Beyond the Rituals of Inclusion: The Environment for Women and Resource Governance in Africa's Artisanal and Small-Scale Mining Sector

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This paper considers the apparent confluence of three policy developments: the Sustainable Development Goals, as the latest international commitment to gender equality and women's empowerment; the growing push to formalize the artisanal and small-scale mining sector; and the call to address environmental concerns of ASM through increased regulation, including formalization. Informed by feminist political economy and political ecology scholarship, we consider the kinds of gendered meanings about gold ASM (ASGM) and the environment made possible through the points where formal policy commitments to ASGM, environmental protection and women's inclusion intersect, or fail to intersect. We explore three contexts in which environment narratives have been framed and/or mobilized: the 2014 Minamata Convention on Mercury, followed by two brief case studies examining the consequences of the enforcement of gender-blind environmental initiatives on the livelihoods of women artisanal gold miners in central Mozambique and eastern Ghana. The paper concludes with three recommendations for future work on the intersection of environmental protection programs and women's empowerment agendas for the ASGM sector.

The Sustainable Development Goals constitute the latest international consensus on development funding priorities, signalling a renewed, global commitment to gender equality and women's empowerment. The SDGs are just one part of a larger trend in which gender equality language is included in various international policy contexts. Feminist mining scholar Kuntala Lahiri-Dutt (2015) argues this is true also of the global policy apparatus around mining, a sector generally understood as resolutely masculine. Mining, she says, is experiencing "a process of feminisation," driven by a range of factors, including the growing numbers of women (and men) working in artisanal and small-scale mining (ASM),[1] as well as a shift in transnational policy architecture leading to greater visibility to women's participation in mining (Lahiri-Dutt 2015, 523).

This feminisation of mining, and the recognition that women comprise at least 30% of the ASM labour force, is now the focus of an emerging body of research on gender and women's livelihoods in ASM (see e.g, *Canadian Journal of African Studies,* 2020, vol. 54(1); Hinton, 2011; Bashwira, Cuvelier, Hilhorst 2014; Hilson et al 2018; Cuvelier 2017; Bryceson, Jonsson, Verbrugge 2013; Buss et al., 2017; 2019). Women's involvement in ASM, the research shows, is significant and varied, spanning 'entry level' processing activities but also mineral buying and less commonly, mine ownership (see e.g, Buss et al, 2017, pp. 31-34; 46-7). But ASM sites are gendered, with authority relations, often patriarchal, shaping and constraining women's ASM livelihoods (Rutherford 2020; Rutherford and Buss 2019). These findings sit alongside a less documented, but troubling dynamic. Despite growing policy attention to women in ASM, particularly in sub-Saharan Africa, women may also be experiencing increased exclusion or stigmatisation partly because of heightened policy attention to ASM and its putative links to armed conflict, poverty, and environmental degradation. Some preliminary research in central Africa, for example, finds that increased protectionist rules, such as banning pregnant women from ASM sites ostensibly because of mercury-exposure concerns, have constrained women's access to ASM livelihoods, even for women who are not pregnant (Bashwira, Cuvelier, Hilhorst 2014, 112; Danielsen and Hinton 2020, 25).

This seemingly paradoxical result - the 'feminisation of mining' alongside increased exclusions of women involved in mining - is the starting place for this paper. As feminist scholars have long noted, the discursive inclusion of 'women' in policy articulations or enactments always unfolds within relations of power (Whitworth 1994; Prügl 1999; Bedford 2009). Hard-won references to women/gender in transnational policy may momentarily fix commitment to a potentially promising understanding of gender equality or women's empowerment, but the project of 'inclusion' is never static. Meanings and understandings are varied and contestable; they "rub up against" other projects "awkwardly, creating messiness and new possibilities" (Tsing 2000, 347), which are themselves enmeshed within unequal relations. Terms like 'inclusion' or 'women's empowerment' are easily stripped of their transformative intentions, "reduced to buzzwords that garland policy discourses" (Cornwall and Rivas 2015, 397; see also Kabeer 2005; 2017; Batliwala 2007).

Our interest in this paper is with the gendered meanings that are emerging at the intersection of three policy developments particularly relevant for scholars of ASM and of women's livelihoods: the SDGs, the renewed focus on formalizing the ASM sector (by bringing it within formal state licensing, economic and environmental regulation (Hilson and McQuilken 2014),[2] and the increasing array of initiatives to address ASM's deemed environmental impact. We begin with the SDGs and the commitment to gender equality, followed by an examination of gendered understandings of gold ASM (ASGM) and risk in the Minamata Convention on

Mercury. While this paper focuses broadly on environmental narratives, not just those concerning mercury, the Convention is the leading site promoting regulation of the ASGM sector in the name of environmental protection. As we explore below, the regulatory assemblage (Sassen 2006, 3) emerging around the Convention reflects distinctly gendered depictions of the mercury-ASM connection. Women, we argue below, materialize as troubling maternal bodies, simultaneously risky and at risk.

