

Women in Artisanal and Small-Scale Mining in the Adansi North District, Ghana

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Abstract

In recent times, issues concerning women involvement in small-scale economic activities and reasons for their participation have become topical. In most cases women are regarded as weaker organisms and therefore not capable of partaking in activities that require more energy to undertake. This paper examines the role of women in the artisanal and smallscale mining and how the activity has improved their living conditions. The study was underpinned by the sustainable livelihood framework and employed the qualitative research approach in drawing data from a sample of twenty female miners randomly chosen from four mine sites which were selected purposively. Besides, some family members of the female miners, officers from the mining companies and an official each from the District Assembly and Minerals Commission were sampled for the qualitative survey.

Index terms— artisanal and small-scale mining (ASM), qualitative approach, women empowerment, quality of life, Adansi North District, Ghana

1 I. Introduction

activity undertaken by a person, a large number of persons, and people related or in business which is done manually with less or minimal mechanism, and mostly part of the informal unit of the economy (Hentschel et al., 2002; Villegas et al., 2012). ASM operators are normally independent and work with their personal hand tools and resources (International Finance Corporation 2008). "ASM is regarded by some as dirty, risky, turbulent and therefore should be disregarded whilst others regard it to be beneficial, fruitful and means to move the poor out of marginalization" (Telmer and Viega, 2009). It is estimated that, at least 20 million people engage in ASM whilst other people numbering about a hundred million are dependent on it as a means of livelihood (World Bank, 2008; ruschka and Echavarr'a, 2011).

Although accurate figures are difficult to come by, Hilson (2002) suggests that women could represent roughly one third of the ASM sector, and notes that in several countries such as Guinea, women participation is greater than men. They make up 75% of workers involved in artisanal and small-scale mining, while in countries such as Mali and Zimbabwe women's involvement is around 50%. ASM is mainly an informal economic unit in Third World countries which give out employment to a large proportion of marginalized women in the productive sector. This view is backed by evidence from the colonial era, where oral histories have it that marginalized women had played an active role in the early mines and labored together with men (Gier and Mercier 2006). Blacksmith Institute (2011) also stipulates that, most women involved in artisanal and small-scale mining can be found among the economically and socially marginalized and therefore resort to mining to turn away from unemployment, abject poverty, marginalization and landlessness.

Furthermore, most studies are also concerned with the task of unraveling the understanding of the complex social, environmental and economic effects of mining in local societies (Bech et al., 1997; arthworks and Oxfam America, 2004; Kitula, 2006; Childs, 2008; Bebbington and Williams, 2008; Owusu-Koranteng, 2008; Carrington et al., 2010; Tsuma, 2010; Barreto, 2011; Earthworks and Mining Watch Canada, 2012; Obeng-Odoom, 2012) and

44 searching into the stages of environmental impact assessments, free and informed prior consent, and community
45 consultations (Whiteman n recent years, the artisanal and small-scale mining (ASM) industry has witnessed
46 significant growth all over the world, mostly in remote rural areas of developing countries. In most parts of the
47 world, ASM operations are as relevant as large-scale mining, especially in the case of the number of people who
48 partake in it. Statistics show that an estimated 40.5 million people are directly engaged in small scale mining and
49 about 150 million directly involved in the activity (Intergovernmental Forum on Mining, Minerals, Metals and
50 Sustainable Development (IGF), 2017). Various scholars have different means by which they define ASM in a
51 comprehensive manner. In a broader and ??amen, 2002; ??hitmore, 2006;Macintyre, 2007; ??i, 2009). Research
52 has further focused on ASM, as generating as much as one-third of the world's mercury pollution and loss of
53 forest cover caused by the sector's failure to reclaim the lands used (Akabzaa, 2004; ??wain et al., 2007;Akabzaa,
54 et al., 2007). However, the reasons why women involve in ASM, impacts of ASM on the empowerment of women
55 have remained unattended to from most of these accounts. Where issues of women participation in ASM are
56 discussed, they are mostly in relation to pollution, health issues and economic impact, among others.

