



Gender and Artisanal and Small-Scale Mining in Central and East Africa: Barriers and Benefits

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Abstract

Artisanal and small-scale mining (ASM) on the African continent is increasingly the focus of global, regional and national efforts aimed at regulating the sector as part of larger initiatives to increase national benefits from mining, while also addressing problems seen as linked to this form of mining such as violence and conflict. Women's significant participation in artisanal mining (estimated at 25-50% or more of artisanal miners) is largely overlooked in these efforts. This paper draws from research still in progress from a three year, mixed-method study in six artisanal mining sites across three countries (Democratic Republic of the Congo, Rwanda and Uganda) to explore the gendered dynamics of ASM and some of the constraints and possibilities facing women's ASM livelihoods. Informed by scholarly analyses of artisanal mining in other African countries, and drawing on feminist political economy scholarship with its close attention to the intermingling of productive and reproductive work, we examine: the structural gender inequalities that impact on access to resources and relationships; gendered social and political institutions that structure ASM livelihoods, ranging from kinship arrangements to formal and informal institutions operable within mine zones such as mining committees, mine leaders, local political and customary authorities, and license holders; and gendered "meaning systems," the discourses, terms, and metaphors that structure how mining and mining activities, and the women and men whose lives are enmeshed in those activities, are made knowable. We conclude that women's economic roles and livelihoods pursued in ASM zones are both diverse and plentiful in our research sites. We document some of the key benefits to women, including gaining some resources to assist for survival livelihoods, while briefly noting accumulation possibilities and barriers. Our data shows, first, that women's ASM activities are crucial sources of revenue for themselves and their families, allowing for basic survival, health and education, as well as accumulation activities that improve the status of women and their dependents; second, women's livelihoods are woven into the social and institutional contexts within which ASM activities unfold, and which shape the durability of poverty in the sector; and third, gender inequality is a structuring condition of ASM. Any efforts aimed at improving, restructuring or regulating ASM must also address gender issues in design and implementation.

Introduction

The exploitation, trade and sourcing of natural resources, including rare and high-value minerals, is increasingly the focus of interventions aimed at strengthening the mining sector to produce sustainable growth and/or minimize armed conflict and criminality. An array of global initiatives are unfolding in Africa (and elsewhere) to establish and implement global standards and monitoring mechanisms, including: efforts to improve mining governance within mineral rich states of the Global South (the Extractive Industries Transparency Initiative,¹ as one example); regimes aimed at encouraging changes in corporate behavior in the extractives sector (such as the OECD Due Diligence Guidelines for Responsible Supply Chains of Minerals from Conflict-Affected and High Risk Areas)²; as well as more regional mechanisms on the continent to identify shared approaches and priorities, such as the African Mining Vision, or the Regional Initiative on Natural Resources (RINR) of the International Conference of the Great Lakes Region (ICGLR).³ Alongside and in relation to these initiatives are further efforts supporting revisions of national mining codes globally, and particularly on the African continent.⁴

There is a growing recognition in some of these initiatives that artisanal and small-scale mining (ASM) is also of significant economic and social importance and should be brought within efforts to regulate the mining sector (Campbell 2004).⁵ While numbers of artisanal miners can be difficult to track, estimates suggest the sector has grown significantly in the previous decade. In 1999, there were an estimated 10 million artisanal miners globally, and by 2013 this number was estimated at upwards of 20-30 million. This growth is driven by a range of factors including increased prices and demand for some minerals and armed conflict in mineral rich areas like the Democratic Republic of the Congo (DRC) (Buxton 2013, 1). Worldwide, estimates from the

¹ Described on its website as a “global standard to promote the open and accountable management of natural resources,” <https://eiti.org/about/who-we-are> (accessed 3 September 2016).

² The website for the Organisation for Economic Cooperation and Development (OECD) describes the Guidelines as providing “detailed recommendations to help companies respect human rights and avoid contributing to conflict through their mineral purchasing decisions and practices”: <http://www.oecd.org/corporate/mne/mining.htm> (accessed 3 September 2016).

³ A twelve-member body of state governments in Africa’s Great Lakes Region to promote regional stability and which has undertaken significant work to increase and harmonise legal regimes on mining in the region: <http://www.icglr.org/index.php/en/#> (accessed 3 September 2016).

⁴ The 1990s saw upwards of 30 African countries reform their mining codes and the 2000s witnessed yet another wave of mining law reform which Besada and Martin (2015) have suggested constitutes a fourth generation, unfolding alongside the transnational regimes of the EITI and others (see also Otto et al. 2006).

⁵ As reflected in Annex 1 of the OECD Guidance. Also, the London Bullion Market Association (LMBA), the Responsible Jewelry Council (RJC) and other associations and international bodies have historically created standards to protect the industries’ reputation by creating barriers deliberately excluding ASM from their global supply chains. They are now reconsidering revising some of these exclusionary practices in part because analyses (to be released in 2017) will show how these industry schemes are in fact not aligned with the OECD Guidance and point out other weaknesses as well (Partnership Africa Canada)

World Bank suggest that 100 million people work in or rely on ASM.⁶ The African continent has been a particular focus for some policy makers because of the significant concentration of minerals located in the region, but also due to concerns about the contested link between artisanal mining in central Africa, armed conflict and human rights abuses.⁷

At the same time that this global regime on mining governance is emerging, there is a growing consensus that gender should be integrated in efforts to strengthen mining as a sustainable economic sector, which often translate into a focus on women. The United Nations Economic Commission for Africa's "Africa Mining Vision," for example, specifically calls for the integration of gender equality in "mining policies, laws, regulations, standards and codes" (2009: 32). Various intergovernmental organizations (such as the ICGLR), donors (GIZ and the World Bank) and agencies (such as UN Women) have begun promoting gender inclusion in the mining sector and within the array of initiatives designed to strengthen mining sector governance.⁸ These initiatives are still preliminary but have opened-up some policy space for including gender analysis. To date, this inclusion has been limited and geographically uneven.

The larger study on which this working paper is based - an examination of women's livelihoods in artisanal and small-scale mining in three countries in central and east Africa (the DRC, Rwanda and Uganda) - flows from this dynamic policy context in which the ASM sector is, and in all likelihood will continue to be, the target of policy interventions. Gender, at least superficially, appears to be included as a consideration in some of these interventions. In this context, the relative lack of data on the operation of gender in ASM, and the conduct of women's livelihoods is a significant gap. While it is known that ASM is a gendered activity (Bryceson et al. 2014; Cuvelier 2016), and that women do participate in ASM livelihoods (Hinton et al. 2003), very little is known about the different kinds of livelihood activities women do; the operation of gender norms, structures, relations in conditioning those livelihoods; and the differences between women who are able to expand their accumulation potential and those who are not. For research and policy interventions that aim to do more than simply give women a "bigger piece of a small pie" (O'Laughlin 2007; Pearson 2007, 211), data on these issues is needed to better understand the complex organization of ASM sites, and the varied conditions and contradictions that shape how women strategize around livelihood options.

The specific research questions this paper seeks to answer are:

⁶ World Bank, 'Artisanal and Small-Scale Mining', web page, November 21, 2013 (<http://www.worldbank.org/en/topic/extractiveindustries/brief/artisanal-and-small-scale-mining>, accessed 16 September 2016).

⁷ High-value minerals are also linked to armed violence in other parts of the world: Colombia, Burma and Afghanistan to name but a few.

⁸ See for example, UN Women and Publish What You Pay and UN Women (2014).

1. What are the discursive and material conditions that shape women's access to and control over the economic and social resources needed to improve their livelihoods in ASM zones?
2. What are some of the key benefits for women's participation in ASM and what are the possibilities for accumulation activities?

We present our research findings below, grouping them around two important themes that have emerged from our project:

- i. There are a range of gendered practices and assumptions which act as barriers preventing greater economic benefits for most women.
- ii. Despite these barriers, women can forge economic benefits from their participation in the inter-locking markets of ASM zones, with a few able to make pathways for accumulation.

In this working paper, we draw from study data to explore the gendered dynamics of ASM and some of the constraints and possibilities they have for women's ASM livelihoods. The research in this project, while not yet complete, provides insight into the structures that define ASM livelihoods and relations, and the ways in which these structures are highly gendered. The research shows various forms of exclusion against women in the ASM zones. At the same time, evidence from the study suggests some women can improve their wider social status and economic options through working in ASM zones. Without careful attention to these gendered economic practices and authority relations, policy interventions in the sector will not only fail to address gender inequality, they may work to exacerbate women's vulnerabilities in the ASM sector. We also present data on the economic roles and livelihoods pursued by women in ASM zones, which are both diverse and plentiful in our research sites. Given the relative lack of research on the involvement of women in ASM, we document some of the key benefits to women, including gaining some resources to assist for survival livelihoods, while briefly noting accumulation possibilities. In so doing, we highlight the conditions that shape women's access to and control over the economic and social resources needed to improve their livelihoods in these zones.

The following section provides information on our study, including the analytical framework, site selection and methods used to conduct the research. The third section briefly outlines how ASM has uneasily fit within the national and regional policy-processes in Africa, and some of the common institutional features of ASM zones and how they are gendered. The final section provides a partial analysis of the qualitative and quantitative data collected so far, examining gendered barriers facing women in ASM in the research sites and the socioeconomic benefits women derive from their engagement in these spaces.

Study Information

Conceptual Framework

To be able to analyse both the discursive and material conditions shaping livelihood possibilities for women in ASM zones, as well as benefits and accumulation possibilities, we draw on a feminist political economy analytical framework to examine livelihoods and authority relations in ASM zones. Feminist political economy theory allows a focus on relations of production, reproduction and exchange (see Rai and Waylen 2014, for discussion), and on the foundational importance of gender relations in structuring economies and policies. It also provides a way to illuminate the overlapping and intermingling of formal and informal authority relations from the household and marriage, through to legalized property rights and mining entitlements. The interdependency of productive and reproductive work is core to feminist political economy analysis, recognizing that the “reproductive economy also strongly differentiates the options of men and women to participate in market activity and conditions their subsequent experience of that employment” (Barrientos et al. 2003, 1515).

In our approach, gender analysis is premised on the understanding of gender as a social relation or institution that is “embedded in all the social processes of everyday life and social organization” (Risman 2004, 430-1). Working from this basis requires attending not just to manifestation of “gender differences” – that is, how those who appear as “women” and “men” are treated differently – but also to the ways in which gender structures differences in material resources, the semiotic means through which values are encoded and ranked (e.g., language, clothing, bodily features, comportment, etc.), the daily interactions that pattern and contest gender, and the very knowledge categories through which “sense” is made of ourselves and our societies (Butler 1993; Risman 2004).

In this understanding, the operation of gender in structuring ASM livelihoods requires an approach that goes beyond positioning women relative to men. Feminist geographer Kuntala Lahiri-Dutt (2012) has authoritatively demonstrated how the reading of the mining sector in terms of gender binaries produces a reductionist account of women as invariably passive victims of mining. Not only is this an inaccurate account of women but it occludes the “social and material contexts or historical understandings of women and work” (2012, 200). What is needed, she concludes, is more attention to “gender roles and relations in mining communities” (200-201), to understand how and why women and men differentially interact with and are impacted by mining.

Lahiri-Dutt’s analysis resonates with the extensive feminist political economy research demonstrating that forms of women’s subordination are enmeshed in formal and informal economies in complex ways that go beyond the operation of a gendered division of labour (Turshen 2016). Women and girls “carry their social position” with them (Elson and Pearson 1981; Pearson 2014, 21). The exchange of labour in informal economies, for example (Kabeer

2012, 9), is already highly gendered and stratified including along racial, ethnic or regional lines. Women navigate livelihood options within gendered social institutions (O’Laughlin 2007; Whitehead 2007), authority relations, and other dependencies that are themselves “complex and changing” (Whitehead 2007, 15), including in industrial mining sites (Benya 2015a, 2015b).

Thus, questions of how women might improve their livelihoods require close reading of how gender operates to structure livelihoods and how women navigate those structures. Naila Kabeer (2012, 24) suggests that one of the “important research questions in relation to women’s enterprise relate[s] to finding out what explains their predominance at the survival-oriented informal end of the enterprise spectrum, where there is very little evidence of active choice.” This, she says, is not just “about what differentiates male and female entrepreneurs, but [is] also a question about what differentiates female entrepreneurs at different points of the continuum.” While there is evidence that women’s enterprises overwhelmingly tend to cluster at the “survivalist end” of the spectrum, more data is needed on why and how that happens (24, 31).

This working paper addresses some such gaps identified by Kabeer. To do so, we examine how women’s livelihoods in ASM zones are enmeshed in, and shaped by, wider gender norms and gendered institutions. These norms and institutions give form to economic pathways, including varied barriers within them, as well as forms of agency for women. For “livelihoods,” we examine relations of production and exchange with regard to the mining operations. This includes the division of labour (who is doing what tasks), the means of production such as tools used and land (and who has access or control over them), the use of credit, and the forms of remuneration. In particular, we focus on how women materially benefit from working in ASM zones.

We note that a fuller analysis of the economic livelihoods involved in ASM zones would also examine women involved in the ancillary services in mining zones and adjacent residential areas and locations where the minerals are sold (e.g., food, repairing, tools, sex work), including a closer examination of the commodity chains themselves. Such an analysis provides a more extensive view of the various economic linkages centred on, or intersecting with, ASM, many of which involve numerous women. However, we decided to predominantly focus on women working in various tasks directly related to mining (i.e. extraction, transportation of minerals, processing), allowing us a deeper understanding of these livelihood practices and how they are constituted through gender norms and authority and power relations.

Gendered assumptions and justifications used to constitute the relations of production and exchange is a key focus. To this end, we consider the terms and language by which different actors justify the division of labour (e.g. for women’s safety, for fear of sexual violence, because women are not brave, and so on). The concept of “gender norms” is important here. We explore how norms concerning the comportment, responsibilities, work, and bodies of males and females are expressed through discourse and practice, and operate to structure activities within ASM.