Reading the SDGs in relation to the Minamata Convention points to the complex, variable terrain in which gender meanings and women's inclusion take shape not just at the points where policy commitments on ASGM, environmental protection and women's inclusion overtly intersect, but also where they (seemingly) fail to intersect. In the final two sections of the paper, we turn to ASGM contexts in Mozambique and Ghana to explore some preliminary findings on gendered effects of environmental protections narratives, not just those focused on mercury. Here our focus is on how government interventions, rhetorically framed in terms of environmental protection broadly, interact with the "material flows, labour and power relations, and the social metabolism that underpins extractive economy developments" (Spiegel et al 2018, 2; see also Spiegel 2017, 96; Tschakart and Singha 2007; Hirons 2011). This 'social metabolism', we argue, has distinctly gendered contours, building on the insights of feminist political ecology research in other contexts (see eg., Nightingale 2006; Rocheleau and Ross 1995). The discussion in these two final sections are based on field research results in Mozambique (in Manica District, with annual visits of two to four weeks, 2015-2018) and Ghana (in the ASM locality of Akwatia in the country's eastern region, where 30 women were interviewed multiple times over six months in 2018), are intentionally not focused on mercury issues but on the ways in which government interventions justified in the name of 'environmental protection', unfold within highly gendered contexts.[3]

Transnational policy spaces for ASM, Gender and Environment: SDGs and the Minamata Convention

Launched in 2015, the SDGs comprise 17 goals and 169 targets produced through an extensive two-year consultation process with multiple stakeholders and civil society organizations (O'Manique 2016, p. 123). The SDGs' predecessors – the Millennium Development Goals - were heavily criticized for falling short of expected gains to women's empowerment including a lack of gender mainstreaming across targets (O'Manique 2016, 122-123; see also OHCHR 2008; Onditi 2017; Odera 2020). Feminist advocacy led to the more methodical inclusion of gender considerations in the SDGs, and the expansion of targets for achieving goal 5: to achieve "gender equality and empower all women and girls." Goal 5 includes nine targets with one or two indicators each. For our purposes, the targets can be loosely grouped into three categories: those calling for changes to laws, policies or dominant cultural practices to end discrimination and violence, and increased opportunities for participation and leadership in "political, economic and public life" (targets 5,1; 5.2; 5.3; 5.C); targets aimed at giving women access to or beneficiation from resources; "economic resources: including "access to ownership and control over land and other forms of property, financial services, inheritance and natural resources," (5.A), enhanced use of technology to promote women's empowerment (5.B), and seeking to both recognize and redress women's "unpaid care and domestic work" (5.4). Finally, target 5.6 calls for universal access to sexual and reproductive health and rights.[4]

These targets are an improvement from the MDGs, particularly the references to women's unremunerated social reproductive work and calls for women's access to economic and other resources, which provide some recognition of women's reliance on the informal, including agricultural sector and the significance of access to and control of land to achieve gender equality and women's empowerment. But concerns remain. Colleen O'Manique (2016, 123-125), for one, argues that empowerment in the SDGs is thinly conceived, predicated on troubling ideas of 'inclusion' limited to eliminating discrimination, for example, while not providing an agenda to address more substantive barriers such as women's social and reproductive labour (see also Esquivel 2016, 16). Shirin Rai and colleagues (2019, 370) similarly note that while the SDGs go further than the MDGs in recognizing women's unpaid care and domestic work, they prioritize a limited conception of economic growth (SDG 8) centered on "cheap labour markets" underpinned by women's continued "unpaid domestic labour within the household" (see also O'Manique 2016, 124; Struckmann 2018, 14).

The concerns about the SDGs raised by these and other scholars have implications for women's ASM livelihoods. Gender norms and institutions delimit women and men's ASM livelihoods, with women excluded from some mining roles because of norms about women's proper roles, their risk of pollution (chasing away the gold), and deemed 'lack of courage' or strength (Buss et al., 2017, 28-30). These exclusions contribute to a gender division of labour with women more often found doing mineral processing or labouring roles, receiving limited, and sometimes no remuneration (Buss et al., 2017, 30-34). Authority figures in ASM – who make decisions about access to mining work, e.g., – are also largely male and often are understood and operate through the idioms of patriarch (Rutherford and Buss 2019, 67-71). Women's social reproductive roles – "the activities and attitudes, behaviours and emotions, responsibilities and relationships directly involved in the maintenance of life on a daily basis, and intergenerationally…" (Laslett and Brenner, 1989: 382, quoted in Luxton, 2006: 35-36) – translate into a double, or sometimes a "triple burden" (Moser 1989, 1801) that women navigate and which significantly limits their time for ASM livelihood activities. Yet research also shows that women earn significantly more - sometimes 200 and 300% more – from mining than their best non-mining alternative, according to research carried out in ASM sites of gold, tin, tantalum, and tungsten in sub-Saharan Africa (Buss et al., 2019, 1105; see also Stewart, Kibombo, Rankin 2020).