57 In Africa, the role and participation of women in ASM is crucial, although not so much attention has been
58 given to it. In many mineral-rich countries in Africa, movement towards ASM is believed to have occurred since
59 the 1980s (Hilson, 2010). On the other hand, an understanding of the factors that push women to involve in
60 ASM in Africa, calls for further studies. Researchers have identified that, the proportion of female participants
61 in ASM in Africa is greater across the globe between 40% and 50%. In some regions, women involved in ASM
62 account for about sixty to hundred percent (ILO, 1999; Amutabi and Lutta-Mukhebi, 2001). Unfortunately,
63 cultural barriers and taboos have tended to exclude women from the mining industry (Verbrugge, 2017).

64 Women involvement in ASM could ensure their empowerment as epitomized in the work of Kabeer (1999) who
65 refers to it as increase in one's ability to strategically make choices in life with regard to rights previously denied.
66 He refers to the need for gender equality in ensuring their empowerment. Kebeer and Mbebe (In Malhotra et al.
67 2002) refer to the empowerment of women as means by which women come together to improve themselves and
68 fight against subordination. The study is carried within the framework of the sustainable livelihoods as modified
69 by Kranz (2001) and McLeod (2001). The livelihoods comprise capabilities, assets and activities required for
70 a means of living (Chambers and Conway (1992). The assets are natural capital, physical capital, human
71 capital, social capital and financial capital. McLeod includes institutional knowledge and political capital. This
72 approach offers a conceptual framework for sustainable poverty reduction. This study, among other objectives
73 explores whether women could be empowered, involving in ASM, in the Adansi North District of Ghana using
74 the sustainable livelihood framework as a guiding model.

75 The paper is structured into five sections. Section one examines the demographic characteristics of women in
76 ASM whilst section two discusses the activities women in ASM engage in. Section three discusses factors that
77 drive women in ASM, with section 4 delving into benefits women in ASM derive from the activity. The final
78 section, section five, discusses obstacles to engagement of women in ASM.

79 2 II. Methodology and Profile of Study Area

80 This paper is based on data on Small-Scale Mining and Empowerment of Women in the Adansi North District of
81 Ghana. Data were collected in September 2016. The paper uses the qualitative design to explore the experiences
82 of women in artisanal and small-scale mining in a rural district in Ghana. This paper adopted the qualitative
83 method and the crosssectional design. The design enabled the researcher to collect data from respondents whereas
84 the qualitative method helped in an in-depth understanding of the issues.

85 The researcher obtained a total list of seven registered ASM companies from the District Assembly of which
86 four were purposively selected. Purposive sampling procedure was further employed to choose four out of the
87 sevenmining companies for the study. The selection was based on the scale of operation. The four selected
88 were very active, operating throughout the year with adequate staff skill ful enough to guarantee all year-round
89 operation. The companies were Pelango Adansi Gold Ltd at Adiembra; Star Goldfields Ltd. at Adumanu;
90 Richrock Minerals Ventures at Sodua; and Emperor Gold Investment at Sodua (Figure 1). A total number
91 of 193 women were obtained from the four registered mining companies in the district. The distribution was
92 as follows: 41 for Pelango Adnansi Gold Limited; 80 for Star Goldfields Limited; 31 for Richrock Minerals
93 Ventures; and 41 for Emperor Gold Investment. Five respondents were selected randomly through the lottery
94 method from each mining company for the indepth interview whilst two relatives of two miners from each of the
95 companies were randomly selected for indepth interviews. Where a randomly selected participant was unavailable
96 or decided to bow out, the same procedure was repeated to replace them. Furthermore, an officer from the District
97 Assembly, an Official of the Minerals Commission and selected Unit Committee Members of the towns where
98 the mining companies were sited were concurrently selected by the purposive sampling method for interviews. It
99 was necessary for the researcher to include these other key informants to ensure comparison and authentication
100 of responses.