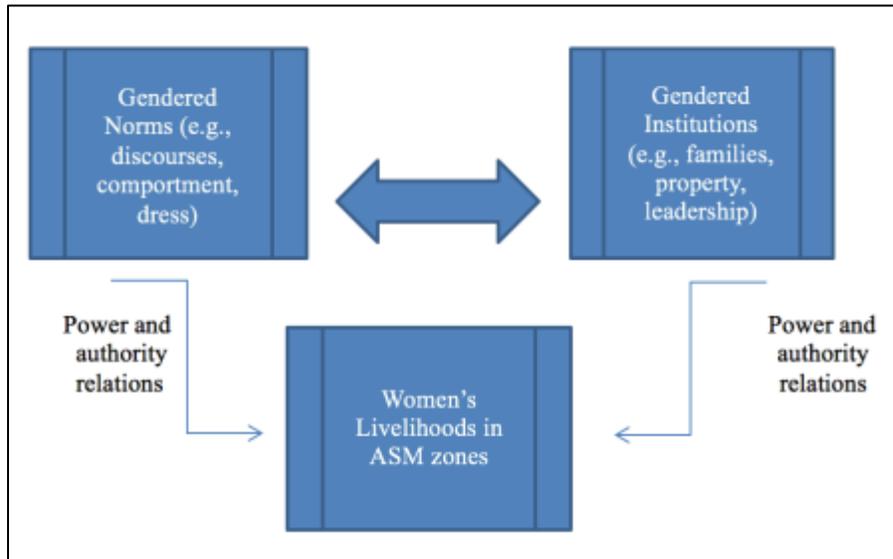
Gendered norms are produced, reinforced, revised, and potentially challenged through institutions. A key factor in shaping women's economic possibilities in ASM economies is authority relationships that affect women's and men's forms of agency, and shape the strategies they use to try and benefit from their livelihood practices. In focusing on "authority relations" we take a more expansive approach than just considering the formal structures whose influence may be highly variable. We examine specifically the gendered dynamics of those who are able to influence the lives of others in the mining areas. This may include government officials, traditional authorities, supporters or brokers, politicians, soldiers or non-state armed forces, license-holders, mine bosses, subcontractors or other "big people" who can control the labour power of others as well as those within families, marriages, households and other institutions. We pay particular attention to how gendered assumptions (about women, men, girls, boys, wives, husbands, mothers, fathers, etc.) influence and imbue these authority relations and understandings of "leadership" more generally, thereby producing certain social relations and dispositions through what Michel Foucault (1982) called "power": actions shaping the actions of others. Attention to this range of institutions, we suggest, helps to provide a sharper context for the power/authority and social relations shaping gender dynamics than that provided in much of the policy discussion concerning formalization.

In short, we examine: the structural gender inequalities that impact on access to resources and relationships; gendered social and political institutions that structure ASM livelihoods, ranging from kinship arrangements to formal and informal institutions operable within mine zones such as mining committees, mine leaders, local political and customary authorities, license holders; and gendered "meaning systems," the discourses, terms, and metaphors that structure how mining and mining activities, and the women and men whose lives are enmeshed in those activities, are made knowable. We thus identify some of the key power/authority relationships involved in artisanal mining that need to be analysed to better understand the gendered challenges and potential opportunities for women's livelihoods in this sector (Figure 1).

Our research therefore examines the ways in which gendered norms and gendered institutions shape the livelihood opportunities and practices for women in ASM zones. It is important to underscore that many of these gendered norms and institutions are not exclusively found in ASM zones but exist and operate in other parts of these three countries and the region at large. Challenging gender norms and gendered institutions in ASM zones could also entail larger efforts at improving gender equality. Nonetheless, we are interested in how they articulate together within ASM zones to generate a range of inequalities and economic barriers for women while simultaneously providing relative opportunities for women to socially and materially improve their own situation and that of their households. Such an improvement could be characterized as "economic empowerment"; however, we do not use that term because it tends to be associated with a voluntarist, liberal model of agency that, as many feminist scholars have noted, downplays the relations of economic and affective relations of dependence and interdependence shaping women's economic choices (Cornwall 2007; Kabeer 2012; Cornwall

and Rivas 2015).

FIGURE 1. ANALYTICAL FRAMEWORK



Site selection

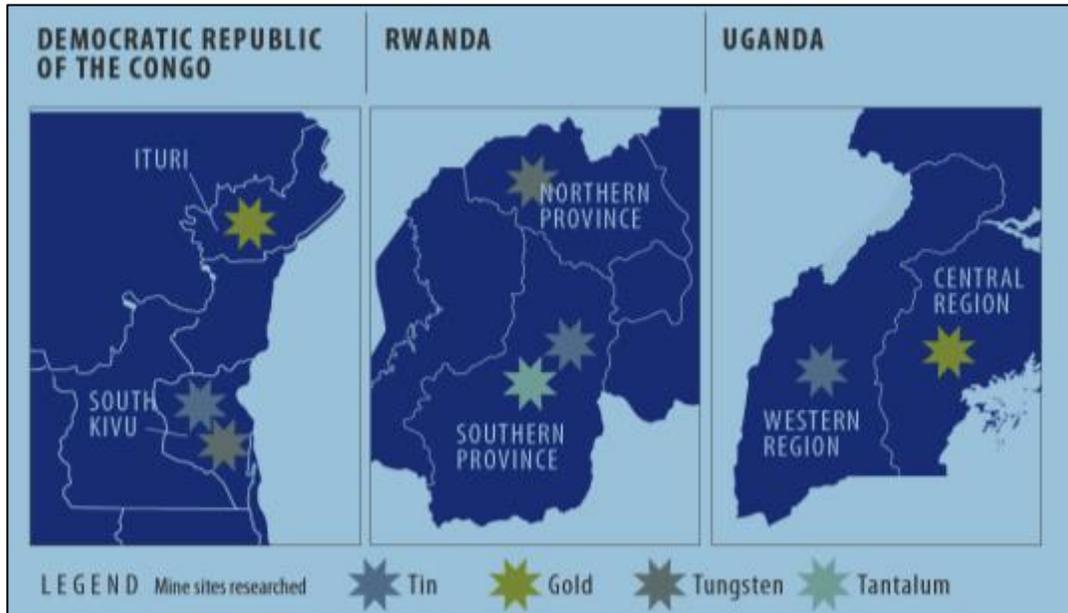
ASM zones are often located in remote, difficult to access terrain. The persistent poverty in and around mining zones, along with the nature of the work, means there is a daily urgency to the pursuit of livelihoods. The communities around mine zones, depending on the nature of the mine, often function largely in languages local to the area, or local to communities and countries from which populations have migrated in search of livelihoods. The complex social and economic ordering of a mine zone requires time and repeated visits to discern. These various factors raise challenges to gathering data. Research using mixed methods is imperative in order to reveal the complex structuring of livelihoods in and around the mine zone.

Given the costs of doing research in such an intensive way we selected six sites, two in each country. As the main focus of policy-makers in ASM in the region is on “3TG” – tin, tantalum, tungsten and gold – we selected a 3T site and a gold site in both DRC and Uganda and two 3T sites in Rwanda (as there is limited gold mining there): an artisanal gold mining zone in Ituri province, DRC; an artisanal tin and tungsten mine in South Kivu province, DRC; a small-scale tin and tantalum mine in Southern province, Rwanda; a small-scale tungsten mine in Northern province, Rwanda; a gold mine in Central region, Uganda; and a tin mine in Western region, Uganda. The survey also includes a gold mine in South Kivu province, DRC, funded through a separate project (please see Figure 2 below for general location of the research sites).⁹ The

⁹ The field research sites were selected by an assessment of the following factors: risk mitigation – issues of security (at the site and in transit) were strongly considered; accessibility – ability to access the site; numbers of women and men working in mining roles and in secondary industries in the mining zone (e.g., food production and sales); the

organization and governance of each of the six mining zones is unique, reflecting plural legal arrangements, the nature of the ore, the location, availability of other livelihoods, and the larger, national security context.

FIGURE 2. GENERAL LOCATION OF RESEARCH SITES



Methods

To analyse the discursive and material conditions shaping women’s livelihoods in ASM zones and identify potential benefits for women, we drew on a mixed methods research strategy. The methods for this study, unfolding over two and a half years and multiple visits to the six mine zones, include participant observation, focus group interviews, a survey and life histories. The mixed methods were complementary and cumulative. Given the complexity of authority relations shaping the gendered livelihoods and a commonly found suspicion of outsiders in ASM zones connected to the often-uncertain legality of this economic activity, we needed to gain trust in order to acquire a depth and breadth of knowledge of these research sites. In early 2015, the research teams conducted more than a week of participant observation in each mining zone following a guideline provided (based on Heemskerk 2005; Eftimie et al. 2012), examining the broad contours of the social organization of mining, including governance relationships, with a particular focus on gender dynamics. This first trip also introduced the research study to the communities in the mine zone and set up gender focal points for the research project.

governance frameworks that seek to formalize the mining activities, such as, for example, sites approved for participation in commodity certification schemes, the introduction of fees or licenses, the presence of formal associations; consultations with local and national mining registries/licensing offices; and, consultations with individuals working in, and authorities governing, the ASM zones to ensure that they were in agreement.

Researchers and gender focal points from the three countries then met with the whole research team in Kampala, Uganda to share their results, and to receive training on gender analysis, artisanal mining research and research methods required for the next stages of the research. This type of “phased” research approach (World Bank 2015) was used in subsequent stages of the study as well.

Focus group discussions were then conducted during the second research trip with different stakeholders identified in the participant observation phase, and with the questions guided by the findings of this first phase of research. Sixty focus group discussions involving over 400 participants were held across the three countries. The groups were mainly comprised of only men or only women working in different tasks (such as women processors, male diggers, male buyers, women diggers, etc.), with a few mixed-gender groups.

The analysis of these two phases of qualitative research informed the design of the survey which was tested, adjusted and then administered in the first half of 2016. The survey was translated from English into French and Kinyarwanda, and delivered to communities speaking Kiswahili, Congolese-Kiswahili, Luganda, Kinyarwanda, and Runyankore. Survey responses were largely written in either French or English, though some were written in Kinyarwanda in Rwanda, or Kiswahili in DRC. They were then translated into either English or French by the researchers who understand those languages. Written answers in French were then extracted from the survey and translated into English for analysis.

For the sample size, the target was at least 120 respondents per mine, half of which were women. The survey was administered to 878 people at seven ASM zones (the six mines in this project plus one other mine in DRC, funded separately), including 407 women and 471 men (Table 1). Researchers who administered the survey were instructed to over-sample women as they tend to be a smaller proportion of people working at the mine. Researchers were instructed to not only interview miners, but anyone who comes onto the mining zone to earn their livelihood, including: miners, management, food providers, suppliers, buyers and sex workers. In Uganda, researchers particularly privileged women who were directly working in mining, rather than ancillary services. Permission was received from each respondent, and each respondent was asked if they would like to meet in a more private location. Some results could not be disclosed to keep promise of confidentiality.

As the survey over-sampled women, we cannot conclude that the proportion of men and women in the sample is representative of the population. We assume randomness within the sub-groups of men and women, therefore the observed differences between men and women are representative of the population. Given how little is known about those working in these mine zones, this survey was a unique attempt to measure life at such mines. This situation meant that creating a stratified sample was difficult because we did not know what the stratas would be.

The key limitations of the survey are:

- i. at some of the research sites, the target sample of women was not achieved;
- ii. the overall sample was not purely random;
- iii. the study sites are too few and sample too small;
- iv. from ii and iii – the results are not necessarily generalizable for the respective countries but only give a snapshot of the situation;
- v. because of small sample, the scope of analysis is limited to univariate and bi-variate analysis.

TABLE 1— DISTRIBUTION OF GENDER (N, %)

Gender	Rwanda- Southern province	Rwanda- Northern province	DRC- S.Kivu province *	DRC- Ituri province	DRC- S.Kivu province	Uganda- Central region	Uganda- Western region	Total
Male	91	80	63	94	35	57	51	471
	60.67	76.92	63.00	61.84	26.12	47.5	43.22	53.64
Female	59	24	37	58	99	63	67	407
	39.33	23.08	37.00	38.16	73.88	52.5	56.78	46.36
Total	150	104	100	152	134	120	118	878
	100	100	100	100	100	100	100	100

Source: Own data 2016.

*Funded separately from the GrOW project.

Life history interviews were also conducted with four to five women and men in each research site whose lives typify or defy the gendered patterns of economic opportunity. Researchers identified them after understanding the dominant gender division of labour in the ASM zones during earlier phases of the research. The life history interviews provided more social texture to understanding the authority relations shaping the gendering of economic practices.

The data collection and analysis provides us with a good understanding of various features of the gendered dynamics shaping women’s livelihoods in the mining zones. We learned each mining zone was quite distinct in how they were governed, even within the same country, which suggests that some of our data could have been quite different if we had selected different mining zones. Nonetheless, the analysis of our qualitative and quantitative data has provided rich insights into what appear to be common gender dynamics in these research sites and, we suggest, in ASM zones in central and East Africa more broadly, providing new evidence to understand the

barriers and possibilities for women's livelihoods in this sector.¹⁰

Gender and artisanal and small-scale mining in Africa

Our focus on the importance of gendered norms and institutions in shaping livelihood possibilities for women in ASM also corresponds with the larger policy and regulatory initiatives concerning ASM. In this section, we outline briefly some of the institutional features of ASM, including their gendered dimensions, and how they have been configured by policy-makers and donors alike. We do so in order to situate the findings of the research within the broader contours of the sector and the policy space in which it is increasingly found.

Although there is no uniform definition of ASM and legal codes vary in how or if they specify artisanal mining and small-scale mining, there is some consensus over key features of this type of mining. Using minimal technology, and at times taking place without formal license or permission from state officials, what is now conventionally called “artisanal mining” is a reasonably accessible, though often dangerous and unreliable, livelihood option. It is comparatively low yield, uses rudimentary tools, requires limited capital investment and is an invaluable livelihood for hundreds of thousands of people on the African continent at a time when other sectors, such as agriculture, are degenerating.¹¹ In turn, “small-scale mining” refers to mining activities that tend to be slightly more mechanized than artisanal mining, and there is also a greater likelihood of a legal entity such as a company that is recognized as the license-holder of the mining zone.

Despite the large numbers of people engaged in ASM activities and related livelihoods, it is a form of mining that has been historically widely disparaged. In some contexts there has been, and maybe still is, a tendency to depict ASM in terms of “numerous negatives” (Hilson and Gatsinzi 2014; see also Huggins, Buss and Rutherford 2017):

As an uncoordinated activity which defaces landscapes; populated by individuals who deliberately evade regulations; and taking place in communities which, due to increased mineral production, have become epicentres of infectious disease spread through prostitution, hubs for narcotics consumption and trade, and are generally unsafe. (4)

More recently, ASM has also been linked with ongoing conflict in eastern DRC, though the extent and nature of this linkage have been subject to sustained critique (Seay 2012; Cuvelier et al. 2014).

¹⁰ Our focus in this paper is not on providing a comparison of gender in relation to different types of mine, mineral and national context.

¹¹ Degenerating due to neoliberal economic policies, armed conflict or climate change, Banchirigah and Hilson 2010.

The negatives of ASM are significant. As a livelihood, it can be dangerous, with environmental impacts on the miners and the area surrounding the mine, sometimes subjecting workers to violence and/or coercive labour conditions, to name a few issues. However, the numerous negatives attributed to ASM have unfolded in the context of what Hilson and Gatsinzi (2014, 3) refer to as a “dual mining economy” in sub-Saharan Africa, in which regulation was oriented to attracting foreign direct investment and reducing economic risks for mining corporations (Campbell 2004, 18-20). To the extent regulation of ASM was included in formal legal regulation, the emphasis was on facilitating private sector access to mineral extraction with which ASM is generally perceived to be incompatible. According to Hilson and McQuiklen (2014), the efforts to regulate ASM that followed were ill-suited and poorly implemented, making it virtually impossible for most artisanal miners to work legally. ASM thus became something of an open secret (Peluso 2015); nominally illegal, even criminal, often passively tolerated, with occasional (and expensive) police or military crack-downs, while widely practiced and seen at the grassroots level as a legitimate livelihood option. Since the late 1990s, there have been numerous legislative attempts to legalize ASM in the region and elsewhere (Perks 2013); albeit, as Hilson (2009) points out, often its inclusion is more of an after-thought and an add-on, as mining legislation and policies in sub-Saharan Africa are still predominantly focused on attracting and regulating international mining companies. This can result in legislative and policy uncertainty towards ASM. This murky zone can be compounded by the flourishing of a range of public authorities found in many parts of rural Africa, where there can be competing institutions and individuals exercising public authority in the name of or against the state. As Christian Lund (2006) puts it, they are institutions operating in the twilight between state and society, drawing on one or at times both sides of the duality. This dynamic continues to characterize the regulation of the sector despite a renewed global interest in strengthening legal oversight.