Women's household obligations thus have an obvious impact on their livelihoods, reducing the time available to do mining work. But their social reproductive roles – understood as not just their household commitments but also the 'attitudes, behaviours, and emotions' about women's roles as mothers and carers - is also important, shaping the kinds of mining work women are seen as 'suited for', while also minimizing the importance of women's mining livelihoods. Women's ASM work is consistently invisibilized and/or devalued. Women's processing work, for example, is often see as not 'real mining' in comparison to work of male diggers, or their mining work is not seen as having significant economic value, or if women work with husbands or male family members, they, and/or their earnings are seen as belonging to the male relative (see e.g., Rutherford 2020, 13-15). Finally, women's ASM work is often assumed to be less important than their roles as mothers and wives (Buss et al., 2017, 35-37). Women's inclusion in ASM sites, and efforts to increase their visibility within policy frameworks, thus unfold within this highly gendered context that is oriented to dismissing or devaluing women's ASM roles, even while research suggests these roles, and women's mining income is tremendously important.

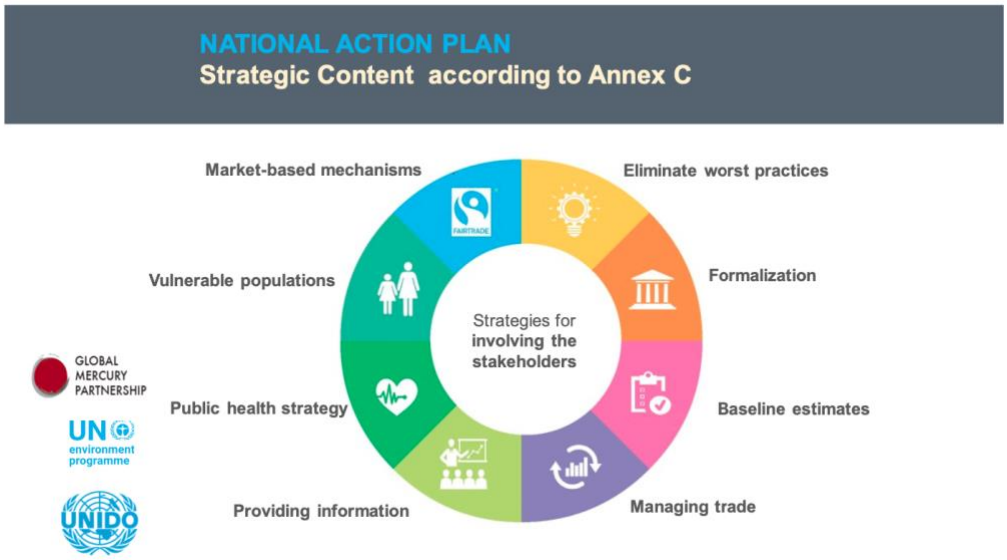
Below, we examine representations of women within the dominant accounts of ASM and its links to environmental degradation. We turn first to the most active institutional assemblage on ASM and environment; the 2014 Minamata Convention on Mercury, which specifically targets use of mercury in artisanal and small-scale gold mining. ASGM is the largest, anthropogenic source of mercury emissions (UN Environment and GMP 2017, 3), and the Convention requires ASGM states to develop a national action plan (NAP) for reducing mercury use/trade and managing mercury's health impacts (7(3)(a)). ASGM countries must submit reports every three years on their NAPs (7(3)(c)). It is also a context, we argue below, in which women's ASGM livelihoods are minimized, whereas depictions of women as maternal, vulnerable (but possibly dangerous) are deeply embedded.