101 The paper employed interview guides as tools for data collection. There were three separate interview guides
102 for the artisanal and small-scale miners, their relatives and the officials. Each respondent was taken through
103 a questionnaire which contained questions generated from the set objectives. Under the supervision of the
104 researcher and two other assistants the opinions of all the respondents were sought by aiding them to answer the
105 questions as required. The key components of the interview guide for the miners were: their motivation to join

106 ASM, their activities at the mines, improvement in their quality of life since joining the ASM and challenges they
107 face. Interviews were taperecorded, transcribed and results organized into themes, a main strategy for analyzing
108 qualitative data.

109 The Adansi North District (Figure 1) is one of the thirty districts in the Ashanti Region of Ghana which came
110 to existence in 2004 through LI 1758. The Adansi North was carved out of the Adansi East, Adansi West, Adansi
111 South and the Obuasi Municipal Assembly.

112 Source: Planning Department, Adansi North District Assembly, 2017. According to the 2010 Population and
113 Housing Census (GSS 2012), the district has a population of about 107,091 with a growth rate of 2.6% per year.
114 94 persons per square kilometer make up the population density and male to female ratio is 49.5% to 50.5%
115 respectively. In the working age, the economically active population makes up 71.3% while the remaining 28.7%
116 are inactive economically (GSS 2012).

117 The proportions of females and males that are unemployed are 4.6% and 3.9% respectively. Furthermore, the
118 population, 15 years and older who make up the economically active population is about 27.7%. In terms of the
119 exact number of people the mining sector employs in the area, it would be difficult to determine because most of
120 the mining activities are carried out undercover. Whether illegal or legal, the ASM activity provides some sort of
121 livelihood support and empowerment to the people involved; women, men and children alike. Looking at the male-
122 female population ratio (49.5% -50.5%) in the district, it would be unwise to focus on men and their involvement
123 in ASM since they are mostly advantaged when it comes to economic activities and especially extraction of
124 the natural environment. This and other factors like ownership of land, landlessness, unemployment, poverty
125 among others have led to the women participating in ASM activities. The problem becomes more profound when
126 marginalized women desire to be productive but are impeded by socio-cultural factors.

127 In the Adansi North District, agriculture, mining, quarrying and the fishing industry make up 66.8 percent
128 of the local economy. Proportionally, male to female ratio in the industry is 66.1 to 33.9 percent respectively
129 (GSS, 2012). Other activities such as the services and hospitality industry and financial administrative activity
130 contribute a little over one percent to the local economy. The foregoing which highlights the economic and
131 social conditions of women in the study area reinforce the need for such a study to unearth bottlenecks to their
132 empowerment and advancement in an economic activity that is easy to access amidst joblessness in the formal
133 sector.

134 **3 III. Results**

135 **4 a) Factors driving women to engage in ASM**

136 The factors that motivated the women to move into ASM were unemployment, poverty, discriminatory land
137 tenure system, and the dominance of ASM as an economic activity in the area.

138 **i Unemployment**

139 The high participation of women in the ASM activity in Ghana is particularly linked to the fact that employable
140 avenues in the formal and informal sectors of the economy are very low and few in proportional terms. In Ghana
141 where annual per capita income in remote areas is as low it is not a surprise for ASM to be a source of income to
142 the population (Dordunoo and Sackey, 1997). Mining activities are not sustainable in the area due to inadequate
143 land for farming and seasonality of the activity. Lands are leased to mining firms to restrict farmers from farming
144 on their lands (Okoh, 2014). The inability of policy-makers to put in place policies that can absorb the teeming
145 unemployed youth graduating from the Basic and Senior High Schools has made ASM an important economic
146 venture to curb the problem notwithstanding its related problems. Responses of some respondents through
147 interviews are stated below:

148 **5 I have been unemployed for a very long time, until these**
149 **people decided to engage my services (23year-old female**
150 **miner, Adiembra).**

151 **6 Most of the ladies are into ASM because of inadequate**
152 **employable opportunities (Officer, Adansi North District).**
153 **There are no other jobs around; if you don't engage in ASM,**
154 **you'll stay unemployed (23-year-old female miner, Adiembra).**

155 It was the opinion of respondents that their lack of skills kept them off formal employment. Even though there
156 is scarcity of jobs at the formal sector, they may have had some jobs to do there but for their lack of skills to
157 facilitate their engagement. This is confirmed by Duflo (2011) in a study on women empowerment and economic
158 development. Studies by Hiese and Meyer (2004) and Faigenbaum, et al. (2015) confirm the narratives by the
159 miners, relatives and officials. Responses from a relative of a female miner, an official each from the Mineral
160 Commission and a female miner are reflections of this factor which drove them into ASM:

13 DO YOU THINK I'LL BE DOING THIS TEDIOUS WORK IF I WAS TO BE FROM A WELL-TO-DO FAMILY (27-YEARCOLD FEMALE MINER, ADUMAWU)?