ASM zones often appear, or are characterized as, chaotic and unregulated, when they are, in fact, structured by complex relations, norms and activities. While ASM zones vary depending on geology, different land-use histories, the price of minerals and the availability of complimentary livelihoods, Hinton (2005, 5, citing Baffour 2003), identifies four different types of ASM as one possible heuristic to organize these variations: 1) *seasonal ASM*, where mining activities supplement agricultural or other livelihoods, making them more routinized in everyday agrarian forms of place-making; 2) more *permanent ASM* by established communities, often where large-scale commercial or formal mining is present and which may pre-empt agricultural activities in which mining becomes a key shaper of the socioeconomic contours of everyday life; 3) *shock-push ASM*, driven by externally-driven changes to other livelihoods (e.g., the decline of agriculture caused by a variety of factors from climate change to political insecurity or armed conflict); and 4) *rush ASM*, often involving high value commodities like gold or diamonds, characterized by a significant influx of new, inexperienced miners. These different kinds of ASM have equally varied social and political dynamics (Huggins, Buss and Rutherford 2017, 143).

While clearly varied in form, some features are common among many ASM zones. Mining communities tend to be characterized by distinct, though different authority relationships, for example, between license holders (whether they be land owners, those with state-sanctioned mining rights, or both), pit owners or sponsors (often the individuals who pre-finance the digging of a shaft or pit), crew bosses, individual diggers, and then the array of individuals engaged in different stages of processing (such as drying and crushing ore; sieving and washing sand; and burning gold for amalgamation). Mining activities are additionally subdivided into different roles that may further be spatially organized within mines, with stone breakers working in one area, stone crushing (sometimes with mechanized ball mills) in another, and ponds for washing or processing the ore/sand in yet another (Werthmann 2009). Buyers, traders and other intermediaries also work in or near mining zones, employing in turn, transporters or security (Bashwira et al. 2014). Finally, the mine zone itself can be, depending on the type of mineral and mine, a vibrant place of ancillary commercial activity, with food, alcohol and other goods, including domestic and sexual services, for sale. Some gold zones, as Werthmann (2009) describes in relation to her work in Burkina Faso, can be sizable, with patterns of commercial activity and consumption resonant of those found in urban settings.

ASM activities tend to be enmeshed in what Fold et al. (2013, 2) refer to as “inter-locking markets,” a term drawn from the field of rural poverty studies to describe “the relationship between tenants (or smallholders), landowners and traders” that emerge “when relatively poor farmers or landless households have no other possibility to access credit (physical inputs or money) than to borrow from a local trader... or the landowners.” The resulting relationship is thus enmeshed in a sale of labour in exchange for credit or access rights. In the ASM context, the “sale of labour” can take the form of a share of the miners’ production each day, or a share of labour time such as a requirement that miners work a day/week for the patron/authority figure. This is particularly the case in the gold sector where the partially processed mineral has a cash exchange value that is internationally recognized.

The question of authority figures is itself complex within ASM zones. Land owners, or those deemed customarily to have authority in a region, would be one category, but license holders (those who secured some kind of official or quasi-legal entitlement), the owners of mining enterprises (e.g., the owners of shafts, or the authorized buyers of ore), money lenders, local political office holders, civil servants, and ‘management committees’ set up for individual mine zones would be other examples. In turn, these are interacting with other land users and land-giving authorities, traditional authorities, government officials, armed groups (both state and non-state), and so forth. All of these categories need to be viewed in terms of the gendered structures that operate in and through these authority relations, including family, marriage and marriage-like arrangements.

The organizational dynamics of ASM outlined above are enmeshed in and constitutive of gendered social relations. Women pursue various livelihoods in ASM, representing 45-50% of the total workforce (UNECA 2002), and actively participate in the local mining based economy

(Amutabi and Lutta-Mukhebi 2001; Hinton et al. 2003; Hinton 2011; Lahiri-Dutt 2012, 2014 and 2015; Bashwira et al. 2014). These multiple roles, and the financial opportunities that ASM activities represent for women have been, until recently, largely ignored by policymakers otherwise focused on encouraging women to leave an ASM sector understood as a place of risk and economic and sexual exploitation for women (Lahiri-Dutt 2012; Bashwira et al. 2014). Recent academic work identifies a need for supportive policies and greater recognition of women's abilities to negotiate complex and risky socio-economic environments (Werthmann 2009; Kelly et al. 2014), but, to date, there is limited research exploring the complex gendered ordering of artisanal mine zones (but see Hinton et al. 2003; Bashwira et al. 2014; Cuvelier 2016), and even less work on the gendered contexts that shape policy interventions.

These varied gendered norms structure the foundational activity in the mining zone and have ongoing consequences for women's and men's livelihoods. For individual artisanal miners, working, owning or controlling the mine pit is one of the more lucrative aspects of ASM, and tend to be done almost exclusively by men. Other mining activities – stone crushing, washing, panning – are more accessible to women, but can be financially risky and less remunerative. Many ASM zones are thus built upon a foundational, gendered binary: pit work versus everything else. In this binary, pit work - the extraction of ore from the ground – is by definition “mining,” and hence male. This foundational gendering of mining leads to other modes of practice also constituted by gender relations (Lahiri-Dutt 2013, 4), but in which their gendered ordering comes to be seen as natural and inevitable.

In the six sites included in this study, women's participation in the economic activities varied. The Rwandan small-scale mines were able to provide firmer numbers of men and women working in them. Whereas national statistics showed that women comprised 16% of the total mining workforce in Rwanda, the company's statistics in the Northern province site claimed that women comprised 14.5% of their workforce as of March 2015. However, our research that month indicated that women instead comprised 10% of the workforce. In August 2015, 28.6% of the workforce in the Southern province site were women. We do not have firm statistics in the four remaining sites, but women were noticeably numerous in the South Kivu site in DRC and dominant in some aspects of the Central region site in Uganda. They also were visible in numerous economic roles in the other two sites.

Gender can be seen in some of the labour, social and physical arrangements in all six mining zones (but ethnicity and other markers of identification are also operable). The digging and exploitation of mine pits/galleries/shafts is the core activity on a mine site with other activities - from crushing, sifting, and washing ore, to the manufacture and sale of food, alcohol and domestic and sexual services – dependent upon its continued operation. In many artisanal mining areas, there are strict gendered norms and taboos against women going into the pits where the ore is dug and extracted.

These edicts are framed in various ways, including that women bring bad luck and will chase away the ore, women are too weak or scared, that women will be vulnerable to sexual violence, women will be seen as immoral, and that women's presence will contravene social norms on modesty (see discussion below). In several of the sites under study, these edicts were (re)invented or enforced at times when mines were most profitable. Both the barriers to and benefits from women's livelihoods in ASM occur through the discursively constituted gendered political economy of these zones.

ASM and women's livelihoods in DRC, Rwanda and Uganda

In a forthcoming working paper, in which we review the issue of formalization of artisanal mining, we explore the formal regulatory structures in more detail and the different contexts, including conflict, that shape some of those structures. In the discussion below, we provide an overview of the six artisanal and small-scale mines in the study, highlighting the governance set-up and organization of labour, with a focus on the work women do in each site. We then examine the evidence in terms of barriers to women's livelihoods in the mining zones and the varied benefits that nonetheless women can derive from their work in ASM.

The research sites

We briefly discuss key features of the institutional arrangements and gender division of labour in the six sites, listing them by country and providing a short outline of the status of women, and gender asymmetries in each country. There are two artisanal gold mining zones – one in Ituri province, DRC, and one in Central region, Uganda. There are two artisanal 3Ts sites – one in South Kivu, DRC, and the other in Western region, Uganda. There are also two small-scale 3Ts mines in Rwanda – one in Northern province and the other in Southern province. We also summarize some of the wider legal, economic, and social contexts shaping gender dynamics in each of the three countries.

Democratic Republic of the Congo

After a lengthy conflict that followed years of political violence and misrule, the DRC ranks 176 out of 195 countries in the UNDP's 2016 Human Development Report. While some of these measures have improved over the last five years (in 2011, DRC was ranked last on this index), the country still has high rates of poverty, with 72.5% of the population categorized as multidimensionally poor (UNDP 2016, 6), and both women and men having low levels of formal education (4 years of school (mean) for women; 8.1 for men) (5). Literacy rates from 2009 show that 67% of people over 15 are literate: 77% men; 57% women (Sweetser et al. 2012, 118).

Within this challenging context and in a large country with varying economic and cultural conditions, gender discrimination and violence persists with very little apparent cultural or institutional support for gender equality. In 2015, the country passed the *Rights and Parity of*

Women Act,¹² with the objective of giving effect to Article 14 of the Constitution establishing a state obligation to eliminate discrimination against women in civil, political, economic, social and cultural areas, and to ensure full realization of women's capacities and full participation in the development of the nation. 'Parity' is a lower standard than 'equality', and would seem to confirm the conclusion of one study of women's equality in DRC that, "equality between men and women is not regarded as possible or desirable. Parity and complementarity [are] more acceptable concepts" (Sweetser et al. 2012, 26).

Women and men have broadly similar labour force participation rates, at 70.5% and 71.5%, respectively (UNDP 2016, 6). However, discrimination and cultural norms that position women as inferior than men constitute significant barriers to improving livelihood conditions. Some of the gender norms found nationally in DRC are also particularly pronounced in the mining communities in this study. For example, Sweetser et al. (2012, 28) report that culturally, "'favor' is a dominant medium, or 'currency' of social exchange," which, for women, can often translate to requirements for sexual exchange: "A Lingala saying captures this clearly: 'A man is his purse, a woman is her body.'" (28). Further, children are seen as women's responsibility, including the costs of education, medical and other expenses, as are the household chores, which must be completed alongside women's work in agriculture or other sectors. Finally, violence against women is also a significant factor in women's lives. Domestic violence is viewed as normal, with one study finding that 67% urban and 80% rural women felt "that a man is justified in beating his wife or partner under certain circumstances" (UNICEF 2012, 26). Incidences of violence are correspondingly high, with a reported 64% of women experiencing "physical violence at some point since age 15, and 49% [having] experienced it in the past year," with married women reporting twice the rate of violence than single women" (26).

Rates of violence and discrimination against women in the DRC has been the focus of significant international attention, particularly in relation to artisanal and small-scale mining. Advocacy campaigns beginning in the late 1990s and increasing in the 2000s drew attention to so-called "conflict minerals" and the presumed relationship with high rates of sexual violence against women in eastern DRC (Cuvelier et al. 2014). As Bashwira et al. (2014) note, those advocacy campaigns largely overlooked the extent to which women were not simply "victims" of violence resulting from militia involvement in mining but were in fact, significantly active in pursuing livelihoods in mining sites. Similarly, others have noted that those same advocacy campaigns overlooked the extent to which artisanal mining is an important source of livelihood in the region more generally, and particularly given the displacement of people and agricultural livelihoods resulting from the long period of armed conflict, among other factors (Seay 2012; Radley and Vogel 2014). International Peace Information Service (IPIS), in its visits to 1615 mining sites in eastern DRC between 2013-2015, estimates the number of artisanal miners at 239,721, with 80% of those working in one of the visited gold mines and 18% in 3Ts mines (Weyns et al. 2015, 15). Another study completed for IPIS estimates there are 500,000 miners in eastern DRC (Center for

¹² Loi #15/013 du 1er août 2015 portant modalités d'application des droits de la femme et de la parité.

International Forestry Research 2012). IPIS estimates that gold production in these sites contributes about 437 million USD per year in eastern DRC at the level of the mine site (Weyns et al. 2015, 17).

While there are not precise figures for women's participation in ASM in eastern DRC, Hinton (forthcoming) estimates that in this region women are 10-30% of miners of tin, tantalum and tungsten, and 40-50% of gold miners (also see Hayes and Perks 2012). Artisanal mining remains an extremely important sector in eastern DRC, including in South Kivu and Ituri, and women are active participants in the sector where they face gender discrimination similar to other contexts, but in which some of the dynamics of ASM may give them opportunities to strategically navigate.

The gold-mining area in Ituri province included in our research is comprised of four distinct sites within this mining zone. Each site is directly governed by an *Administrateur de Foyer Minier* (AFM), a man who holds an operating license for the mining site and is thus recognized by local state and customary authorities as having a de facto entitlement to mine. To operate as a gold producer, the AFM needs to gain approval from both the local and/or provincial state representatives and the local community, though neither is straight-forward. Both require a set of payments to different governmental departments and customary authorities that ultimately are negotiable.¹³

AFMs are good examples of what Lund (2006) calls “twilight institutions.” On the one hand, each AFM has documents authorizing the mining activity. However, AFMs are not legally recognized as administrators – as their name suggests – by the national Mining Code. Thus, although they make payments to provincial authorities, they are not officially recognized by the central state.¹⁴ On the other hand, these leaders are often constituted in part through patriarchal familial idioms and practices. This is both in terms of the frequent affinal and kin relations amongst the leaders of the various administrative posts of the mines, the family-like relationship

¹³ For example, the AFM has the responsibility of paying: (a) USD \$1800 per year to the National Forestry Fund which the AFM considers exorbitant in our area of research because the miners do not cut down many trees. In reality, the AFM makes informal agreements with the NFF and they pay a little something; (b) USD \$430 annually for their exploitation licence to the DGRP (Direction générale des recettes de la province) which is usually paid; (c) USD \$100 annually to the Ministry of Energy, which consists of taxes on equipment (i.e. crusher or water pump). This is also generally paid; (d) by ministerial decree, each AFM is supposed to pay 30% of all his site's production to SAESSCAM (Services d'assistance et d'encadrement du small-scale mining) but, by informal agreement, in our zone, the AFM pay USD \$10/ month (\$120/year). This also is generally paid; (e) The Division of Mines pressures the AFM so that all his workers have their mining license (carte de creuseurs), but in our research site none of the creuseurs (diggers) had one. The AFM negotiates an informal agreement with the Division and pays for some of his workers. (f) AFMs also get pressure from the DGI (Direction Générale des Impôts) to pay a little something as a professional income tax on behalf of the workers but this is illegal since the miners working for an AFM do not have a contract.

¹⁴ It is important to note that in the DRC, the AFM may have the operating licence but that this is distinct from registered title; the former is issued and paid for at the provincial level and the latter is issued by the Cadastre Minier in Kinshasa.

between the AFM and the diggers as well as the exemptions from the norms for some of the AFM's family members, including women.

Thus, women need to negotiate access in a context where ownership, access to assets and finances, and authority are already highly gendered and generally privilege men. As the licence holder, the AFM is considered, by local actors, as a local mining administrator, and those who want to mine need his approval. Notably, women working at the site are not listed on the AFM's card. Often a man, sometimes a woman, will request a piece of land to mine and will negotiate the price with the AFM. These men (or women) become the pit/shaft owners ("*detrou*"). The price can vary between USD \$200 and USD \$500, or more if the plot is near to other productive pits or shafts. The AFM also enforces his perceived right to collect a percentage (generally 30%) of the ore yield for each shaft depending on the size of the shaft and according to the production level.