Minamata Convention and Women as Vulnerable Population

In 2018, a lengthy technical handbook was finalized by a trio of UN agencies to provide detailed guidance to states on reducing mercury use in ASGM (UNITAR & UNEP 2018). In an unusual step, the Minamata Convention includes formalization – bringing ASGM within a state's formal legal and economic system – as integral to eliminating mercury (Hilson et al., 2018). Gender equality is conspicuously *present* in this document. Gendered differences in women and men's mining experiences are flagged and the document considers women in mining separate from children (thus not assuming that women are always conduits of child labour, nor reducing their roles to bearers of children). The goal of "empowering and protecting women," with reference to SDG Goal 5 is identified as a "cross-cutting issue" (UNITAR & UNEP 2018, 56), and a checklist in Annex 2 guides states in including 'gender equality' in their ASGM formalization strategy. This attention to gender equality and the mainstreaming is explained in the Handbook as required by the SDGs, but also because "promoting gender equality through formalization policy can help the ASGM sector to become a vehicle for sustainable development" (UNITAR & UNEP 2018, 56).

The Handbook, however, is only one of a cluster of documents[5] intended to guide states in implementing the Convention, and women materialize in these other documents in more problematic ways. The Mercury Convention itself, to begin, clearly defines vulnerability as embodied in women and children. The preamble refers to health concerns from mercury exposure in "vulnerable populations, especially women, children, and through them, future generations" (UN and UN Environment 2019, 13). The Convention requires states to include in their NAPs "strategies to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to mercury used in artisanal and small-scale gold mining" (Annex C, s. 1(h)(i), UN and UN Environment 2019, 60). In some of the documentation promoting the Convention, this representation is visually cued in an icon for 'vulnerability' as a stick figure with a dress, holding the hand of a smaller figure, also wearing a dress (see Figure 1) Hence, women and children textually and visually stand in for 'vulnerability', with women's reproductive roles posing an ongoing risk to other vulnerable populations, namely (girl) children (see e.g. O'Neill and Telmer, 2017, iii; UNEP et al., 2019).

Figure 1 – Gendered iconography of Vulnerable Populations



Source: UNEP et al., 2019

This representation of women as iconic of vulnerability (and as linked to children) is reproduced in the other key documents that provide technical guidance to state parties to the Convention. Two documents, in particular, seem core to the guidance provided to states on complying with the Convention; one that provides detailed, methodical instructions on compiling a baseline study of the ASGM sector (*Methods and Tools: Estimating Mercury Use and Documenting Practices in Artisanal and Small-scale Gold Mining (ASGM)* (O'Neill and Telmer 2017), the second on devising the country NAP (*Guidance Document* (UN Environment 2017). In both women materialise primarily (but not exclusively) in terms of their reproductive capacity and as requiring special attention as a vulnerable population.

The sections in these documents on 'gender' (though only referring to women and children) link discussions of risks to women with discussions of child labour as though the two are self-evidently related (O'Neill and Telmer, 2017, 23; UNEP 2017, 67-70). Yet, the question of whether and how children are involved in ASGM (and the circumstances of their labour) is still under-researched. It is far from settled if women's ASM livelihood activities lead, or is related to children and youth undertaking mining. Indeed, mining work is often enmeshed in dependency relationships – such as with senior male miners for young men, or familial relations for women - that can structure access to mining, particular mining roles, and control over earnings from mining (Rutherford 2020; Ibrahim, Rutherford, Buss 2020, 169-170). Conflating women's mining work with child labour simplifies the complexity of these relations, while also minimizing men's roles as fathers, husbands, mine bosses, or sponsors.

Policy interventions like this are not just neutral descriptions of biological or social realities. They actively construct gendered subjectivities and meanings (see e.g., Bedford 2009; xxivi; Prügl 1999), shaping the overall frame in which 'problems' emerge and take shape as specific kinds of, in this case, environmental problems. For example, while these detailed guidance documents note that women are also miners and pursue mining livelihoods that are important to them and their families, this recognition is not then reflected throughout the documents nor in the resulting recommendations. The documents do not address, for instance, how women miners might be differently impacted by mercury-abatement strategies, nor do they

enlist the assistance of governmental actors and ministries with gender expertise, and specifically the ministries for gender, women or social welfare (see e.g., Table 4.1, UNEP 2017, 20).[6] While repeatedly highlighting risks to children from women who work with mercury, these documents provide no recommendations on, or even discussions of, child-care options.

In this framing of the problem of mercury risks and vulnerabilities, with its strong 'protectionist' ethos, and in a context where ASGM and women's mining livelihoods are still not well understood by governments (Hilson, Hu, Kumah 2020, 128), 'women' are positioned as both at risk, and as risky; posing risks to their children through foetal mercury exposure and/or as presumed conduits of child labour. The available solutions that emerge as 'common sense' point in the direction of removing women from ASGM. This pattern has been found in DRC, for example, where protectionist-oriented depictions of women as victimized by sexual violence in mining communities led to "initiatives to promote women's exit from artisanal mining" (Bashwira et al., 2014, 11; see also Buss and Rutherford 2020, 1-2). Diverting women into 'alternative' livelihoods underestimates the importance of ASM livelihoods for women, which, as noted in above, often provide them with far better remuneration than available alternatives (see, e.g., Omeyaka and Kebongobongo 2020; Nsanzimana, Nkundibiza and Mwambarangwe 2020).