161 Due to the fact that she did not go to school and also did not learn any trade her only hope now is ASM which
162 requires little expertise (Relative of female miner).

163 **7 The women mostly lack skills and get involved in ASM to raise**
164 **money for apprenticeship (Official of Minerals Commission).**

165 **8 Most of the women do not have any professional training so**
166 **being employed by these companies is a blessing to them**
167 **(Officer, Adansi North District Assembly). I didn't go to**
168 **school and have had no vocational training. I am happy in**
169 **this employment opportunity (36-yearv old mother of four,**
170 **Adumanu). ii Land tenure system and land use**

171 The seizure of farmlands by large-scale gold miners has led to the proliferation of poverty in areas where ASM
172 is rife. The effect of this problem has brought about spread of ASM activities in the rural areas. What has
173 worsened matters is the competition for land by miners and farmers in communities where mining takes place
174 (Akabzaa et al. 2007; Amponsah-Tawiah and Dartey-Baah, 20011; Okoh, 2014). Hilson and Garforth (2012)
175 stipulate that 'agriculture poverty' is a major reason why women involve themselves in ASM in Sub-Saharan
176 Africa. The Obuasi community for instance, has more women in ASM over the past decades due to poverty in
177 agriculture and unavailability of land to maintain the rural economy (Banchirigah and Hilson, 2010;Hilson and
178 Garforth, 2012).

179 Responses from respondents in in-dept interviews confirm the above findings.

180 **9 My family head has sold a large portion of our family lands**
181 **to Chinese and the remaining is not enough for all of us to**
182 **farm on (35-year old Female Miner, Adiembra).**

183 **10 Most of our lands have been destroyed by mining activities**
184 **(26-year old Female Miner, Sodua).**

185 **11 Our family lands have been sold to artisanal miners and now**
186 **we have no land for crop production (35yearv old Female**
187 **Miner, Adumawu).**

188 **12 Women don't and can't own land in this community. All the**
189 **lands are vested in the care of the men; even the ones on**
190 **which they mine (Unit Committee Member, Adumanu).**

191 iii Poverty For most nations in Africa, ASM is usually regarded 'poverty driven', giving instant income and
192 employment to deprived people. It is evident in several studies undertaken by researchers such as Fisher (2007)
193 and Banchirigah (2008) who assert that due to high impoverishment and unemployment people engage in ASM
194 for direct income and employment. Siegel et al. (2009) and Maconachie and Hilson (2011) also posit that due
195 to the inability of illegal mining to elevate the poor from poverty, donor countries and host governments need
196 to formalize the sector to give support to its operators. The following narratives from the respondents in the
197 interviews confirm these positions:

198 **13 Do you think I'll be doing this tedious work if I was**
199 **to be from a well-to-do family (27-yearcold female miner,**
200 **Adumawu)?**

201 My family is very poor; I have to do this to earn some money (18-year old Female Miner; SHS 3 Student,
202 Adumawu.

203 iv Dominant Economic Activity According to the results, another factor that drives women into ASM is that
204 ASM is the dominant economic activity for which the people see as an established way of life. The women see
205 ASM as the occupation in the area that can provide them with sustainability. They see the activity as a heritage

206 handed on to them by their ancestors. Since they saw their relatives indulge in the activity and they are no
207 more, they believe it is their time to continue and sustain it. In-depth interviews revealed this sentiment:

208 **14 I am into ASM because it is the only activity I saw my**
209 **grandmother and mother do; it pays well and fast (33-year**
210 **old female miner, Adiembra). I was born into this activity**
211 **and cannot stop the operation; my father introduced me to**
212 **the owner of the site and now my children too are here.**
213 **(48-year old female miner, Sodua).**

214 **15 My grandmother and mother involved in ASM to cater for**
215 **us and I am also doing it to survive (23-year old female**
216 **miner, Sodua). b) Women's Operations in ASM**

217 Most of the women in the ASM are between the ages 18 and 25. Indeed over 65% of the miners, according to
218 the officials are in this age category; thus, giving the impression that the arduous nature of the activity scares
219 women in the middle and old age categories. Most of the women are however married. About 47.7% of them are
220 married and 10.1% widowed. The good number that are married and have ever tasted marriage is due to the fact
221 that in Ghana low education is associated with early marriage. Family sizes, according to the officials, are high;
222 the total fertility rate is estimated at about 5. This is due to the early start of birthing experience, the people
223 being pro-natalists. The large family sizes may explain the need to enter into an occupation which is deemed to
224 be the preserve of men due to its energy sapping potential.

225 The activities of women miners in artisanal and small-scale mining include, carrying mineral bearing ores
226 and quarry materials to the milling machines; minor digging; shovelling and collection of mineral bearing ores
227 and quarry materials; processing the ores by panning, washing and mineral separation; operating the milling
228 machine; recording the number of pan-fuls of quarry materials and mineral bearing ores to the milling machine
229 and catering and laundry services (IGF, 2018).

230 Interviews with the women miners revealed that a few operate the milling machine. They are confined mainly
231 to non-machine areas apparently because of the risk and energy sapping nature of this area of operation. The
232 women miners have been in small-scale mining businesses from a period ranging between 3 months and 5 years.
233 Nineteen of the miners have been working for the mining organisations for five years whilst 23 have been with
234 the companies just for three months. Given the number of women miners the conclusion we could draw is that
235 women do not stay in the mining job for a long time apparently due to the stress and risk involved. Benefits
236 derived from the mining activities Narratives from the women miners indicate that the activity has improved
237 their livelihoods and quality of life so measures must be taken to improve their conditions in the mines and reduce
238 the risk and other challenges they face. The following responses from the respondents are indications of their
239 improved conditions through their involvement with ASM: I was nobody before joining ASM. I could not even
240 pay for the small school fees of my children neither could I assist with the chop money. Even my husband had
241 to buy me underwear (Female Miner, Sodua). I do not think the wage is too bad, so far as I am concerned, it is
242 not bad at all . My sister's condition was not good at all before she became a miner. She had to depend upon
243 her husband for all her needs, Things are different for her now (Relative of a Female Miner).

244 **16 I was the one giving her money to cater for her basic needs**
245 **prior to her involvement in ASM, but now things have**
246 **changed (Relative of a Female Miner).**

247 A Unit Committee Member (Lowest level of Local Government) testified to the improved condition of the Female
248 Miners as follows:

249 Indeed, the financial condition of the female smallscale miners I knew was not good at all. They are a little
250 better since they became miners.

251 Miners have seen improvement in their finances and could educate their children without dependent on their
252 husbands since joining the ASM, as depicted in the following statements: I have been able to acquire a lot of
253 things including expensive household utensils, room furniture, a small television, expensive clothing, a bicycle
254 for my children, etc. ??Female Miner, Sodua).I

255 With their contribution to the family finances and community improvement, the female miners could now
256 boast of participation in decision making in the home and community. This is borne out by such assertions:

257 My husband involves me in decision making in the home because he sees that I am contributing a lot to keep
258 the home (Female Miner, Adiembra).

259 Because I contribute a little towards community improvement, my views are sought for in community gatherings
260 (Female Miner, Sodua).

261 These findings give indication that participation of women in ASM empowers them. They earn good income
262 through this economic activity. With this they are able to acquire assets including household assets as well as
263 fixed assets such as houses. Besides they are able to take good care of their children's education hence, involve
264 in long term investment.