Diggers are almost always men and are organized into teams ("*les écuries*") usually of five to a maximum of ten men, and tend to be friends or relatives, often the same ethnic group, who come together on their own or are organized by the pit or shaft owner or a supplier. The team works together from clearing the land of vegetation to digging the shaft or the pit, from transporting the rock or sand to crushing and or washing. At times they may employ extra workers or call upon their wives (who are not paid) for some of the latter tasks.

Once extracted, the gold-bearing rocks are divided between the AFM, the pit owner, the supplier ("*fournisseur/fournisseuse*"), and the diggers (who may receive 30% or so of the rocks). If there is no supplier, often the pit/shaft owner ("*detrou*") has a contract with the team of diggers, dividing gold 50/50 after expenses are paid back as the pit owner pays for the daily rations, rents the diesel engine, pays for petrol, supplies the tools, etc. Many diggers say that they have a paternalistic relationship with the AFM, like sons to a father. In return, the diggers pay a premium for the "father's protection," giving the AFM a percentage of their gold. In so doing, these male diggers are recognized as legitimate actors in the mining zones, though placed in a subordinate position. Aside from women who are shaft owners, most women working in the mining zone pay no royalty (for example, women who gather and process waste rock, or who provide or sell food). From the logic of the institutional arrangements they are not viewed as significant actors in these zones.

The other research site in DRC is a tin and tungsten mine in South Kivu. Until 1983, the area was mined by a company comprised of colonial and post-colonial mining interests. The footsteps of this company are still visible in the landscape. When the company left, many men and women from the surrounding area flocked to the area in search of cassiterite (tin). It was initially easy for the people to collect the ore at the surface, not having to enter deep into the galleries. Progressively, they started to develop the work in galleries as experienced artisanal diggers from other areas joined them, enabling the artisanal miners to start digging deeper.

The mine lies within a chiefdom where the *mwami* (chief of the chiefdom) claims power over the soil and subsoil, although Congolese law stipulates that the soil and subsoil belong to the state. The miners, like most farmers, are aware of the need to give something to the *mwami* during production. It is the *mwami* who gives them the concession for exploitation, agriculture and erection of houses. The mining production one day per week are given to the *mwami*, though women are exempt from this obligation, suggesting that they too are not seen to be recognized actors in the fields of authority at play in the mining zone.

The owner of the mine is called the hill chief (*le chef de colline*). He is given the mine by the *mwami* for a token payment and is considered a subject of the *mwami*. The hill chief requires all diggers to give him a percentage (about 20-30%) of their ore - although many miners purportedly seek to hide the total amount of ore they find from the hill chief to avoid some of this rent. The ore is extracted in galleries, in rivers (alluvial) and on the surface. Men are almost invisible in the sites for they mainly spend their days and sometimes nights working in the galleries. Women (and some men) can be found above ground reprocessing the tailings. Most people working in the zone are diggers, crushers or washers. Some, usually women, sell small items such as batteries, torches, biscuits and soaps. Others are small traders (*les petits négociants*) who buy the minerals. The *petits négociants* are generally all men as women tend to have insufficient means to buy the minerals. The *petits négociants* buy minerals from either the diggers or the women processing, which they then sell in the commercial center of the nearby town. The traders are unlicensed, though legally required they should be licensed, and tend to set the price. There are also two cooperatives that buy from the miners and small traders.

Rwanda

Rwanda is often celebrated as the country that trumps Sweden in the league tables for numbers of women in politics. In 2014, for example, roughly 60% of Rwanda's parliamentarians were women (see Buss and Ali, forthcoming, for a discussion). This statistic, along with positive numbers in the areas of maternal mortality (which is markedly lower than the average for sub-Saharan Africa) and numbers of women accessing maternal health, gives Rwanda overall high scores in international rankings like the UNDP's Human Development Report or the Global Gender Gap Report, where, in 2016, Rwanda ranked fifth in the world (World Economic Forum 2016). Indeed, Debusscher and Ansoms (2013, 1125) note that Rwanda tends to do particularly well in precisely those areas on which international bodies collect data. Looking beyond these indicators however, women in Rwanda face enduring inequalities that significantly impact their economic participation, particularly in rural areas. Women in Rwanda do a disproportionate amount of reproductive work, averaging 29.6 hours per week compared to men's 11.6 hours, while also working longer hours in productive work: 14.9 hours per week compared to men's 12.8 hours (African Development Bank Group 2008, 9; Debusscher and Ansoms 2013, 1125). Women tend to work primarily in agriculture (83.6%) compared to men (61%), a sector with significant poverty rates, and women are moving out of agriculture at lower rates than men (African Development Bank Group 2008, 10). Women are significantly under-represented in

universities in Rwanda (comprising just 25% of undergraduates), and have higher drop-out rates and lower attainment levels in primary education. Finally, women's decision-making authority remains circumscribed, with men culturally "expected to be the decision-makers within the household and community" (USAID 2015,11).

Women's participation in mining livelihoods is thus somewhat of a departure from the rural norm as it is a non-agricultural sector that is, as discussed in more detail below, seen by some in the community as inappropriate for women. The barriers women confront in accessing these livelihoods, and in improving their own economic potential, reflect the lived reality of the statistics outlined above. The heavy double-burden that women carry limits the time they can spend in accumulating income and mining experience, while gender norms about women's propriety constrain the kinds of livelihoods they can access. Their overall lower education and socio-economic status also means they are less likely to have the capital needed to invest in mining operations. Yet, women who are active in the sector are redefining gender norms in ways that are discussed in detail below.

Official encouragement, perhaps from the state, may have played a role in some women's participation in artisanal mining sites. The 2010 National Mining Policy calls for an "increase in employment in the sector from 25,000 – 37,000, of which 20-30% should be women" (Government of Rwanda 2010, 6). Mining in Rwanda - which is primarily of tin, tantalum and tungsten - is currently one of the largest export sectors in the Rwandan economy and has been since independence in 1962 (along with coffee in the 1960s to 1980s, and tourism in the contemporary period) (Perks 2013, 7).¹⁵ In 2015, mining contributed USD \$160 million (134 billion RWF) to the Rwandan economy (Munyaneza 2017). The government has set ambitious targets for growth in mining as part of its economic development and poverty alleviation strategies. It estimates that about 20,000 miners are employed in the sector (Government of Rwanda 2013), and the inclusion of targets for women is promising. Hence, while artisanal and small-scale mining sites in Rwanda appear continuous with other parts of rural Rwanda in terms of discrimination facing women, it is also a site where women can challenge and strategically navigate gender norms.

Each of the two Rwanda mine research sites are run by companies (an organizational structure provided for under Rwanda law). The first is a small-scale cassiterite and coltan (tin and tantalum) mine in an area of Southern province that has several other mining companies and cooperatives. Mineral exploration in the site was done in 2012 and the company started exploitation in 2013. The company has a permit, renewable every five years, to exploit an area of 400 hectares. As of September 2015, two sites were operational in its mining zone.

According to official records consulted at the outset of the research, the company had a total of 399 miners, 84 women (or 21.1% of the total workforce) and 315 men (or 78.9% of the total), all

¹⁵ From 1967- 1973, for example, mining and coffee accounted for 93% of the country's total exports, and in the late 1980s, with the effects of structural adjustment was the principal export (Perks 2013: 7).

casual workers. However, during the first visit in August 2015, there were only 126 miners, 36 women (or 28.6% of the total workforce) and 90 men (or 71.4% of the total). The reason given for the difference in the size of the labour force was a recent drop in the price for its minerals.

Most of the women and men working at the site are employed as casual workers with a few exceptions, and of the 13 permanent staff of the company, two are women. The mining work is organized through eight subcontractors, four of whom are women. The subcontractor organizes the work of his/her team. They are not legally registered as subcontractors, rather they have made personal arrangements with the company.

The subcontractors give the ore to the company which sells it and gives a proportion of the money earned to the subcontractors, who are responsible for paying the workers. The workers at the mine are paid daily according to the activity (digging, transporting, washing the ore) carried out. The most remunerative job is digging, which is done solely by men, for which they were paid 2,400 RWF (USD \$2.93) each for a working day of 10 hours in 2015.

When the mine first opened there were no women employed. According to the owner, women began approaching him seeking employment and were hired. It was not a conscious strategy by the company to employ women. Initially, the women worked in transporting ore outside of the shaft and progressively they started to move inside, working to transport ore. One woman is now washing ore with men at a sluice (the most remunerative washing job).

The second Rwandan mine is a small-scale wolframite (tungsten) mine operating in the Northern province, owned by a company which has a license for the mine. The mine is divided between the artisanal mining zone and the semi-industrial processing zone, which was implemented as a pilot project at the time the research started. As of the time of the research, no women were employed as part of this pilot project, thus they are confined to the artisanal level.

In the artisanal zone, the percentage of women working as casual labour has increased because of the efforts over the past five years to increase the percentage of women in their workforce. In March 2015, there were 47 women mine workers or 10% of the artisanal workforce of 468 persons. This percentage is lower than the national level of 16% of the mining workforce being women (Cook and Mitchell 2014, 14). The 282 positions in the semi-industrial processing zone were all held by men. The mine administration also has about 47 permanent workers, doing administration, supervisory or security jobs. Of these, only 4 are women.

As with the Southern province site, the artisanal mining work is organized largely through the 17 subcontractors who manage the workforce, each with a team of between 10 to 60 workers. Subcontractors at this mine are independent business people, officially registered under Rwanda Development Board. They work on contract signed with the company on an annual basis. Subcontractors receive about 18.8% of the price for each kilogram, while the total amount shared by the miners in the group is 81.2% of the price. This is the net amount for the miners while the subcontractors need to pay a 15% tax on the revenue they receive to the Rwanda Revenue

Authority. The subcontractor needs sufficient capital to pay all the taxes to the government, insure each worker in their team, buy some of their equipment (miners buy the rest), etc. The company pays the subcontractor per kilogram of wolframite their team excavates.

The majority of the work is carried out in teams comprised either of men only or a mix of men and women, with different members doing different tasks at all stages of production. There is a strong gender division of labour in the teams with some jobs predominantly reserved to men only, such as digging, blasting and ground sluicing. Women predominantly work as panners, but if they are working in groups with men, they may carry out other jobs (such as removing out the ore materials from the pits to the panning station, transporting pre-concentrate minerals to the treatment plant, drying concentrates through wood fires, removing water in tunnels, etc.). However, there are three women diggers (but they are told they cannot use jackhammers), with one woman leading a team of diggers. Workers say this woman got this position because she is courageous, a good advisor and mediator. She is also young with only, as one woman put it, “small responsibilities” outside of work.

The men workers in the semi-industrial processing component of this mine receive a fixed salary. In 2015, the salary was between 800 RWF a day (for miners who get up to four grams of tungsten a day) and 1,100 RWF a day (for miners who get more than four grams a day), and paid on a monthly basis. This arrangement is considered advantageous as artisanal miners are paid according to production and hence is more variable and uncertain. Some artisanal miners confirmed that there are times, even months, when they do not find any tungsten and thus earn nothing during these periods. The surveyed women and men identified inadequate and insecure pay as the second biggest problem facing them in improving their mining work (with access to tools and equipment the first), and this was particularly marked for women. Both women and men also suggested that being paid a fixed salary, rather than an amount based on production was one of the changes they most wanted to make.

Uganda

Women in Uganda face many challenges pursuing their livelihoods. Uganda is a predominantly rural country, and an estimated 65-80% of women in the labour market work in agriculture, a number that increases to 90% for rural women (Coffey 2014, 19). It is estimated that 42% of the women in the labour force are unpaid family workers likely contributing substantially in the form of agricultural labour (19-20). Agriculture has had slower growth rates in Uganda, and while some men have moved to commercial agriculture, the same is not true for women. Despite their significant contributions to agriculture, women have limited control over assets, and own only 7% of agricultural land (Benedetti and Kijo-Bisimba 2012, 22; see also Sebina-Zziwa 1995). Even in livestock species traditionally associated with women such as chickens, men are more likely to be owners than women (22% and 16%, respectively) (Coffey 2014, 13). These figures need to be read against the backdrop of growing inequality in the country. A decrease in the number of households owning agricultural land (from 80.8% in 2006 to 72.3% in 2011) has

raised concerns about “implications for reduced productivity and increased vulnerability for populations largely dependent on agriculture” with a potentially disproportionate impact on women given their reliance on the sector (Coffey 2014, 13). Gender norms that position women as primarily responsible for household and caring work means they are less able to migrate for work than men (27).

Education graduation and literacy rates demonstrate significant challenges for both women and men, but there are substantial gender gaps. Government of Uganda statistics estimate that 81% of men and 61% of women are literate (Government of Uganda 2013, 13). While school enrolment figures are promising, these are off-set by low rates of retention for both boys (53%) and girls (42%), with a generalized concern about the availability of schools in rural areas (Benedetti and Kij-Bisimba 2012, 19). An estimated 24.1% of women and 9.8% of men have no formal schooling (Government of Uganda 2013, 13).

Formal equality through rights guarantees and legal recognition continue to lag, despite promising attempts to reform family laws in the country. Rates of violence against women, particularly domestic violence, are high with two-thirds of married women experiencing some form of violence, and half of all women experiencing violence on a daily or weekly basis (Benedetti and Kij-Bisimba 2012, 13).

Gold mining has grown in the country in the last few decades with gold rushes in the 1990s and 2000s drawing in hundreds, and in some cases thousands, of miners, and these numbers continue to rise. A report by the Commission for the United Nations Environment Programme notes that increases in gold prices together with “high population density and resulting land pressures (across the West and Southwest), and prolonged droughts, tribal conflict, and loss of traditional pastoral livelihoods (in the Northeast), is rapidly attracting growing numbers into [artisanal gold mining]” (Hinton 2012, 6). Women, the report estimates, are also moving into mining economies, representing 10-25% of miners in some areas (where agriculture remains strong), and anywhere from 50% to 90% in the country’s northeast (6).

For women in Uganda, much like women in the other two countries included in this study, mining offers both opportunities and challenges. It is a site for the potential expansion of their livelihoods, particularly given the limitations of the agricultural sector for women, but it is not immune to the discriminatory gender norms and inequalities that operate in the broader society, as discussed below.

The two mines in Uganda included in the research are different by mineral as well as organization; one is a rush gold mine while the second is a tin mine closely integrated into the livelihoods of the rural inhabitants. The rush gold mine is in the Central region. Gold was initially found in this area in the late 1980s but it was only in 2012 that a gold rush began, attracting others from different parts of Uganda and neighbouring countries, with much jockeying amongst investors and others to acquire and enforce different forms of mining

licenses. Out of these negotiations, a miners' association was formed to acquire an operational license and to try to organize artisanal miners. This was done with the support of a company that has the exploration license for a wider area. The company released over 40 hectares to the association to undertake artisanal and small-scale mining in the hope that this would free the rest of the area under its licence from artisanal mining.