Finally, when women are primarily figured as embodied vulnerability, men's own risks, including to their reproductive capacity,[7] are either minimized or completely invisibilized (Whitworth 1994, 397; Lahiri-Dutt 2001). Men appear in the Minamata assemblage as miners, but not as fathers, husbands, or brothers for whom mercury exposure may also be a concern.

In the following section, we examine two different contexts where environmental concerns linked to ASGM led to, or were invoked, in relation to government interventions. In both cases, gender considerations were largely absent from formal government statements, yet the interventions themselves had distinctly gendered results. These examples point to the highly uneven policy space in which the 'feminization of mining' is unfolding, and in which the exclusions of women and their lived realities are re-enacted in multiple ways.

Mozambique: Gendered consequences of sedimentation reduction efforts

Like for many national governments there is policy tension between economic growth and environmental regulation in Mozambique. The Mozambican government earned praise in the 2010s by proponents of sustainable development for its "green economy" strategy, lauded as evidence of how growing industrial mining can also enhance conservation initiatives there. Since the discovery of massive liquified natural gas deposits (over 75 trillion cubic feet) off its northeastern coast and expanding coal, ruby, and other large-scale mining operations, many donors began viewing Mozambique as a place where conservation can both "protect nature from development" and "benefit" from the extractives sector and started working closely with the government on this front: "Influence within government has been easily secured by large international donors and NGOs [non-governmental organizations] which have provided ways to align conservation goals with Mozambique's rapid industrialization" (Symons 2018, 497).

However, as Symons observes, the government tends to favour large-scale extractive projects over other land uses, including conservation: "in 2014, the Mining Law was revised to establish that economic activities, especially gas and mining, take priority over other land uses where there is economic benefit to the nation" (Symons 2018, 500). Indeed, the Mozambican government has tended to promote large-scale mining or agricultural projects in the face of environmental (and social justice) criticisms (e.g., Hanlon and Mosse 2010; Borras Jr, Fig and

Suárez 2011; Macuane, Buur and Monjane 2018) ; which exemplifies the bias towards large-scale mining found elsewhere in Africa (e.g., Hilson, Sauerwein and Owen 2020; Sauerwein 2020; Hilson 2019).

In contrast, the Mozambique government and its donor supporters are more ambivalent towards smaller-scale extractive activities such as ASGM found in Manica district, central Mozambique. Throughout the 2010s, the provincial Manica government and the national government have periodically punitively targeted artisanal miners excavating gold in the Manica highland mountain range that transects the border with Zimbabwe, typically in the name of addressing adverse environmental impacts.

There is a long history of both mining (going back to the precolonial period) and conservation efforts (particularly after the formal end of the civil war in 1992) in this area. Through new legislation and interventions by government officials and NGOs in the name of conservation more broadly, there have been a series of contestations and conflicts between various forms of customary and local government leadership, political party officials, the state and farmers, and those deemed to be "locals" and those called "migrants" (e.g., Schafer and Black 2003; Kachena and Spiegel 2019). Even in initiatives aiming to emphasize local control of natural resources, the literature shows these to be imbricated in state attempts to control people and territories, which often end up supporting powerful men at the expense of women and those further away from power (e.g. Kaarhus and Dondeyne 2015).

The growth in ASGM in Manica after the end of the civil war was spurred on by economic hardship and a rapid growth of migration from Zimbabwe this century, as men, women and children have fled the (often highly politicized) economic malaise there (see Rutherford and Chemane-Chilemba 2020). With the Manica highlands forming a key water source for the region (Clark et al. 2019), the main environmental harm government leaders and NGOs associated with ASGM in the region is sedimentation in the rivers.

A number of commentators assumed formalization – ensuring artisanal miners operated with licenses (and formed associations) – would reduce sedimentation in the rivers (e.g., Mujere and Isidro 2016). However, others point out the limitations of such policies for improving environmental conditions as they are biased towards hard-rock gold mining, neglecting the tens of thousands alluvial gold miners in Manica (Dondeyne et al 2009).

As discussed elsewhere (Rutherford and Chemane-Chilemba 2020), many women have been involved in ASGM in Manica district. Aside from a few women gold buyers, the vast majority were involved as vendors or in the processing or, for a few who defied restrictions against them by various authority figures (such as husbands, parents, chiefs, landowners, associations), excavating gold. Women involved in ASGM during our research from 2015-2019 mostly did forms of "panning" (*kupara-para*), reprocessing dirt looking for gold, gaining important income for themselves and their families. Some women would reprocess tailings from men's shafts, while others reprocessed the water-bed in areas previously mined by women and men, as two dominant forms of kupara-para. In these activities, women often found 'points' of gold that had been missed in the original processing, using the money earned for household consumption, children's education, or reinvesting in their gardens or farming. However, such reprocessing required access to water, which meant they, like most men miners, became targets of governmental environmental regulations.