265 **17 Challenges facing Women Miners**

266 The female miners expressed some challenges they face. The problems include inadequate wages, risks of health,
267 housekeeping and marital issues. They narrated these problems as follows:

268 The monetary returns should increase. I am convinced we are not paid well for our services. Even though as
269 women we are not made to go into the very dangerous aspects of the operation, there are some risks involved
270 ??Female Miner, Sodua].

271 Given the risks we face in this work, the monetary returns are not enough. Even though our wages are better
272 than when we were in some other occupations, we need more compensation for our services [Female Miner,
273 Adiembra].

274 We need more protective equipment to save our health. We have nothing when we give birth.

275 **18 IV. Discussion and Conclusion**

276 Results of this study have demonstrated that the quality of life of women improves when they involve in ASM
277 which, hitherto, had been the preserve of men. This occupation has guaranteed a good quality of life of women.
278 It has enhanced their socio-economic benefits. Conclusions drawn by researchers in the empowerment of women
279 through this activity have been confirmed in the Adansi North District. Through this activity, they have gained
280 enough income to build assets including domestic equipment and fixed assets such as houses. Their nutritional
281 status, as well as their housing conditions, have improved. They could support their husbands in taking care of
282 the home and in some instances, they are heads of household. The education of their children is not in jeopardy.
283 Another area of interest which enhanced the status of women is their participation in decision making in the
284 home and community. They gain recognition in the home and community for their monetary contributions to
285 the running of the home and community development. They are thus empowered through the activity. The
286 study confirms works on the empowerment of women through their activities in ASM ??Hinton, et al., 2003;
287 ??ier and Mercier (2008); Blacksmith Institute (2011). Their empowerment and for that matter improvement
288 in their quality of life depends on their ability to decide for themselves (Petit 2012) own assets such as lands,
289 cars, houses, etc. (World Bank 2000). These depend on their ability to work and earn income (Hilson and
290 Potter;Beall and Piron, 2005). Their empowerment ensures improvement in their quality of life and that of their
291 families. Perceptions on their ability to engage in mining activities must thus change. The sustainable livelihood
292 framework has been vindicated. Women who enlisted in the ASM have gained assets and improved their quality
293 of life. There are bottlenecks to their full realisation of benefits that must be addressed. Measures must however
294 be taken to ensure that challenges they face in their mining operations are addressed. The risks they face must
295 be ameliorated by the provision of occupational protective gadgets. Besides, it must be ensured that they are
296 paid reasonable wages and appropriate risk allowances and not to work beyond the number of hours prescribed
297 in the labour laws. Finally, there must be a policy to ensure that the health problems emanating from their
298 operations in the mines are addressed expeditiously. There must be a reasonable health policy to guarantee safe
299 health of the women workers. Finally, there must be skills development policy to improve the skills of the female
300 miners to ensure increased productivity.

