing in further on how it has impacted local livelihoods:

Getting food here on the mine is quite challenging, due to the closure of borders, the limited transportation activities in bringing foodstuffs from Monrovia and other places in the town. Due to this, the prices of goods, especially food stuffs are increasing every day.⁴¹

Getting food supplies of whole sales coming from Monrovia is a challenge, due to the lockdown and curfew, which has caused the limitation of food, especially rice in the towns. Therefore, we are engaged in substituting rice for cassava, eddoes, fruits, etc., in order to manage the limited rice we have already secured before the COVID-19. Rice sold in the towns are of high prices, also because of no regular farming activities.⁴²

An even bigger concern are the accounts of decreased food consumption linked to these rising costs. One miner explained that “here at the mine, [because] we are facing problem with feeding aspects, the amount of rice we used to cook have reduced as the entire atmosphere has changed due to the virus.”⁴³ Some people are, as another explained, “substituting rice for cassava, eddoes, fruits, etc., in order to manage the limited rice we have already secured before the COVID-19”⁴⁴ but concede that it is a short-term fix.

Liberia’s response to the pandemic, while swift and effective, threatens food security in its remote, ASM-dependent communities. The priority here is finding ways to make food supplies consistently available in remote regions.

(C) Ghana: “Gold is Being Sold Like Cassava”

The above quote was extracted from an interview with a licensed miner, and also an industry leader, based in the township of Prestea in the Western Region of Ghana.⁴⁵ It was made in reference to how the country’s temporary 21-day lockdown, between 29 March and 20 April 2020, had fuelled a decrease in the price being paid for gold in the town. Prestea has been an epicenter of gold mining – artisanal, through to large-scale – for generations (Hilson and Yakovleva, 2007; Adonteng-Kissi, 2017; Adonteng-Kissi and Adonteng-Kissi, 2017, 2018), and is an illustrative example of how sensitive even the most established of ASM towns in sub-Saharan Africa are to economic shocks.

Prestea, over the 21-day period, illuminates the extent and fragility of the symbiosis among the actors in the region’s ASM supply chains and how even the slightest of disruptions to their nodes can have cascading impacts throughout. As of 8 November 2020, Ghana had 48,904 cases of COVID-19 infections but only 320 related deaths,⁴⁶ a monumental achievement given the country’s significant air traffic and its level of industrial development. Much of this is owed to the lockdown, which, despite minimizing contact and potential spread of the disease, had the effect of bringing hardship to towns dependent on ASM such as Prestea. Here, due to local gold prices plummeting rapidly during the lockdown, people struggled to purchase food and other essentials. Production continued but with so few buyers patrolling the town, due to restrictions imposed on movements, there was a temporary surplus of gold with so few outlets available to sell it at, which, in turn, stimulated a lowering of the price. One miner captured the essence of the problem during an interview:

It is such that buyers are not even available and that people have gold but do not have anywhere to sell it. A “pound” that is more like 10 “blades” is selling at Ghc 140 instead of Ghc 200...An ounce should be sold at 8000 (Ghc) but unfortunately...an ounce is going for 5000 and even with that, locally getting a buyer has proven difficult. This is because our local dealers are not financially stable enough to meet changes of the new market.⁴⁷

As the curfew continued, however, buyers became increasingly scarce, which made predicting the local price for gold difficult. One miner reported that “gold before COVID-19 sold at Ghc 220-250 but when things escalated it sold for Ghc 120-150,”⁴⁸ a point which another broached, claiming that “A

blade used to sell for Ghc 250 but when the lockdown hit us it reduced to Ghc 120 because it was difficult to find buyers for what we produced.”⁴⁹

Fetching less for their gold, miners claimed to have struggled to keep their businesses going. One explained that “I usually need basic tools for production but currently the purchasing price has shot up making it difficult and much expensive to work as compared to before, and when you complain the sellers will not budge because according to them they also purchase these items at very expensive prices and even put in so much effort before they import these items to Prestea.”⁵⁰ The interconnectedness of the town’s businesses was revealed almost immediately after local fuel prices began to spike, which, it was explained, “as a result, prices of all the tools and equipment used for gold processing became expensive...Most miners couldn’t keep up and as a result several businesses collapsed.”⁵¹ One miner elaborated on this point, providing an explanation that was fairly representative of the group of individuals interviewed. The miner explained that he decided “to put a halt to production until things subsided so we can get back to work because there was no way we could afford it any longer, as some of the hardware equipment also becomes expensive, hammers, belts for processing etc, everything was affected.”⁵²