During the time of our research there was no emphasis on 'women's empowerment' through mining in governmental policies. Yet, environmental regulations concerning limited sedimentation in waterways in Manica district unfolded in the complex gendered gold ASM

terrain, getting entangled in the gendered "material flows, labour and power relations, and the social metabolism that underpins extractive economy developments" (Spiegel et al 2018, 2).

When our research began in 2015, other than in the few hard-rock ASGM sites that had miner associations established by the government (albeit, not all were still in operation) where dams for processing the gold were also built, the vast majority of the artisanal gold miners were working in alluvial gold sites, processing ore-laden soil in or next to streams or rivers. When provincial and national politicians and authorities renewed attention on the environmental harm caused by ASM miners to the rivers (e.g., Machirica 2015; AIM 2016), armed state officials started in 2016 to close down or threaten closure of many artisanal gold mining sites, citing environmentalist reasons as the provincial government had long identified this activity as the main source of sedimentary pollution in the rivers (Dondeyne et al 2009). While police officers occasionally came to the mining areas to threaten or enact closure prior to 2016, a new security branch was created that year in the name of protecting Mozambique's natural resources. These armed 'environmental police' (*Policia da Protecção das Recursos Naturais e Meio Ambiente*) shut down many alluvial gold mining sites in Manica district in 2016, chasing away miners. Later, this force allowed miners to return but collected ongoing 'fines' from them to enable their access to mining areas.

The environmental police presence has a noticeable impact in the processing practices in many of the artisanal alluvial gold mining areas around the town of Vila de Manica. In 2017 and 2018, there were very few miners openly processing gold in rivers for fear of "the police" stopping their mining activities. Most miners instead were processing in dams constructed at least twenty metres from water sources.

However, this environmental success had clear, if unintended gendered repercussions, generally with adverse economic consequences for many women. Most of the owners of the new dams were men, often the (usufruct) owner of the land where the dam was located (following patrilineal inheritance preferences). Fearful of being fined or arrested, women no longer reprocessed tailings or water-beds in the rivers. The vast majority of women, moreover, were no longer able to freely access the water beds of the dams where processing occurred. Although the owners of the newly built dams did not charge anyone for using their source of water, their economic gain came from monopolizing the reprocessing of the soil at the bottom of the dam. No women (unless they were related to the dam owner) could reprocess the bottom of the dam on their own, thus depriving many women from what had been a regular source of income.

In 2017 and 2018, there were much fewer women mining in the alluvial gold mining sites compared to 2015 and 2016. Those years we met many women who were instead vending in nearby open-air markets (which, for most, earned them less money than kupara-para) or who were not doing any income-generating activity at all. As an older woman (who was married to a chief) declared in 2018, "I am too old to be arrested at my age! I and my daughters have stopped kupara-para these days." The economically adverse consequences of the newly enforced environmental regulation for many women were not discussed by any of the mining officials we interviewed.

Ghana

Ghana is seen by some as a leader in the area of ASM formalization. This is why the government's decision to implement a ban on ASM in April 2017 – which extended to even *legal* operators – was a surprising development. Some (i.e., Hilson and Maconachie 2020) have

questioned the true motivation behind the ban, enacted as part of *Operation Vanguard*, a nationwide crackdown on illegal mining. Government officials claim the move was made to reduce the environmental impacts of ASM activities (Bansah et al. 2018; Owusu et al. 2019). However, an overlooked aspect of this ban, which was eventually lifted in December 2018, is its impact on those dependent upon the sector for their livelihoods, such as women, who, as findings from ongoing research have revealed (e.g. Kumah et al., 2020; Hilson et al., 2020), endure abuse and harassment, and face other risks at ASM sites in order to generate income for their families. The ban also prevented them from accessing an important livelihood.

At least one million people in Ghana are employed directly in ASM (IGF 2017), although this figure is an estimate and may be higher. As elsewhere, Ghana's high and ever-growing national unemployment rate (48%) is stimulating the growth in ASM (Hilson 2017). The drivers of female participation in the sector specifically are under-researched. Some research (Yakovleva, 2007; Hilson et al, 2020; Orleans-Boham et al., 2020; Kumah et al., 2020) suggests women engage in physically-demanding activities at the bottom of the sector's labour pyramid, including but not limited to digging and hauling of excavated materials for processing. Yet], ASM work has provided economic relief for hundreds of thousands of women. The challenge facing Ghana's policy-makers, therefore, is ensuring that women and men are able to work in safe environments: that while the work itself may be difficult, that it does not pose health-related threats, in the form of mercury contamination, safety concerns and exposure to other disease. Importantly, the subject of women in ASM has caught the attention of the government in recent years because of its ratification of the *Minamata Convention*.