The association has five directors, some of whom are also landowners in the licensed mining area. All are men. Each is reported to have contributed money to obtain the two-year license though they also had to borrow money from elsewhere to raise the required USD \$100,000. Management reported that the association is required to pay taxes of USD \$750 per month to the sub-county offices, which transfer 65% of the tax to the district. There are 40 members of the association, four of whom are women. Other than the directors, it is not clear what role, if any, other members play in the association. The association aspires to manage the miners in the area for which it holds the license by regulating the mining activities, collecting revenues, and providing some infrastructure as well as security. The association's management, however, confessed having mixed results in achieving these goals. Many of those involved in the mining as well as other authorities who do not always respond positively to their requests. Yet, management is trying to collect what is often referred to as "taxes" from the different sectors at the mining site. The manager of the association estimated about 700 miners work in their licensed area, but overall there are 2,000-3,000 people living in the area, with their livelihoods tied to the gold mining zone.

As in the DRC research sites, twilight institutions are important at this mining zone. Governance at the mining zone comes largely from the association and landowners. However, there is tension and conflict between the association, some landowners (some of whom are in the management of the association) and tenants in terms of who can collect which rents or taxes from the different mining operations and support services occurring in the site.

Each stage of gold production has its own form of organization. The gold is largely extracted from shafts. Some of the shafts are found on hills owned by one of the directors of the association. There are shaft groups who own shares in the shaft. Those with more shares in the shaft tend to have more influence over management decisions. Shaft groups rent a plot (20 x 20 feet) from the landlord at 200,000 Ugandan shillings as a starting fee; once gold is discovered, the owner of the land is entitled to one bag out every ten bags of sand extracted. Open-cast mining is found mainly in the area controlled by the association and largely done by women who pay 10,000 Ugandan shillings per day to extract ore. Less capital is needed for this type of mining compared to that in the shafts or to do many of the other activities at the mining zone.

The second site is a tin mine in Uganda's Western region. Commercial tin mining began in this area close to Uganda's southern borders many decades before the country's independence but came to a halt during the many wars the country experienced after independence, only to be revived later by artisanal miners after reasonable peace and stability had returned to this part of

the country in the late 1980s. The different mining sites today are located on top of the highly-degraded hills with very scanty vegetation. Homesteads and gardens are on the hillside. The vast majority of those involved in mining are from six nearby villages. The economic activities observed taking place at this mining zone include ore extraction from tunnels, food vending, cooking, fetching water, opening new tunnels and panning.

The government is said to own the hill where the mining occurs (though an individual is disputing that, saying it is actually his land). In recent years mining companies have been leasing the land from the government and holding licenses for the tin. The miners do not work for the company, but need to sell their tin to the company via buyers contracted by the company to purchase tin on its behalf. During our research, buyers (all men) are mostly former diggers who had been also working for the previous company as buyers. The buyers pay the diggers 500 to 2,000 Ugandan shillings less per kilogram than what they receive from the company. There are 50 or more teams of diggers and each buyer has several teams who sell to him (though the teams are not divided equally between the buyers). The buyers may cultivate ties with diggers by providing them with maize or money to buy supplies when they are in dire situations, but this is not common.

The visible role of the company becomes blurrier in the actual governance of the mining zone. It is estimated that in the peak season (the dry season), there are about 200 men and 70 women working at the site. The mine work is organized through a series of hill leaders: a hill chairman and a vice-chairman, who are themselves diggers selected for the position at a meeting of diggers. Neither receives extra pay but these positions are a mark of enhanced social status, reflecting trust and respect from their peers.

Most of the mining work is done by gangs of three to eight people with an average of five. Each gang has a gang leader, often selected by members of the group or it is the person who started the group. Like the chairman of the hill, the gang leaders are often said to be people who are trustworthy and able to resolve conflicts. The gangs tend to do every step of the mining activities, including processing. They extract the tin, pan in groups and sell the tin (usually in village trading centres), sharing evenly the money they get from the sale. About a third of the approximately fifty existing gangs have women members and there are a few women-only gangs in operation. Fewer women work in the rainy season as women tend to do more work in the gardens and agriculture than men.

Summary of research sites

The institutional arrangements of governance clearly vary between the research sites. In each site, there are state-recognized actors who are authorized to play a role in organizing the mining activities: the AFMs in Ituri, DRC; cooperatives in South Kivu, DRC, which purchase the minerals; the companies and subcontractors in Rwanda; the association in Central region, Uganda; and the company in Western region, Uganda. At the same time, in the DRC and

Ugandan mining zones there are other institutions and authorities, some state-recognized and others not, who play important roles in the governance of the mining. Yet, at the same time, the brief overviews of the research sites show that in all mining zones, regardless of institutional arrangements, there are gendered limits to women's economic pathways. Digging and more remunerative jobs tend to be reserved for men and almost all positions of authority are also held by men. In other words, to understand the livelihood options and opportunities for women in ASM, gendered norms and gendered institutions clearly matter. We now turn to examine some of the gendered barriers and possibilities in greater detail.

Research findings: challenges and benefits for women

As is evident from the above discussion of the research sites, authority and economic relationships in ASM are highly structured and deeply gendered. Even in the rush gold mining zone in Uganda there are overlapping forms of authority relations, some even coming from the state, which provide order to the mining activities. Thus, despite often being characterized as an "informal" economic activity, ASM is clearly neither chaotic nor necessarily unaffected by state institutions and state-sanctioned authority figures.

Our research examines the gendered norms and gendered institutions (including authority and power relations) shaping women's access to and control over the economic and social resources needed to improve their livelihoods in ASM zones. This includes the possibility for some women to economically and socially benefit from participating in ASM zones and economic accumulation activities. We present our research findings below, grouping them around two important themes that have emerged from our project:

- i. There are a range of gendered practices and assumptions which act as barriers preventing greater economic benefits for most women.
- ii. Despite these barriers, women can forge economic benefits from their participation in the inter-locking markets of ASM zones, with a few able to make pathways for accumulation.

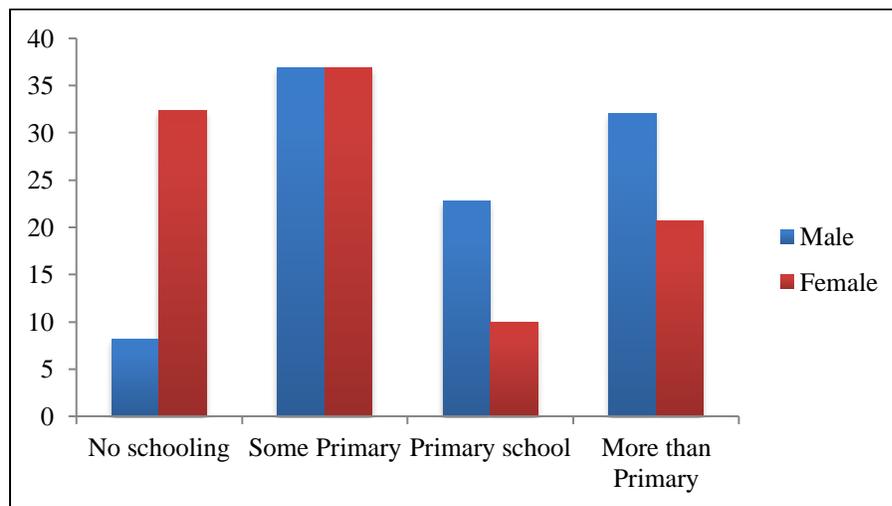
Discriminatory gendered norms and institutional practices as barriers to women

As noted in the discussion from the wider literature above, there are interconnecting gender norms and gendered institutional practices that discriminate against women in ASM sites (like in many other economic activities). Our research reinforces these wider themes. It shows that gender pervades all organizational and authority relations within an ASM zone, including when there are formal company structures like in Rwanda. Even where women are not formally permitted into a mining area, because they are seen to bring bad luck or spiritual pollution, or because their presence would offend social norms, gender is still relevant both in structuring that exclusion (and its exceptions), but also in regulating the performances of masculinity which have

an effect on male livelihood practices (Cuvelier 2016). Gender does not always and necessarily produce barriers to women. For example, women can sometimes benefit from gender norms around presumptions about their honesty. On balance, however, viewing ASM zones through a gender lens reveals the complex, multilayered operation of gender as overwhelmingly disadvantaging women.

Women’s ability to access mine livelihoods is conditioned by structural forms of inequality, lower education levels, lower status, no or limited access to land, subservience to male family members, gendered norms, and so on. As briefly discussed above, these are pervasive in DRC, Rwanda and Uganda, like everywhere else in the world. ASM zones are no different. For example, as Figure 3 below demonstrates, women are more likely than men to have no schooling or limited schooling. Almost 70% of the women surveyed had either no schooling, or some elementary/primary schooling only, while less than 50% of the men had no schooling or some elementary/primary school. As formalization requires literacy in the national language, the lack of education limits the majority of women and nearly half of men from engaging in these state initiatives.

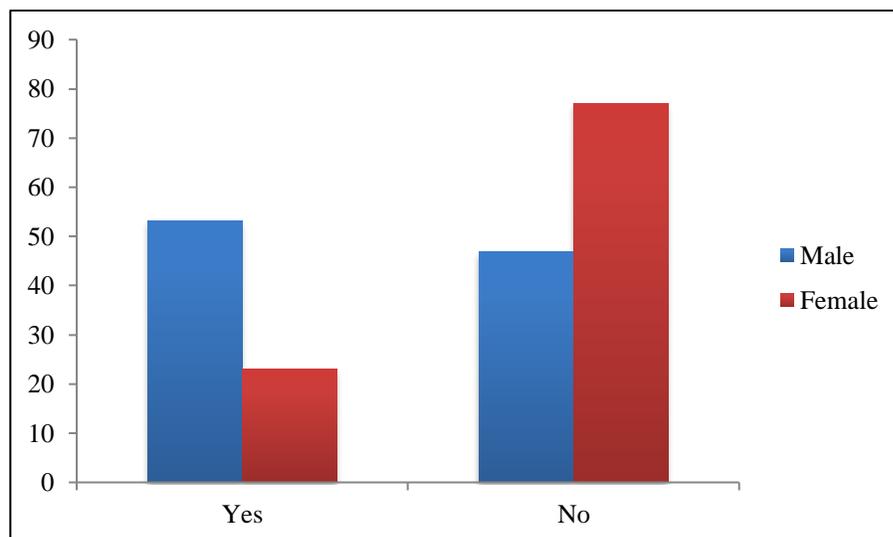
FIGURE 3. EDUCATION LEVEL (%) BY GENDER



Source: Own data 2016.

Furthermore, Figure 4 shows that women are less mobile than men, which means they tend not to accrue the skills acquired by moving from one mine site to the next, nor are they accessing new mining opportunities as existing mines dry up or become unviable. Mobility, as argued by Jønsson and Bryceson (2014), is an important feature for trying to forge a relatively successful artisanal mining career.

FIGURE 4. WORKED AT OTHER MINE SITE (%) BY GENDER



Source: Own data 2016.

Already systematically disadvantaged in their socioeconomic status and opportunities, our research demonstrates that women face a range of barriers in their livelihoods at the ASM sites.

Gender norms and taboos discriminate against women at ASM sites

Across the sites researchers heard about many norms limiting women’s involvement in excavation due to presumed weakness, issues of immodesty, or taboos about women being present at shafts or pits in fear that they will cause the minerals to disappear (particularly when menstruating). Below are some of the examples the research found.

Women are physically unable to do certain tasks: In most of the mine sites, many of the men and some women pointed to physical differences as an explanation for why women were not permitted to do certain jobs. In the Uganda tin mine in the Western region, people claimed that some jobs, such as timbering the shafts, are physically too demanding for women to manage. In the same mining zone, many men claimed that women are not able to extract tin, saying they “do not have the energy to dig down there” and that women “are weak.” This opinion was also shared by men in the Ituri gold mine in DRC. In the Rwandan cassiterite and coltan mine in the Southern province, some of the jobs were strictly reserved for men such as timbering for wall support, working on compressors, working on ground sluicing, digging hard soils or rocks in searching ore material and blasting. According to many men and women at the mine, this discrimination is because women are not strong enough to perform the above activities. Such claims are made in defiance of a range of hard, physical work women do carry out in the mining zones. For example, in the Ituri, DRC site women work as manual water pumpers (moto pompistes), hauling water from deep shafts as there were no mechanical water pumps available. In the South Kivu mining zone, women, including women in their forties or older, may work as transporters, carrying heavy sacks of ore within the mine site or from the site to a neighboring

town, while in the Southern province, Rwanda mine, women predominantly work as transporters, hauling bags of ore from the shaft. In the Western Ugandan site, women, including teenaged girls, carry 20 liter containers of water up the hills to sell.

Women are polluting: There were many assertions that women's physiology presented risks to other miners or to the minerals. Some men in the Ugandan tin mine in the Western region asserted that menstruating women cannot enter into the mining areas as they are "unclean" and their presence could lead to the disappearance of tin in that mine. As one man pithily put it, "the nature of women is not like that of men. They don't put on trousers." In the Ituri gold mine in DRC, many men argued that menstruating women or pregnant women are forbidden from entering the shafts or the pits, for that would lead to the loss of gold. As one man opined, "women who are having their menstrual period cannot come to the site at the risk of cursing the site." He went on to say that if women "have a pregnancy of less than three months, they cannot come to the site, also for the fright of the curse. So, to avoid all this, we feel good that women cannot come to the site. It's also a work that is too hard for them."

Respectable women do not mine: Gender norms and performances reinforce certain forms of comportment and expectations of femininity and masculinity. These were at times invoked to chastise women from working at the mines or to criticize those women already working there. In the Rwandan wolframite mine, men and women miners both declared that women should not enter into tunnels as diggers due to "respect and culture." They said that in Rwandan culture one never finds a woman who is digging or entering a hole; these tasks are reserved to men.

When women began working in the Rwandan wolframite mine in 2011, many people in the wider community viewed them as "prostitutes," in part because they were now conducting work in what was viewed as men's space but also because women had to wear pants at work, a sartorial demand which challenges dominant gender norms in the countryside. A similar sentiment was expressed in the community surrounding the Rwandan cassiterite and coltan mine in Southern province, where our research identified a stereotype that women working in the mine, especially in the tunnels, lack good manners. Stock stereotypes of these women are circulated. Women working at the mines are purportedly: young women who take drugs; women who become pregnant outside of wedlock and disobey their parents; married women in constant disputes with their husbands; or widows unable to "control themselves." For those articulating these opinions, women who behave well with good character cannot be seen working in mining but rather should engage in more socially respectable economic activities such as farming. Similar moral language was used in the Ugandan gold mine in Central region as some men feared women were learning "bad habits" at the mine. One man claimed, "no women should be involved in mining as it can lead them to become too independent, asserting themselves. Women should not work in these places because at times when they get money they run away from their husbands."

At the Ituri gold mine in DRC, many suggested that since men are scantily dressed when they are working in the shafts it is embarrassing, if not risky, for women to work alongside them if they are not married or related to them. These men were vociferous in their views that women were not allowed into the pit. As one man explained, articulating all the discriminatory norms

It is not good if someone else's wife finds you shirtless or only with a loincloth working in the shafts. Where we dig, we dress badly; some are only in underwear and shirtless. Others with loincloths. It is not normal for a woman who is not yours to see you in such attire! And it may be that the wife of your little brother comes to the site; would it be normal for her to see you in such an outfit? And then us, the miners, we talk about everything while working! Sex-related nonsense. And women who are having their menstrual period they cannot come to the site at the risk of cursing the site.