Much like Mali and Liberia, restrictions on mobility contributed enormously to Prestea’s deterioration over the 21 days. The most extreme example given was “an instance where one person we knew couldn’t move from Prestea to Obuasi to purchase the machine he needed for production and was hugely affected economically.”⁵³ But most of the examples provided were simple day-to-day practices adopted because of the rules and regulations imposed by the government, which cumulatively, have had a significant impact. For instance, some miners reported that due to social distancing, they could not “pack ourselves in vehicles and as such we spend much on fuel when conveying workers to the site and this means additional fuel expenses because the total number of passengers have decreased.”⁵⁴ Another miner recalled how police prevented laborers from moving past a security post to their home town (a neighboring village) at the end of a shift, which meant that the site owner had to pay for their accommodation for the evening.⁵⁵

To summarize, the findings gathered thus far from ongoing research in Mali, Liberia and Ghana suggest that, for a number of reasons, in sub-Saharan Africa, COVID-19 is threatening the lives of millions of rural families now reliant on ASM for their incomes. These families routinely exhibit remarkable resilience, and in the past, have turned to ASM to help buffer against shocks and stresses that they frequently face. But on its own, ASM is incapable of sustaining families through COVID-19; the sector, too, requires some support, as even it is not fully immune to the changes made by host governments to policies to help minimize the spread of the pandemic.

4. Concluding Remarks

This paper has provided an initial take on how ASM activities in sub-Saharan Africa have been impacted by the global COVID-19 pandemic. In doing so, it has meandered between two core ideas, the first being how communities dependent on ASM in the region have been affected, economically, by COVID-19, in particular how the changes made at the international, regional and local levels have impacted their livelihoods. The second concerns the case for why, moving forward, ASM should be a centrepiece of the region’s development strategy aimed at building resilience in rural communities and to help buffer against the unavoidable consequences of the virus. An attempt was made to situate the discussion in an emerging body of literature on the impacts of COVID-19 in sub-Saharan Africa, which has not yet taken shape but is rapidly trending in the direction of agriculture, informality and

rural development. Since the initial submission of this paper, only two studies of note have emerged on COVID-19 and ASM. Reinforcing the findings reported here on Ghana, Mali and Liberia, both of these studies provide a glimpse of how the pandemic has impacted ASM communities, including how operators have adapted to changes. The first study (Calvimontes et al., 2020), which used local informants to paint a picture of developments in Brazil, reports how the pandemic has brought the country's small-scale miners together, intensified frictions between them, exposed the vulnerabilities of the local communities where they reside, and how many have self-organized and adapted. The second study (Thierens and Mawala, 2020) was conducted in Tanzania several months into the pandemic. Through consultations with key informants it was confirmed that, despite the country's operators not being restricted by lock-down measures, their productivity has declined due to reduced mobility of labour, capital and equipment. They also reportedly only receive a fraction of the market price for their gold from local buyers because they have been cut off from international markets. It is only a matter of time, however, that the impact of COVID-19 on the region's most important rural nonfarm activity starts to command a greater spotlight.

In writing this paper, some level of reflection about *what could have been* was unavoidable. In building a case here for greater attention to be paid to addressing the needs of ASM-dependent communities in sub-Saharan Africa, the paper revisited the main arguments contained in a body of literature, spanning many decades, in support of formalizing and supporting the sector in the region. In addition to providing millions of people with direct employment, the sector's activities generate finance used to purchase crucial agricultural inputs. It begs the question of why, despite mounting evidence pointing to ASM's rootedness in all corners of sub-Saharan Africa, policymakers and to some extent, donors, were so reluctant in the past to make *effective formalization* of the sector more of a priority in regional rural development strategies? The circumstances have changed following the onset of COVID-19, which promises to reprise discussions about the livelihoods dimension of ASM in sub-Saharan Africa.