301 **19 Conflict of Interest**

302 No conflict of interest was involved.

303 **20 Ethical Issues**

304 No ethical issues were involved.

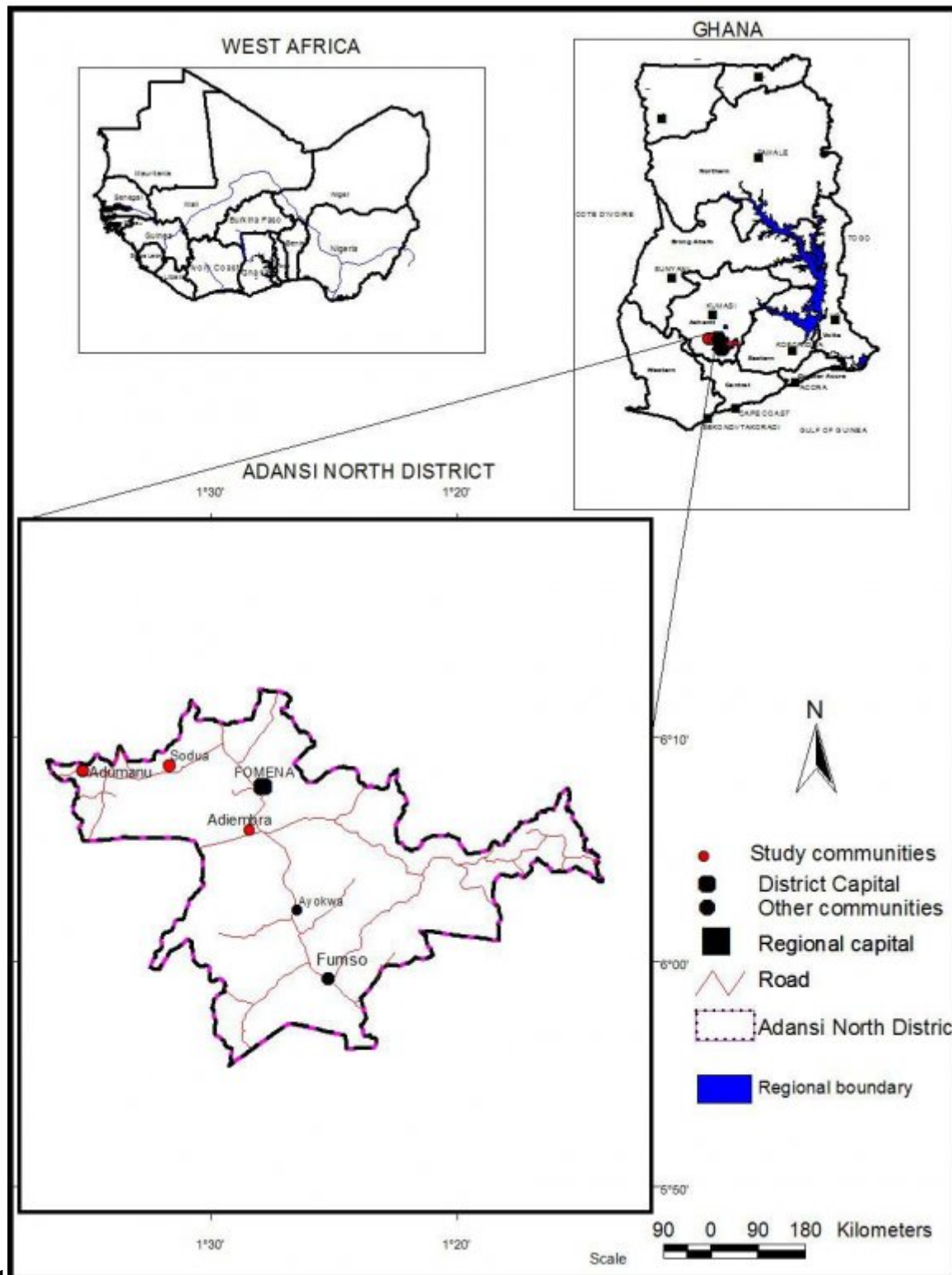


Figure 1: Fig. 1 :

Starvation and borrowing are now things of the past in my life (Female Miner, Adumanu).

I can now educate my children. I have no problem paying their school fees. My husband is not burdened with payment of our children's school fees (Female Miner, Sodua).

Assets acquisition is a remarkable achievement made by female miners. Several of them reported they acquired household and fixed assets to enhance their quality of life. The following statements bear testimony to this achievement:

I have been able to acquire assets such as sophisticated cooking utensils, room and furniture.

Indeed, we have started building a small house (Female Miner, Adumanu).

What else can I say?

Figure 2:

305 .1 Acknowledgements

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307 assembly and Unit Committee Members who consented to be interviewed.

308 [Hentschel et al. ()] , T Hentschel , Hruschkaf , M Priester . *Global Report on Artisanal and Small-Scale Mining*
309 2002. International Institute for Environment and Development.

310 [Afdp and Undp ()] , O Afdp , U Undp . 2011. African Economic Outlook.

311 [Ghana Statistical Service ()] *2010 Population and Housing Census: Summary report of final results*, Ghana
312 Statistical Service . 2012. Accra: Ghana Statistical Service.

313 [Akabzaa ()] ‘African Mining Codes a Race to the Bottom’. T Akabzaa . *T. Akabzaa, African Mining Codes a*
314 *Race to the Bottom*, 2004. p. .