A woman said something similar, declaring, “in the digging area, men dress badly! It is not good to see the body of a man who is not your husband! We are African!” Here she likewise invoked a putative continental gender norm about viewing certain scantily dressed bodies.

Some work is too risky for women: Certain types of mining work were seen as particularly risky for women. In the Ugandan tin mine in the Western region, some tasks required operating at night, which informants said was too dangerous for women. These included acting as guards of the shafts at night or placing dynamite to break up rocks (which is illegal in Uganda and thus occurs at night). The implication is that the women may be vulnerable to physical or sexual attacks during this time of night. In the Rwandan cassiterite and coltan mine in Southern province, one woman said there had been concerns raised by women about sexual harassment when they were working in the tunnels, even with men demanding sex from them if they wanted work. However, she added, that when the company director heard about this he met with all the subcontractors and captains and said if this persists he will take to court the subcontractor and captain in control of the tunnel where it happened. She said that she had heard of no more cases of such types of sexual harassment and violence.

Gendered norms concerning bodies (physical strength and physiology), comportment (clothing and interactions in certain work spaces with people of the opposite gender), and jobs (being too risky or too masculine for women) clearly shape women’s access to and control over the economic and social resources needed to improve their livelihoods in ASM zones. As the discussion above illustrates, some gendered norms depict women’s bodies as risky – potentially polluting mining sites – while others characterize them as at risk, and both operate to justify women’s exclusion from some livelihoods. In these different narratives, gender norms effectively limit women’s access to remunerative livelihoods and/or raise the social and physical costs for them in pursuing mining livelihoods.

Women are concentrated in the least remunerated livelihoods in ASM zones

The responses to the survey question concerning types of work clearly show a gendered division of labour. For the most part, women accessing ASM zones are concentrated in the least remunerated positions. This gendered division of labour is a product of many forces. As discussed above, a recurring finding in the literature and confirmed by this study is the exclusion of women from ore extraction activities (digging, working in shafts). As Table 2 shows, over 62% of men surveyed and only 15% of women identified their job at the mine as “digger.” While division of work in the mines is clearly gendered, it is noteworthy that none of the types of work are occupied exclusively by one gender. This lack of exclusivity indicates that despite comments about what types of work should be done by whom, there are times and places those social rules are not followed due to circumstances or because some women decide to challenge them.

TABLE 2— TYPE OF WORK AT THE MINE SITE

	Male	Female	% of males	% of females
Head of mining team/chef d'equipe/head of mill	29	8	7.11	2.17
Digger	253	56	62.01	15.18
Washing the ore	21	57	5.15	15.45
Grinding the ore	8	81	1.96	21.95
Sluicing	47	3	11.52	0.81
Panning	115	80	28.19	21.68
Carrier of ore	34	85	8.33	23.04
Carrier of water	29	69	7.11	18.70
Carrier of firewood	1	7	0.25	1.90
Administrative work	5	6	1.23	1.63
Trading in the mineral/product	30	29	7.35	7.86
Selling food/water for personal consumption	5	66	1.23	17.89
Selling other provisions for either personal consumption or production	7	35	1.72	9.49
Selling services (including sex)	7	6	1.72	1.63
Rental income from equipment	1	0	0.25	0.00
Other	56	85	13.73	23.04
n=774	408	369		

Source: Own data 2016.

The cumulative effect of these gendered norms is that most often women do transportation tasks (over 43% of women compared to over 15% of men), processing activities (37% of women do panning or ore washing compared to 33% of men), and/or owning vending food, liquids, goods, sexual and domestic services (29% of women compared to over 10% of the men). While these activities can still be productive, yielding livelihoods greater than other non-mining options, the differences between countries are important.

The exclusions of women from various roles are neither uniform nor static, underscoring how gender norms, even while framed in terms of cultural practices, are variable. In Rwanda, for example panning is seen as a male activity in the cassiterite site, but less so in the wolframite site. In South Kivu, women in a focus group explained the bar on women entering the pits as a more recent development: “There are no exceptions for the moment; no woman goes down into the shaft because our custom does not allow it. But before, the women did it, because the mining company had just abandoned this concession (c. 1983) and the chiefs did not count much on the artisanal exploitation. It was with the wars in eastern DRC that customary leaders realized that there was enough money in minerals and began to demonize women against artisanal exploitation. So when the customary chiefs became aware that the mine was a very profitable activity, women were dismissed.” These women said the prohibition emerged because “we can make a lot of money from digging” (“*en creusant qu’on gagne beaucoup d’argent*”).

In terms of mean income (calculated in US dollars at 2015 exchange rates), on average men made the most through digging in each of the three countries. In Rwanda men’s average income was less than USD \$10 more than the activity which earned women their highest source of income (carrying ore). Whereas in DRC men earned more than USD \$100 more for grinding, the activity which earned women on average the highest source of income. The starkest range was in Uganda where on average men diggers earned more than double, almost \$250 more, than women also digging, the activity which earned women on average the highest average income (Table 3).

TABLE 3— TOP 3 INCOME-EARNING ACTIVITY FOR EACH GENDER BY COUNTRY (% OF GENDER, MEAN INCOME (USDS 2015), MEDIAN INCOME)

Rank	Rwanda		DRC		Uganda	
	Male	Female	Male	Female	Male	Female
1	<i>Digger</i>	<i>Carrier of Ore</i>	<i>Digger</i>	<i>Grinding</i>	<i>Digger</i>	<i>Digger</i>
%	45.61	51.81	79.17	41.75	65.74	39.84
Mean Income	97.42	88.43	226.83	121.51	446.34	191.81
Median Income	81.25	81.25	113.99	113.99	130.71	92.76
2	<i>Panning</i>	<i>Panning</i>	<i>Panning</i>	<i>Carrier of Ore</i>	<i>Panning</i>	<i>Carrier of Water</i>
%	36.26	24.1	7.81	25.26	39.81	38.76
Mean Income	81.11	54.17	183.38	124.08	112.88	142.31
Median Income	73.86	55.40	151.98	113.99	92.76	74.21
3	<i>Sluicing</i>	<i>Washing</i>	<i>Washing</i>	<i>Washing</i>	<i>Carrier of Water</i>	<i>Panning</i>
%	22.22	7.23	4.17	24.74	24.07	37.98
Mean Income	79.45	52.53	182.34	125.83	100.35	176.20
Median Income	77.56	44.32	118.80	102.49	92.76	92.76

Source: Own data 2016.

The following paragraphs provide some examples of how women are concentrated in the least remunerative livelihoods in ASM zones.

The Rwandan wolframite mine has two zones of work: an artisanal mining zone and a semi-industrial processing zone. Everyone working in the semi-industrial processing zone receives a fixed salary. Those working in this zone and in the artisanal mining part of the mine view the work in the semi-industrial processing zone as easier and better paid. They are paid on monthly basis and this is viewed as advantageous compared to artisanal miners who are paid according to their productivity. In the artisanal mining zone, some workers confirmed that there are times, even months, when they do not find any tungsten and thus earn nothing during these periods. However, there were no women employed in this zone. Researchers learned that women working in the artisanal mining zone were interested and able to work in the semi-industrial mining zone,

but that no opportunities were available to them. The manager in the semi-industrial zone said women working in that section will make the men working there “uncomfortable.” However, when the researchers talked with men miners working in this semi-industrial zone, they declared they have no problem to work alongside women. The local representative of the company reported that as the semi-industrial zone was still in development, management could not hire women but they envisage employing them “in the future.” Clearly a sense of permanent work being associated with men informed this discrimination. This example may caution against a premature conclusion about the effectiveness of formalized institutional structures, such as a formal company which organizes work in the Rwandan mines, in securing conditions for women’s more effective access to mining livelihoods.

In both Rwandan mines, full time salaried positions are overwhelmingly held by men. The role of subcontractor, who hires and manages individual miners, is also male dominated. Only two of the seventeen subcontractors at the Northern province mine were women. There were different reasons given for the low participation of women as subcontractors. Firstly, a subcontractor needs to have capital in order to pay for some equipment and health insurance. They must also be literate and capable of meeting the bureaucratic requirements of registering with the national state board. They must be able to take the risk of being an independent business person for potentially after making investment in their workforce production level is insufficient for them to meet their costs, let alone generate a profit.

Married women told the researchers that for them to become a subcontractor would require permission from their husbands who may be resistant to them taking on this risk. This is especially since women need access to pre-finance the work and women said it is impossible for a married woman to get credit from the bank without her husband’s signature. Or, another woman declared, if a married woman decided to sell a plot of land to raise the capital, she could not make the decision on her own and would require the approval of her husband. In the Southern province mine, two of the four women subcontractors had a personal relationship with the mine owner: one woman took over from her husband when he died and the owner gave her credit to help her start, while the other subcontractor said she was approached by the mine owner. Such relationships may have also assisted men to become sub-contractors; we did not research this, so we do not know if this is the case. What it does show is that having personal relationships with management helped some women to access the privileges available to men (for example, helped them to access credit or to gain varied and deeper mining experience), giving them greater opportunity to become subcontractors. For more examples of the gender constraints that women reported, refer to the list in Appendix A.

Women’s double burden limits their full engagement in ASM

The work possibilities at ASM zones for women were also strongly shaped by pressures on them by their families, households and the wider community concerning their gendered duties. It is clear that for many women, their participation in artisanal mining is shaped by a combination of

productive and reproductive roles. Women’s livelihoods in the mine site tend to be circumscribed by their needs for flexibility to undertake other, sometimes, seasonal roles in the household and in agriculture. A study of horticulture economies in sub-Saharan Africa conducted by Barrientos et al. found similar dynamics linking informalization of women’s work with global value chains (2003, 1514-1515). While our research does not take up global value chains as an analytical lens, this research highlights an important connection in how the imbrication of productive and reproductive economies produces and normalizes women’s flexible labour within the organization of mining livelihoods, and which has, in turn, distinctly gendered impacts.

Women worked fewer hours and days at mining than did men (see Table 4) for a variety of reasons, including their obligations at home, whether that be caring for children or relatives, or attending to food production. Fewer hours worked, of course, limits women’s earnings, but it also may preclude them from accessing networks and building relationship that might help them establish financial or capacity to improve their livelihoods. Women’s absences from the mine site can also be construed as lack of commitment or reliability. For example, a male subcontractor in Rwanda noted that the better remunerated job of digging requires a “long time in the tunnel” and that “women are always rushing; they cannot stay a long time as men [do].” Yet another male sub-contractor noted that he will “let women leave early” unless production is high and that he will “tolerate” women coming late to the mine, but not if they keep doing it.

TABLE 4— WHAT DETERMINES HOURS WORKED BY GENDER

	Male	Female	% of Males	% of Females
Set by supervisor	117	33	0.29	0.09
Seasonality	93	57	0.23	0.16
Family Obligations	55	118	0.14	0.33
Other income generating activities	8	40	0.02	0.11
Religious Observance	2	17	0.00	0.05
Other Obligations	14	17	0.03	0.05
Other reason	231	200	0.58	0.55

Source: Own data 2016

In every mine site included in the research, women had to grapple with competing demands on them and their labour, as their work overlapped, and sometimes conflicted, with wider social expectations that they as mothers, wives, sisters, and/or daughters are responsible for childcare, household domestic chores, producing food for the household, gathering fuel and water, and for wives, looking after their husbands’ needs. For example, in the Rwandan wolframite mine in Northern province, researchers heard from men and women that women miners who are married or are head of their households are also said to be neglecting their domestic duties, with

community members saying that their houses are a mess, no one looks after their children, and their crops are not being properly looked after.

One woman at the tin mine in Western Uganda reflected:

I play so many roles. To begin with, I am the one who does all the household work, for example cooking, cleaning, digging and goat rearing when my children are at school. Secondly, I provide so many things at home actually like I told you, my husband is very mean so I buy all the necessities at home: for example, clothes, salt, soap, jelly, paraffin, sugar and medication.

Another woman digger at this tin mine said during a life history interview that she felt challenged by not upholding the common assumptions of what a woman should be doing, adversely affecting her self-esteem as a woman. In her words:

Traditionally here, a woman should be that one who cares for her children all the time. But for me, when I got to do the tin mining, I cannot provide that care to my own children and I think that is where I have deviated from one of the key makers of a real woman. A real woman is that one who digs and grows food crops and feeds the family but for me, I buy food using tin money which is also abnormal for a real traditional woman.

She later elaborated that as she is often too tired from her work at the mine to do “everything” a woman should be doing in the household, which has caused tension with her husband and possibly, she speculates, is a reason why he inflicts violence on her.¹⁶ She also noted that women earn less than men not only because men can “work harder” and are able to dig deeper in mining activities but also because men “are not disturbed by domestic chores.” She explained: “For me, I have to first attend to children and do domestic work. Men also do mining all days from Monday to Saturday. For me, some days can be very busy and I don’t go to mine; I kill a day to dig in the garden.”

Conjugal and familial demands on women’s time combine with wider social norms regarding respectable feminine activities make it difficult for married women to work or continue working in the mines. At the Rwandan wolframite mine, there is great pressure for women to leave work once they get married. The majority of the women mine workers, nearly 64% according to the company records, are unmarried and/or are head of their households. The company administration claims that once women become married they no longer wish to work at the mine. One male subcontractor at the mine speculated as to the reason for this:

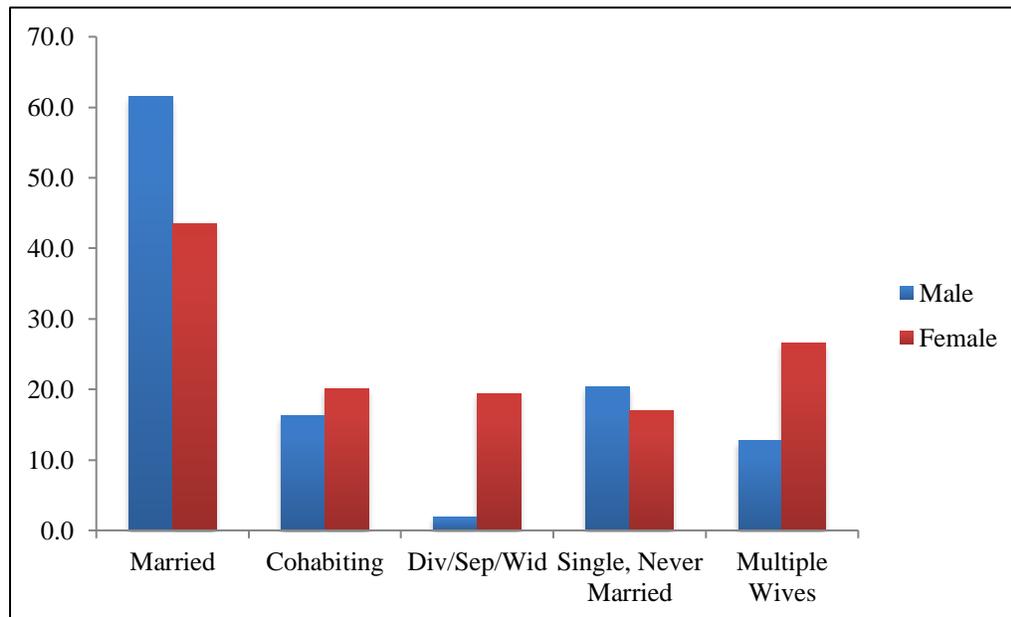
¹⁶ Another woman tin miner in Uganda also said something similar: “Women miners also get too fatigued due to mining; it could be the reason why I am having quarrels and domestic violence with my husband.”