The priority moving forward for the region's policymakers, however, is identifying ways to assist rural families through unprecedented economic hardship. Millions of farm-dependent families in sub-Saharan Africa already regularly turn to ASM during times of difficulty to help buffer against economic shocks and stresses; it is a deeply-rooted pattern of livelihood diversification followed, in many cases, for generations. Scholars have worked diligently to showcase these dynamics but their efforts have surprisingly not swayed governments and donors to the point where they have shown a willingness to design policies which reflect this. If it is accepted that ASM has a role to play in helping to navigate rural African communities through any economic crises linked to COVID-19, then the communities where it is rooted, and the groups who depend on it for their survival, must be supported accordingly. Because of its potential to kickstart and spawn additional economic activity, the sector visibly provides much-needed stability even though it is not immune to the sizable shocks and stresses that have been brought about by COVID-19. Preliminary data collected in Mali, Liberia and Ghana provide a window into the struggles the region's ASM-dependent communities face. More data (both comparable qualitative and quantitative information) are desperately needed, particularly from those operating informally, who account for over 95 percent of the ASM workforce in sub-Saharan Africa. Those interviewed as part of ongoing research are all operating in the formal domain, having overcome the cumbersome barriers to securing a license and in the process, achieving a minimum level of status required to begin initiating dialogues with donors, banks and other bodies which administer support. But as bleak as the prospects appear for legal operators, those operating informally, many of whom are migratory and have insecure employment, are even more vulnerable.

The concern is, given where policy in sub-Saharan Africa currently stands on ASM, that this may be too much to ask of donors and host governments, even during these unprecedented times. More information is needed to paint a fuller picture of the sector's activities and operators but a necessary first step is for the launch-point to change: specifically, when collecting data, there needs to be a pronounced shift from asking *what does ASM do?* to *how can it be best integrated into rural development policy?* Doing so would at least concede that ASM does have a necessary role to play in navigating rural African families through the current crisis and in development more broadly. The COVID-19 epidemic could, therefore, be a watershed moment for ASM in sub-Saharan Africa, providing a much-needed opportunity to properly define the sector's role, based on realities on the ground, in the region's development strategy during the period of the pandemic and beyond.

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Endnotes

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¹ Defined here as low-tech, labour-intensive mineral extraction and processing.

² As most ASM activities in sub-Saharan Africa are found in the informal sector, they tend to be unregulated and unmonitored by governments. The environmental impacts associated with the region's ASM operations include land degradation, mercury pollution and siltation of rivers. Within the local communities surrounding sites, the most common social "ills" include violent crime, excessive alcohol use and narcotics consumption. These problems are, naturally, more visible in the informal sector, which again, tend not to be policed regularly by government officials (see e.g. Chipangura, 2019; Byemba, 2020; Chipangura, 2019).

³ "Employment in agriculture (% of total employment) (modeled ILO estimate) - Sub-Saharan Africa," <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=ZG> (Accessed 29 May 2020).

⁴ "Family Farming Knowledge Platform", www.fao.org/family-farming/regions/africa/en/ (Accessed 3 May 2020). A "family farm" is defined as farms that rely on family labour.

⁵ Vaughan, A. "We don't know why so few covid-19 cases have been reported in Africa," www.newscientist.com/article/2236760-we-dont-know-why-so-few-covid-19-cases-have-been-reported-in-africa/, New Scientist, 10 March 2020.

⁶ "Africa: COVID-19 deaths pass 3,500, cases near 120,000," www.aa.com.tr/en/africa/africa-covid-19-deaths-pass-3-500-cases-near-120-000/1854816 (Accessed 28 May 2020).

⁷ "WHO Coronavirus Disease (COVID-19) Dashboard," https://covid19.who.int/?gclid=EAlalQobChMI6uyrjZr27AIVQu7tCh0AqQ0rEAAYASAAEgJHzPD_BwE (Accessed 8 November 2020).

⁸ "New WHO estimates: Up to 190 000 people could die of COVID-19 in Africa if not controlled," www.afro.who.int/news/new-who-estimates-190-000-people-could-die-covid-19-africa-if-not-controlled (Accessed 28 May 2020).

⁹ "Year in Review: 2018 in 14 Charts," www.worldbank.org/en/news/feature/2018/12/21/year-in-review-2018-in-14-charts# (Accessed 19 March 2020). As reported by the United Nations, the global "Multidimensional Poverty Index" scrutinizes a person's deprivations across 10 indicators in health, education and standard of living (UNDP, 2019).

¹⁰ "Coronavirus: Oil price collapses to lowest level for 18 years," www.bbc.co.uk/news/business-52089127 (Accessed 3 April 2020).

¹¹ "Covid-19: How the coronavirus pandemic is hurting the mining industry," www.mining-technology.com/features/how-covid-19-is-hurting-mining/ (Accessed 3 May 2020).