An important strand of this story is the economic impact a move into ASM – however menial and exploitative the work may be – appears to have had on the lives of hundreds of thousands of Ghanaian women. Again, recent research carried out in the Eastern Region of Ghana (Zolnikov 2020; Hilson et al. 2020; Kumah et al. 2020) puts this into context. Working in the most precarious of environments has positioned women here to generate earnings which cover basic household expenses and have been reinvested in children's school fees and family farms, improving in the process local food security. These are impacts which Yakovleva (2007) initially publicized, based on fieldwork conducted in Noyem in Ghana's Eastern Region. They also speak broadly to findings contained in a broader body of scholarship which draws attention to the indispensable roles played by women in rural Ghanaian households, a list that includes food production and income-generation (e.g. Panuccio, 1989; Van Den Boom et al., 1996; Quaye et al., 2016; Tsiboe et al., 2018; Etuah et al., 2020).

The more recent research mentioned above reinforces many of Yakovleva's points, having been conducted during the ASM ban in Ghana. Following escalated pressure on government from NGOs and media houses to bring informal ASM – popularly referred to as *galamsey* – under control, the newly-elected Government of Ghana suspended the sector's operations in 2017 (Hilson, 2017). These NGOs and media houses catalogued a number of issues for why this needed to happen, emphasizing in particular the widespread destruction ASM activities were causing to forests and water bodies. The government deployed the military and police to seize equipment and arrest those failing to comply with the ban, but rarely broached the subject of people's livelihoods. At the same time, policymakers paid little attention to the needs of hundreds of thousands of women whose livelihoods depend on incomes earned in the sector.

Many are divorced, widowed and/or single parents and are ultimately, household heads. Drawing upon findings from ongoing research, Hilson et al. (2020) and Kumah et al. (2020) captures just *how* dependent women are on ASM in Ghana. The women interviewed, all of whom were undertaking manual work such as ore washing, hauling and sorting, said they were forced to reduce food consumption because of the ban, therefore depriving their families of essential nutrition. They were also unable to deal with medical emergencies, as they were incapable of paying hospital bills and purchase medicines and were forced to remove children from schools on account of not being able to mobilize finance to cover fees.

These findings corroborate and nuance earlier accounts (Yakovleva 2007; Tschakert and Singha 2007; Hilson and Garforth 2012; Koomson, 2018) of ASM's enormous economic impact on women in Ghana. While this research was not carried out during a time when activities were suspended, they do nevertheless zoom in on the household, illuminating how many families use ASM to pay for school fees and position themselves to accumulate the wealth needed to invest elsewhere. This body of work has also revealed that Ghana's mine sites are very complex – or in the words of Ferring et al. (2016), 'heterogeneous' – in their orientation. They are populated by a range of different people, including women who are equally benefitting from being able to access income from ASM. Most of these women – at least those engaged in informal activities – have turned to ASM out of desperation, their circumstances and experiences further reinforcing the sector's 'poverty-driven' label. Echoing Hilson and Maconachie (2020), through working in ASM, many women have gained more financial autonomy, which needs to be a priority point of emphasis when building a case for supporting the sector in line with the SDGs.

Government data[8] records fewer than 5 percent of ASM license holders in Ghana are women. What these two extremes –a growing number of women at the bottom of the labour hierarchy, carrying out highly-manual work, and a small group of what would be considered *elite* concession holders – reveal is that a very specific story of empowerment can be crafted which speaks to SDG5. For starters, the strategy employed to empower and support the women engaged in ASM in Ghana must be flexible enough to reach women with different economic resources. What this spectrum also reveals, however, is that women *can* ascend upward in the sector, to the point where they fill senior management positions and become concession holders, with the right motivation and support. Although the number in possession of licenses is small, each has intimate knowledge of how to overcome the cultural and economic barriers preventing women's ascension in the sector. This could be invaluable information which can be used to develop strategies which maps on to the SDGs.