When young women get married they don't come back mainly because of their husbands who refuse them to work in mine. Besides when a woman/man gets married their first wish is to have a child while it is not allowed for a pregnant woman to work in mine. Also, young married women do not like to combine household responsibilities with mining activities.

The gendered norm reflected here is that a woman's first duty upon marriage is household work and to raise a family; working at a mine for them is seen as disrespectful. At the Ugandan tin mine in the Western region, both men and women noted that women's involvement in mining is relatively new, driven not only by increasing poverty but also a growing number of single mothers and women-headed households in the area.

This trend is observable from the survey results. As presented in Figure 5, 43.6% of women in the seven research sites said they were married, 21.8% declared they were cohabitating, and just under 35% were either divorced/separated, widowed, or never married. This is compared to 23% of men who identified themselves in one of the latter three categories. There is clearly need for more research and analysis on marriage and other conjugal relationships in mining zones (see Bryceson et al. 2014 for some discussion of this), and while our survey did not explore what exactly the respondents meant by "co-habitation," the qualitative data suggests most of these conjugal relationships were viewed as less secure and less respectable than marriage.

FIGURE 5. DISTRIBUTION OF MARITAL STATUS BY GENDER (%)



Source: Own data 2016.

From the qualitative research data, it was apparent that many of the unmarried women (be they divorced/separated, widowed, or never married) worked in ASM to help cover their daily expenses. In other words, they were there because of poverty. However, there were a small number of unmarried women who did well, and they noted that they had more flexibility on how to use their money without needing to negotiate conjugal relationships. This is not to say that being unmarried allowed them to accumulate, but rather they could have more flexibility in making decisions. One relatively wealthy woman in the rush gold mining zone in Uganda sought out a male miner to act as a “shadow husband.” In her words:

A ‘shadow spouse’ is [someone who is] just there to shadow me from other men’s advances and provide protection were necessary. He should be poor, [someone] who can fear and respect me so that he may not have control or stop me from working at any time. And [he should help me] gain respect from other miners but without having sexual relationships or having children.

This example speaks to the different ways that unmarried women working in the mines strategize and negotiate against the gender constraints they face. Yet, the constraints placed on women mean that even when they are successfully defying norms in the work they do, they still face barriers in benefitting as full as men. For example, women (55%) more so than men (47%) tended to sell their minerals at the mining zone, whereas 30% of men and only 9% of women sold “in town.”¹⁷ The price for minerals is always higher the further one is from the extraction site, so women tend to be selling their minerals at a lower price. This predilection to sell minerals at the mine site for women speaks to their difficulty accessing money to travel further away and the additional labour demands they have in their households which may limit their ability to travel to sell their minerals.

Benefits for women

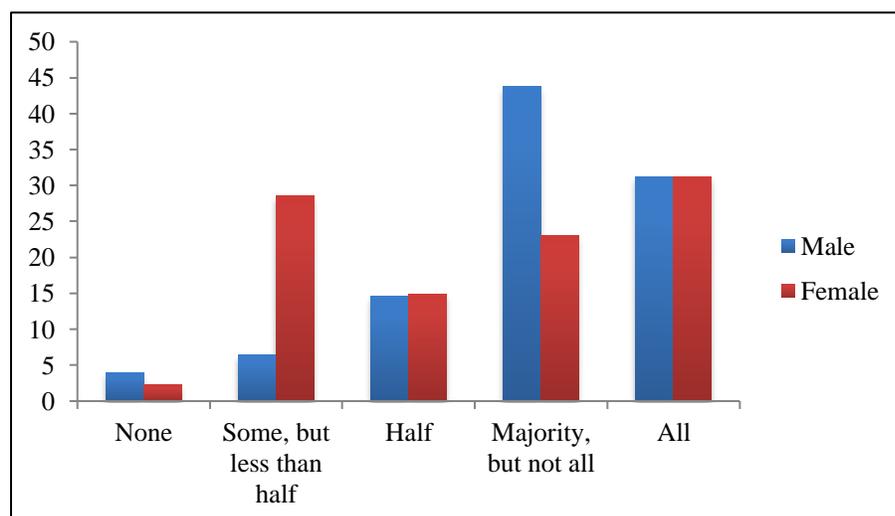
Although the gendered norms and institutions outlined above frequently act as barriers constraining women’s economic advancement, our research clearly shows that some women have nonetheless economically and socially benefited from working in ASM zones. In this section, we examine two key benefits for women identified by the research. The first is that working in the ASM zones enables some women to make financial contributions to their households and, in so doing, enhance their household and community status. The second benefit we examine is that some women have managed to find possibilities for accumulation in these mining zones. After describing these key benefits for women, we present several examples of how women working in the mines are defying gender norms in order to enter jobs typically reserved for men.

¹⁷ These figures are based only on the 6 research sites funded from this study and do not yet include the third research site in DRC.

Income from mines helps women to contribute to their households

Although women face a range of discriminatory norms and institutions in ASM zones, many of the women in the research declared that the money they earn from mining or other economic activities at the ASM mines helps them contribute to their households. Relative to the other, limited employment options available to women in these communities, ASM provides a reliable source of income. Nearly 70% of the women surveyed report that at least half of their household income comes from their work in the mines, and 88.6% of men surveyed reported the same (Figure 6).

FIGURE 6. HOW MUCH OF THE MONEY (%) CONTRIBUTED TO YOUR HOUSEHOLD(S) COMES FROM YOU?



Source: Own data 2016.

When responses of women are differentiated by marital status (Table 5), the results still show that many respondents play an important role in contributing to their household finances. Nearly 65% of married respondents (396 of 610 women) report that the majority or all of the money contributed to their household comes from them.

TABLE 5— ON A SCALE OF 0 TO 4, WITH 0 BEING NONE AND 4 BEING ALL, HOW MUCH OF THE MONEY CONTRIBUTED TO YOUR HOUSEHOLD(S) COMES FROM YOU? DISTINGUISHED BY MARITAL STATUS.

	None	Some, but less than half	Half	Majority	All	Total
Married/Cohabiting	5	103	106	237	159	610
Divorced/Separated/Widowed	1	9	3	12	62	87
Single	20	27	13	24	34	118

Source: Own data 2016.

The qualitative research data provides numerous examples of how women used the income they earned from working in the ASM zones. For example, at the Ugandan tin mine in the Western region, most women said the money they get from the mine is used to pay for food, health emergencies and school fees. A smaller number of women said they used the money to purchase domestic animals, and one woman reported purchasing a plot of land for farming. Some of the men and most of the women interviewed believed that women's work in the mining zones is economically advantageous for their households, and can reduce pressure on their husbands to pay for household expenses. As one man explained, "If a woman makes a contribution to the family, she can even buy things like saucepans and plates, and this reduces the load on the man."

Every woman at the Uganda tin mine who participated in a life history interview reported that they initially started working at the mine because their father or their husband stopped looking after them (and their children, if they had any). This resonates with a common finding in the literature that the low entry costs of ASM and the possibility of making some money quickly makes it a common, if not only, option for impoverished rural households across the continent. In other words, many Africans turn to ASM "out of necessity" (Banchirigah and Hilson 2010, 160). A few women interviewed stated they were initially compelled to work in the mine due to poverty, triggered when their husbands married more wives and subsequently gave fewer resources and attention to them. One woman told researchers that when her husband married two other women he subdivided her fields to give to the other wives, which meant she was no longer able to grow enough food to feed her six children. She added that her husband no longer contributes to the household and physically abuses her. This woman turned to mining in order to buy food and to pay for her children's school fees: "Before I started mining tin, my children were not attending school regularly. Now I have to work without resting to pay their school fees." She added that the money she earns from working in mining has allowed her to buy clothes and school uniforms for her children, as well as several domestic animals; albeit, her husband often sells the animals and uses the money for his own purposes. For this woman, and many other individuals, working at the tin mine is glorified as a source of income. One man called tin his "garden" and another woman called it her "saviour." The woman from the above life history interview rather poetically described tin as her "parent," while also acknowledging the challenges imposed by her husband's troubling behavior:

Tin is my parent; it feeds me as a parent feeds her children. It pays school fees for my children as a parent pays school fees for her children; so tin is value, it is a parent to me. Even if I don't have tin at hand but I go to a shopkeeper who knows that I mine tin, I get goods from that shop on credit because they know that I will pay. Sincerely, tin is a parent. I use tin money to buy food, to pay school fees and buy other necessities at home. Tin has enabled me to hold money and make my own decisions at home like paying school fees. But my husband is still the boss at home

and he makes most of the decisions at home and can decide to spend his day at the bar.

In a different life history interview at the Ugandan tin mine, one woman corroborated that working at the mine has allowed her to improve her house in many ways, including purchasing nicer furniture and building an iron roof and an underground rainwater tank.

Most of the women interviewed at this tin mine said working there was the most economically remunerative work available to them in their village. For example, one teenaged girl reported that she mined in order to raise money and look after her young siblings (her mother had died and her father was not supportive). She recalls: “I realised there was no any other better job around. In this area, the only available job is working in this hill. Failure to do so means getting married if you are a girl, or going to Kampala to work as a house girl [maid].... I have to bring up my siblings first, then I can get married later.” She said she usually makes three to five times more a day working as a panner at the mine compared to working in people’s gardens, which was her previous source of income. She said that tin mining has fueled her ambitions for the future:

I now have hopes of developing myself to a better level. I am no longer worried of what to eat or feed my siblings because I have some little savings I have made. I can now afford my good diet and all the clothes I want. I manage to buy sugar and bread for my siblings sometimes and I pay their school fees effectively.

Another woman noted that she has accumulated significant wealth through tin mining: “I have a total of seven goats now which are all as a result of tin mining. I have also bought some small piece of land in my home village worth 25,0000 Ugandan shillings [USD \$70.00].” According to this woman, she would have been able to accumulate even more except for the fact that she alone pays most of her children’s expenses; her husband does not help out other than paying their school fees.

Several women told our researchers in the South Kivu tin and tungsten mine that they take comfort from the small income they earn from this “little job” because it goes toward helping them to feed their families. Some women even declared that they were able to save a bit of money, typically between 200 to 300 FC (USD \$0.15-0.22) per day. Similarly, in the Rwandan wolframite mine in the Northern province, women said that even though work is hard it allows them on their own to buy food for meals for their household, pay for health insurance, clothes, school fees, etc., without needing to “beg” from their husbands. Although the amount they earn varies monthly depending on their yield, it still is the primary means for them to generate income sufficient to afford basic necessities. Several of the women also noted that once they began working at the mine they were able to buy goods on credit from the stores. According to them,

the store owners now have more confidence that they will be able to pay off the credit at the end of the month when they get paid by the small-scale mining company.

Meanwhile, in the Ituri gold mine in DRC, married women working in the mines and doing other livelihood activities (such as selling food in the ASM zones) often are the main contributors to their households during the “lean period” when their husbands are digging and not yet reached the gold belt. Given the very low level of mechanization at this ASM site and the deep levels they need to reach before the ore-bearing horizon containing gold is found, it is common for men to take many weeks of excavation before they can earn any money. Thus, if married, their wives play an important role in covering household expenses during this period.

Some of the women whose life histories were collected did very well through their economic activities in ASM. For instance, one woman from the Ugandan gold mine narrated how she found mining to be more economically lucrative than the work she had been doing in agriculture. She recalls:

On the day I joined, I just went with my basin and found many women and children washing kacinca [sludge] and started learning to wash like the other women. On the first day, I got gold worth 30,000 Ugandan shillings [USD \$8.00] and that made me quite excited because compared to the pay for farm work where one is paid 25,000 shillings [USD \$7.00] to clear a whole acre of land; 30,000 was quite a big amount to earn in just a day!

Existing research corroborates that ASM increasingly provides either an alternative or an economic supplement to farming livelihoods (Banchirigah and Hilson 2010). The most successful women earn enough to invest in land, buy houses, pay rent, and diversify or support other economic activities, as discussed below. Some of these women are also able to send children or grandchildren to boarding school.

In short, many women find economic benefits from working in ASM. They may be pushed into it through poverty or the failure of other livelihood options like farming to provide income. They may not necessarily enjoy the work, but they derive economic benefits from it. Although ASM is often not viewed as a legitimate rural livelihood by many policy-makers or international development organizations operating in Africa (Banchirigah and Hilson 2010), particularly for women, our research shows it is a very important livelihood activity for the women in our study.

The money women earn in the ASM zone may contribute to increasing their status

Although this was not the case for every woman included in the study, some women working in the ASM zones noted that their increased income also improved their status in their household and in the wider community. In the Rwandan wolframite mine in the Northern province, most of the women mine workers said that they feel proud of their work because the money they earn

allows them to be significant contributors to their household. Some of the women suggested that women miners are viewed as “big people” in their families as they are bringing significant money into the household. The few women who were subcontractors at the mine had even higher status in the wider community. They told researchers that their status is equivalent to women who are teachers or nurses in the area, if not higher as their earning potential is greater. Some women in a women-only focus group discussion stated that when it is time to be paid at the end of the month, the men whose wives are not working in mines make fun of other men whose wives do work in the mines by saying, “your ‘mayors’ [wives] are going to bring money.” For the women in the focus group discussion, this illustrated how women miners are now considered as “big persons,” as people worthy of esteem from the wider community.

In both the Rwandan and South Kivu cassiterite and coltan mines, as women started earning an income from mining they were able to satisfy some basic needs of their households. For married women, their husbands slowly but surely started changing their attitude and consulting them before making household decisions. These women stated that they and their husbands exchange views and make decisions together. The unmarried women said they contribute to the household expenses of their parents, with whom they live. As one Rwandan woman stated:

In the beginning all people, including our mothers, took us as women without culture, as prostitutes, [for working in the mines with men] but when they realize that we are making money and can satisfy our basic needs some of them are changing their behavior and no longer are treating us as prostitutes.

During a focus group discussion with unmarried women miners with children in the Southern province mine in Rwanda, respondents explained that they were initially compelled to work at the mine due to poverty and because they were not treated well in their community. Many people looked down at them and considered them to be immoral given that they were single mothers. As one woman observed, “The mine helped us to escape people who used to ridicule us.”

A few women did quite well through their livelihoods at the mine. For instance, a woman subcontractor at this mine said that she was placed in a higher tax bracket because of the income she earned at the cassiterite and coltan mine, and she considered this a status symbol. Life histories with successful women in the Ugandan gold mining zone in Central region showed that their lives changed dramatically after they began working in the mine. As one woman exclaimed:

I had never held three million [Ugandan shillings] in my life, not even 200,000 [USD 55.00] before coming here; but I managed to get that money while at this mine. I can say I have not got anything to look at that I can show people but the fact that I can be able to look after my children is not something one can overlook. ... My husband is a farmer but I think I am doing better than him because he could be making money but if you

make money and do not share it with your family then you are like a poor man who has nothing at all, meaning you have no plan. My life is completely changed and I can happily say that mining was the key that opened the door to my new life.