¹² See also "Business as usual for gold miner West African Resources," www.miningreview.com/gold/west-african-resources-mining-and-gold-production-unaffected/ (Accessed 15 April 2020).

¹³ "Food Security and COVID-19," www.worldbank.org/en/topic/agriculture/brief/food-security-and-covid-19 (Accessed 28 May 2020).

¹⁴ An initiative launched by the World Bank and managed by the international NGO, PACT. See <https://delvedatabase.org>

¹⁵ Not to be confused with independent third party project evaluators who, again, usually produce reports that remain hidden from the wider public.

¹⁶ The Minamata Convention on Mercury is a global treaty implemented to protect human health and the environment from the adverse effects of mercury. It was officially adopted on 10 October 2013. See "Text and Annexes," www.mercuryconvention.org/Convention/Text (Accessed 3 April 2020).

¹⁷ Brottem, L., "Commentary: Women miners shouldn't be seen as victims," 7 March 2018, reuters.com/article/us-brottem-mining-commentary/commentary-women-miners-shouldnt-be-seen-as-victims-idUSKCN1GJ29P (Accessed 3 May 2020).

¹⁸ "Coronavirus Resource Center," <https://coronavirus.jhu.edu/map.html> (Accessed 31 May 2020).

¹⁹ All interviews in Mali were conducted in French and Bambara, and transcribed, verbatim, into English. All respondents were anonymized.

²⁰ Interview, Female Miner, Goukoto (Kayes).

²¹ Interview, Female Miner, Tabakoto (Kayes).

²² Interview, Female Miner 1, Kalana (Sikasso).

²³ Interview, Female Miner 2, Kalana (Sikasso).

²⁴ Interview, Female Miner 1, Krouketo (Kayes).

²⁵ Interview, Female Miner 2, Kalana (Sikasso).

- ²⁶ Interview, Female Miner 1, Krouketo (Kayes).
- ²⁷ Interview, Female Miner 2, Kalana (Sikasso).
- ²⁸ Interview, Female Miner, Koflantie (Koulikoro).
- ²⁹ Interview, Female Miner, Kolondieba (Sikasso).
- ³⁰ Interview, Female Miner, Djidjan (Kayes).
- ³¹ Interview, Female Miner, Koflantie (Koulikoro).
- ³² Interview, Female Miner 2, Kalana (Sikasso).
- ³³ Interview, Female Miner, Balandougou (Koulikoro).
- ³⁴ Interview, Miner 1, Weaju Village.
- ³⁵ "Coronavirus Resource Center," <https://coronavirus.jhu.edu/map.html> (Accessed 8 November 2020).
- ³⁶ Liberia's capital, Monrovia, is located in Monterrado County, which borders Margibi County.
- ³⁷ See "President Weah Project - Corona (Covid - 19) Awareness Song," www.youtube.com/watch?v=Q6hARy-TtKE (Accessed 27 October 2020).
- ³⁸ Interview, Miner 2 Weaju Village.
- ³⁹ Interview, Miner 15, Weaju Village.
- ⁴⁰ Interview, Miner 5, Weaju Village.
- ⁴¹ Interview, Miner 3, Weaju Village.
- ⁴² Interview, Miner 14, Weaju Village.
- ⁴³ Interview, Miner 13, Weaju Village.
- ⁴⁴ Interview, Miner 7, Weaju Village.
- ⁴⁵ Interview, Miner 1, Prestea.
- ⁴⁶ "Coronavirus Resource Center," <https://coronavirus.jhu.edu/map.html> (Accessed 8 November 2020).
- ⁴⁷ Interview, Miner 1, Prestea. Locally, gold is typically measured in "blades" and "pounds." The former is the weight of a razor blade, and the latter is 10 blades.
- ⁴⁸ Interview, Miner 4, Prestea.
- ⁴⁹ Interview, Miner 5, Prestea.
- ⁵⁰ Interview, Miner 6, Prestea.
- ⁵¹ Interview, Miner 9, Prestea.
- ⁵² Interview, Miner 10, Prestea.
- ⁵³ Interview, Miner 1, Prestea. Obuasi is a major gold mining town in Ghana located approximately 200 miles from Prestea.
- ⁵⁴ Interview, Miner 12, Prestea.
- ⁵⁵ Interview, Miner 13, Prestea.