Conclusion

In this article, we draw from feminist political economy and political ecology scholarship, to examine gendered meanings about women and mining emerging at the intersections of gender equality, environment and ASGM policy contexts in sub-Saharan Africa. The SDGs, with their explicit commitment to gender equality and empowerment represent a revised international commitment, with normative implications for more substantively including gender equality in transnational development initiatives. Some scholars have argued that the SDGs, along with the Minamata Convention, provide a policy opening that could "usher in the changes needed to facilitate greater inclusion of a sector such as ASM in the global development policy machinery and give it the 'positive' spotlight it deserves" (Hilson and Maconachie 2020, 126-7). This paper

considers how commitments to gender equality and the inclusion of women, given a new political momentum through the SDGs, may intersect with or inform environmental initiatives in the ASGM sector. Our analysis suggests that even if the SDGs open up some political space, the representations of women and children in relation to ASGM in the Minamata Convention and related documents are predicated on problematic gender stereotypes that are more likely to reinforce women's exclusion, then to support women's empowerment in the ASGM sector. Further, women and children are figured in ways likely to align with a history of impugning ASM as environmentally - and socially – destructive (see Huggins, Buss, Rutherford 2017).

Drawing on analyses that demand a situated understanding of the gendered power relations, symbolic and material economies within which ASGM and transnational policy practices are enacted, we then briefly examine how gender-blind environmental regulations of ASGM in mining zones in central Mozambique and eastern Ghana have gendered consequences that adversely affect the economic livelihoods of women involved in artisanal mining. The enforcement of the ban from processing gold near rivers and waterways removes an important source of income for many women in central Mozambique as most washing of ore-laden soils now occurs in privatized dams controlled mainly by men. The use of environmental reasons to ban ASGM in eastern Ghana caused innumerable sufferings for women, removing one of the few livelihood sources for women to make money on their own.

The results of this preliminary analysis point to three key conclusions. First, ASM interventions and research on ASM, need to begin with a gender analysis, not just of 'women' in relation to ASM, but also how policy, whether articulated by global institutions or mine-level authorities, is also enmeshed in gendered power relations and meaning systems. Not only will gender-blind initiatives to formalize ASGM or reduce mercury have gendered results, but the very formulation of these as policy objectives is shaped by gendered meanings. Second, analyses must attend to social relations and articulations of power within which policy actors, as well as women and men miners operate, to better understand the uneven and unpredictable spaces for (re)constituting meaning. Documents like the Handbook (on ASGM formalization) suggest that it is possible to define gender equality in a more transformational way. The third argument is that efforts like the SDGs or the assemblage of Mercury-related interventions need to be investigated to understand how meanings and "power relations around resource extraction can change over time and space, articulated from diverse vantage points" (Spiegel 2017, 96). We see this paper as a first step in considering the gendered contexts of environmental protection and women's empowerment agendas for the ASM sector. The results, we argue, point to the need for situated analyses of gendered political economies within which environmental narratives, such as those characterizing ASM as "an environmental quagmire" (Ofosu et al 2020, 211), interact.

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[1] Lahiri-Dutt (2018, 2-4) uses the term 'informal mining' rather than 'ASM', drawing attention to a number of concerns about this term including but not limited to the growing variability in, and distinctions between artisanal and small-scale mining. We use 'ASM' here because it is the term in wide circulation but share Lahiri-Dutt's reservations. Our usage is further limited to artisanal and small-scale mining of rare and precious metals, particularly gold (but with some references to research on tin, tantalum, and tungsten).

[2] Formalization initiatives encompass a range of interventions, but in the ASM sector, these tended to focus narrowly on mining licenses and related regulations, a full discussion of which is beyond the limits of this paper, but see: Hilson et al 2017; Mutemeri et al 2016; Geenen 2012.

[3] While not the focus in this paper, Ghana is a signatory, while Mozambique has signed but not yet ratified the Minamata Convention. Mozambique has received funding from UNEP to support its development of a National Action Plan: http://www.mercuryconvention.org/Projectdetailview/tabid/5403/language/en-US/Default.aspx?Id=%202086 (accessed 9 October 20200).

[4] United Nations, *Transforming our World: The 2030 Agenda for Sustainable Development,* A/RES/70/1

(https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf, accessed 21 May 2020).

[5] These three documents are supplemented by some other, less detailed one, and all are made available on the UN Environment website in the section dedicated to state National Action Plans: https://web.unep.org/globalmercurypartnership/our-work/reducing-mercury-artisanal-and-small-scale-gold-mining-asgm/national-action-plans (accessed 2 April 2020).

[6] "Women's interest groups" are, however, listed as non-state stakeholders, (Table 4.2, 22). noting these organizations would be able to contribute "issues unique to women miners" and "specific impact of mercury on women and children."

[7] The risks to male fertility from mercury exposure is more complex that we can do justice to here, but for some preliminary research discussion see: de Querioz and Waissmann 2006; Choy et al., 2002).

[8] See https://ghana.revenuedev.org/dashboard.