Another very successful woman from the Ugandan gold mining area who participated in a life history interview, said that she had a very poor childhood, but because of her success other people at the mine now treat her with respect and include her in meetings concerning governance at the mine. She is now considered a “big person there.” She then commented that “as a result of the above achievements I have got in mining, I take my shaft as my everything, and [even as] a mother since my mother abandoned me when I was helpless.” Another woman stated that because of mining she is no longer indebted to others and she provides for all her household’s needs. She summed up her experience by saying, “in terms of social status, we miners are considered rich.”

In addition to the economic benefits women attested to in the research sites, some women also pointed out more transformative consequences of working in ASM in terms of gender relations. Acquiring income provided them with a potentially new and improved status in the eyes of their spouse and other household members, particularly as it may be the only income coming into the household during long periods when their husbands are removing overburden and tailings from their own pits. One woman participant from the tin mine in Western Uganda observed that unlike in many other aspects of life, a woman digger is very similar to a man digger: “When we are selling our tin, we are treated equally whether a man or woman; if the prices are cut for tin, they cut all of us.” Working in the mine can also enhance women’s wider social status in the community as “wage earners,” and for a few, as economically successful women. We now turn to those accumulation possibilities.

Women who do well in mining are able to diversify into other economic activities

The few women who were successful in the ASM zones always diversified into various economic activities within the zone and beyond. Mining thus fed into their accumulation strategies. At the Rwandan wolframite mine in the Northern province, the first woman to be invited by the company to work as a subcontractor under the condition of working only with women’s teams did this for two years until 2013. She had been a headmistress at a school before, so she already had a relatively elevated social status. After she left the mine, she established a business elsewhere in the country using the capital she acquired from being a subcontractor. More broadly, aside from those who are civil servants, most of the wealthy members living in the community surrounding the mine acquired their wealth through mining. This includes some of the men working at the mine and a handful of the women who work as subcontractors or who got lucky and found a lot of gold.

Some of these women have used the income earned from mining to start other businesses (in the community or, for a few, elsewhere) or to invest in houses, lands or in livestock (e.g., pigs cow,

goats, etc.). The daughter of the AFM of one of the Ituri gold mines had owned a gold shaft which allowed her to raise money to buy land and to start a business selling alcohol in the mining zone. The life histories from the Ugandan gold mine in the Central region also provide many insights into economic diversification by those women who did well. Most women would build up from one business and then “jump” into a potentially more lucrative field (Figure 7). One woman used profits from a food vending business at the mine to buy farm land, and after seven years she had enough money from both to start buying sand (unprocessed ore). She then diversified into also selling fresh vegetables and building rental structures at a neighbouring mine site.

Another woman said she began by panning and then used the money to buy sand, initially starting with one basin and then after four months of accumulation she was able to buy sand by the bag. She and a handful of other women then pooled their money to buy a pit but this venture was unsuccessful. She then returned to buying sand and has now diversified into selling fuel, charcoal and tomatoes. Another woman began doing open-cast mining before working in partnership with a man to help buy ore. She also reported that she got access to a mechanical processing machine (called a Z machine) which allowed her to triple the amount of money she was paying daily to young men who worked the machine for her. She also used profits from this economic activity to buy some shafts where she hires young men to dig for her.

A fifth woman spoke about investing the money she earned from mining to expand her farming business. She explained:

Once I get money from the mine, I hire labour to work on my shambas [fields]. I am able to open up more land which I would not be able to do using my own labour at this age of 59. I am able to take good care of my crops and get a good harvest at the end of the season.... By the time I harvest my crops, I don't have any debts and therefore I am able to make bigger investments when I sell the crop produce. For example, I bought another piece of land in the neighboring village.

The few examples of women who had forged pathways for accumulation in mining came from the Rwandan mines and the Ugandan gold mine, save for the daughter of one of the AFMs in Ituri. In the Rwandan cases, these several women managed to become subcontractors, gaining access to the better paying positions in the small-scale mines. In the rush gold mine, women forged accumulation pathways by defying gender norms in order to enter jobs typically reserved for men. There was some evidence of this occurring for women in the other research sites, but to a lesser extent.

FIGURE 7. A WOMAN'S TESTIMONY OF HER ACCUMULATION SUCCESS AT A UGANDAN GOLD MINE

A woman who works at a gold mining zone in Central region, Uganda detailed to a researcher during a life history interview her pathway to accumulation. She said she moved from panning to buying ore to then working in shafts with men. Now she has shafts and rents a grinding machine, which allows her to make 2.5 times the rent she is paying per week.

She has done exceptionally well economically as evidenced by some of her achievements she listed:

- I got 4,000,000 shillings [USD \$1,100.00] which I used to start up a restaurant in this mine and I later added on a bar;
- I bought two power drills (“marketer”) that I can rent out although I usually use them on my shafts;
- I have five shafts of my own and three where I am a shareholder;
- I bought a plot of land and I have finished building my house in the nearby trading center;
- I can pay school fees for my children in good boarding schools;
- I provide employment to other people on my shaft.

And my future plans now include:

- To dig deeper in shafts to a round 400ft because that where gold is, this is so expensive but it's the way to go if am to get expensive ore;
- Buy cows that I will use to produce milk for selling as future investment plans;
- Start a chicken rearing business with the capital of 10,000,000 [USD \$2,750.00] shillings, then I can think of reducing on my involvement in mining because there I can be sure that I can look after my family.

Women breaking barriers to improve economic opportunities

Many of the women who participated in life history interviews at the Ugandan gold mine reported moving into economic activities typically reserved for men, such as excavating mine shafts, owning or renting processing machines, and for a few, becoming recognized as a “big person” in the mining zone. One such woman credited another woman trail-blazer for her own entrance into typically male dominated activities. This woman taught her that a woman can do “anything a man could do in a mine,” including activities like going down into shafts or using a hand-held power drill. In one excerpt, she explicitly compared her own capability and work in the mine to that of male miners:

I have learnt the art of mining ore so I can now easily identify gold veins and that is how I got the vein of the shaft where I have got a lot of money today. I pulled ropes on shafts like men and I learnt how to manage

shafts [from the other woman]. That's why I can now own and manage shafts successfully like men.

The research identified several women trail-blazers at the Ugandan tin mine in the Western region. Most of the excavation work at this mine is conducted by all male teams, or occasionally, by mixed-gender teams frequently composed of men and women who are married to one another. There were, however, a few teams composed entirely of women who defied gendered norms about the types of work women could perform. The members of one such women-only team told our researchers that they preferred this set-up over mixed-gender teams because in such environments they often faced discrimination and prejudice from men. For example, they spoke about men using vulgar language, teasing the women, sometimes sexually harassing them and often undervaluing their labour. As one of the women remarked, “some [men], when you work with them, they are always accusing women of laziness [*okubakongora*].” Unlike some of the other women-only teams, this team regularly performed panning, a job typically reserved for men. As a woman member of different another all-women only team noted during a life history interview, their team was forced to hire a man to do panning work, at a cost of a thousand Ugandan shillings a day, because none of them knew how to pan.

Although most women at this site indicated that tin mining has improved their livelihood, it is important to note that poverty, food insecurity and difficulty paying for healthcare, education, home improvements, and so forth remained commonplace experiences. This could be, as one woman speculated, because women tin miners are unable to dig as deep as men who are able to reach richer veins of ore.

In the Ituri gold mine in DRC, researchers learned about one woman working as a digger. She was the sister of one of the AFMs (leaders of the mining site), thus suggesting that her kin relationship with the owner of the mining concession allowed her to challenge gendered taboos. The same AFM had also given a piece of land to another of his sisters for her to be a *detrou*, a pit owner, which was a rare position for a woman hold.

In the Rwandan wolframite mine, there were three women diggers, and one woman leading a team of diggers. Workers say this woman acquired the of position team leader because she is courageous, and a good advisor and mediator. She is also young with only “small responsibilities” outside of work. There were also three women working in ground sluicing, and two of them are also diggers. Along with two women subcontractors, all of these women were occupying positions previously viewed as exclusively men’s work. These women are more likely to earn a higher income.

A handful of women defied norms that reserved certain jobs for men, thereby enhancing their economic returns or, for a few, improving their chances of economic accumulation. Some of these women acted as trailblazers and mentors for other women. Even for those women whose accumulation possibilities did not improve drastically, most saw an incremental improvement in

their livelihoods by challenging the gendered norms that acted as barriers for women in the ASM zones.

Conclusion

Our analysis of the quantitative and qualitative research data presented here demonstrates that ASM is highly structured, with overlapping forms of governance shaping a range of livelihood practices and opportunities for men and women. Beyond this, gendered norms and institutions (authority and power relations) are shown to frequently disadvantage women when compared to men in ASM zones. Existing gendered structures and relations of authority found in mining zones are relatively similar across the three countries and across the different types of minerals mined. Despite ASM being largely dominated by men, women are actively involved in ASM zones, forging livelihoods and, for a few, finding accumulation possibilities, sometimes by actively defying gendered barriers to certain jobs.

Our research confirms dominant trends in the research that shows how gendered practices and assumptions act as barriers for greater economic benefits for most women in ASM zones. In particular, it provides evidence confirming that women, as predicted by Kabeer (2012, 24), are clustered at the ‘survival end’ of the ASM livelihood spectrum. Gender norms and taboos function in different ways as barriers to women’s livelihoods. As in other economies, women come to ASM livelihoods already impacted by gender norms which result in low education levels, less mining experience than some men, and limited or no access to land or other assets. Gender norms and taboos also structure the kinds of livelihoods that are available to women, generally limiting their access to forms of ASM livelihoods that are either better remunerated or which offer the potential for accessing networks and relations that may lead to accumulation activities. These taboos can also extract a high price for women who, perhaps out of desperation, pursue ASM livelihoods.

Once in ASM roles, our research finds that gender norms can delimit how women are able to work within those roles, and their ability to parlay those livelihoods into accumulation activities. Women face much pressure for meeting household “duties” and gendered expectations of affinal and kinship responsibilities which make it difficult for them to earn more through mining. The institutions, authority relations (both formal and informal), and relations of dependency that operate within and alongside ASM sites are also gendered. The various and overlapping institutions that regulate ASM - from customary laws and leaders to land or license owners, from formal and “twilight” state actors to mining committees, associations, and pit teams - are overwhelmingly dominated by men. The gender norms that function to cluster women into survival activities have knock-on effects in making it difficult for women to access, be recognized by, or participate in these various institutions and relations.

Our research also provides evidence that despite these barriers, women can forge economic benefits from their participation in the inter-locking markets in ASM zones, with a few able to make pathways for accumulation. Gendered norms and gendered institutions delimit and shape women's actions, but discriminatory authority and power relations also can provide agency for women to try to improve their economic and social status. In particular, our research provides evidence that income from mines help all women to contribute to their households, be it to try to address some pressing demands (for food, education, healthcare costs, etc.), or to enhance their consumption habits. It also demonstrated that the money women earn in the ASM zone may contribute to increasing their status, particularly for those few who have achieved relatively high accumulation through mining (particularly in the rush gold mining zone in Central Uganda). Such women who have done relatively well in mining have been able to diversify into other economic activities. Finally, in recent years, some women have successfully defied gendered norms to break into economic activities normally reserved for men. Institutional commitments, as in the Rwanda context to proactively foster women's mining livelihoods, may be helping some women, but those commitments do not appear, at least at the moment, to be disrupting the exclusionary impact and durability of gender norms that limit women's accumulation activities.

We end with three key points for policy-makers, practitioners and academics to consider in terms of what donors will often characterize as the "women's economic empowerment" potential of ASM. These considerations stem directly from the study findings outlined in this paper:

1. Economic activities in mining zones do help some women earn money for their own uses, for family expenditures, and for accumulation. This work can also increase women's status and opportunities. It is imperative for governments, donors, non-governmental organizations, and any other associational forms operating in these mining zones to focus attention on "empowerment" activities that are explicitly gendered within design and implementation, seeking to help improve the livelihoods and scope of decision-making for women.
2. Women's ASM livelihoods are inextricable from the social and institutional contexts within which ASM activities unfold and which shape the durability of poverty in the sector. Efforts to improve women's livelihoods in ASM cannot approach gender inequalities in isolation from this broader context.
3. That said, gender inequality is a structuring condition of ASM. Therefore, any efforts aimed at improving, restructuring or regulating ASM must also addressing gender issues in design and implementation. Further, there needs to be concerted effort to address the barriers to women's mining roles, accumulation activities and participation in mining site governance. This needs to be done by proactively challenging gendered norms, practices and institutions within the ASM sites and in the households, communities, state-structures, regions and beyond which make it difficult for women to do some jobs.

Our research therefore shows that many women can make some form of livelihood by participating in ASM, and efforts to close these mining operations or prevent women from working in them would jeopardize the wellbeing of many women, men, and their dependents.

Acting on such recommendations requires thinking through the gendered authority relations, organizational forms, and livelihood practices. Otherwise, our findings lead us to propose that the conditions are set for women's effective exclusion from formalization efforts that focus on establishing cooperatives or associations. Currently, almost all positions of authority over mining operations are held by men, and the gendered division of labour and authority also make it difficult for women to access higher paying positions. Without an explicit focus on challenging these gendered norms and practices, research shows that gender inequalities will persist (Tripp 2004; Tripp et al. 2009). We will explore this topic in a future paper, using further analysis of the data and evidence generated from this research.

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Appendix A – Gender constraints reported by women working at the mines

- At the Northern province wolframite mine in Rwanda, most women work as panners, often working only with the left-over tailings as the ore-bearing sand coming from tunnels is usually first reserved or offered to other men. The norm operating here is that men are more naturally the mine workers and thus should have access to the best ore-bearing sand.
- At the same mine, the common assumption held by many men and women with whom our researchers spoke is that women are too weak physically to be able to operate a jack hammer or to do ground sluicing. As a consequence of this norm about differential gendered bodies, women miss out on the potential of higher pay. Working on a jack hammer gives the chance of being paid monthly, whether production occurs or not; ground sluicing speeds up the panning activity and may give high production than washing by pan.
- In the Rwandan cassiterite and coltan mine, the jobs women do are mainly transporting sacks of ore from tunnels to outside with some who assist men panners in putting sand into sluices. Men and women at this mine said that women are not knowledgeable or physically strong enough to do any other job at the mine site. The jobs that women are seen as able to do (e.g., hauling bags of sand out of sometimes very narrow mine shafts), and supporting male panners, are the lowest paid (1,000 and 800 RWF respectively) on the site.
- At the Uganda tin mine in the Western region, only men work as groups of panners who sell their services to teams. Informants explained that only men have the specific skill required for sieving during panning so that tin is not poured in the residues during the process. They say this requires a more masculine physique to maneuver the pan and that women tend to suffer chest pain when they try to do it. Groups of (male) panners selling their services make more money than individuals who pan the tailings on their own.
- In the tin and tungsten mine in South Kivu most women do not have enough money to become “small traders.” This position is dominated by men; the few women who are buyers of the minerals had capital from other trading businesses. The difficulty for more women to acquire capital in the wider political economy limits their economic roles in ASM.
- At the same mining zone in South Kivu, DRC, no women own shafts. Only men have enough capital and linkages to the hill chief to take the more lucrative position of being a shaft owner. In the Ituri site, almost all AFM are men and of the more than 150 *écuries* (teams of diggers) only 3 are headed by women.