315 [Afriyie et al. ()] Kwadwo Afriyie , John Kuumuori Ganle , Janet Abrafi Adomako . *The Good in Evil: Discourse*
316 *Analysis of the Galamsey Industry in Ghana, Oxford Development Studies*, 2016.

317 [Hilson and Garforth ()] ‘Agricultural poverty” and the expansion of artisanal mining in sub-Saharan Africa:
318 Experiences from southwest Mali and southeast Ghana’. G Hilson , C Garforth . *Population Research and*
319 *Policy Review* 2012. 31 (3) p. .

320 [Bech et al. ()] ‘Arsenic and heavy metal contamination of soil and vegetation around a copper mine in Northern
321 Preu’. J Bech , C Poschenrieder , M Barcelo , Tume , F J Tobias , J L Barranzuelac , Vasquez . *Science Total*
322 *Environment* 1999. 1997. 17 p. . (Bebbington.)

323 [Siegel and Veiga ()] ‘Artisanal and small-scale mining as an extralegal economy: De Soto and the redefinition
324 of ”formalization’. S Siegel , M M Veiga . *Resources Policy* 2009. 34 (1) p. .

325 [Villegas et al. ()] *Artisanal and small-scale mining in protected areas and critical ecosystems programme (ASM-*
326 *PACE). Working Together towards Responsible Artisanal and Small-Scale Mining. A Women in Artisanal*
327 *and Small-Scale Mining*, B C Villegas , R Weinberg , E Levin , K Hund . 2012. Ghana. (in the Adansi North
328 District)

329 [Artisanal Gold Mining ()] *Artisanal Gold Mining*, 2011. New York: Blacksmith Institute.

330 [Maconachie and Hilson ()] *Artisanal Gold Mining: A New Frontier in Post Conflict Sierra Leone*, R Maconachie
331 , G Hilson . 2011. Sierra Leone.

332 [Villega et al. ()] *ASM-PACE: A Global Solutions Study*, C Villega , R Weinberg , E Levin , K Hund . 2012.
333 Estelle Levin Limited and WWF: London and Nairobi

334 [Faigenbaum et al. ()] ‘Benefits of Strength and Skill-based Training During Primary School Physical Education’.
335 A D Faigenbaum , J A Bush , R P Mcloone , M C Kreckel , A Farrel , N A Ratamess , J Kang . *Journal of*
336 *Strength Cond Res* 2015. 29 (5) p. .

337 [Banchirigah ()] ‘Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots’. S M
338 Banchirigah . *Resources Policy* 2008. 33 (1) p. .

339 [Carisch ()] *Conflict Gold to Criminal Gold: The new face of artisanal gold mining in Congo*, E Carisch . 2012.
340 Southern Africa Resource Watch, South Africa.

341 [Agbosu et al. ()] *Customary and statutory land tenure and land policy in Ghana*, L Agbosu , M Awumbila , C
342 Dowuona-Hammond , D Tsikata . No.70. 2007. Legon. Institute of Statistical, Social & Economic Research,
343 University of Ghana (Technical Publication)

344 [Banchirigah and Hilson ()] ‘Deagrarianization, re-agrarianization and local economic development: Re-
345 orientating livelihoods in African artisanal mining communities’. S M Banchirigah , G Hilson . *Policy Sciences*
346 2010. 43 (2) p. .

347 [Baah-Boateng ()] ‘Determinants of unemployment in Ghana’. W Baah-Boateng . *African Development Review*
348 2013. 2013. 25 (4) p. .

349 [Beall and Piron ()] *DFID Social Exclusion Review*, J Beall , L H Piron . 2005. London: Overseas Development
350 Institute.

351 [Li ()] ‘Documenting accountability: environmental impact assessment in a Peruvian mining project’. F Li . *Polit.*
352 *Leg. Anthropol. Rev* 2009a. 32 (2) p. .

353 [Earthworks ()] O A Earthworks . *Dirty Metals: Mining Communities and the Environment. Earthworks*,
354 (Washington DC) 2004.

355 [Adegboye ()] ‘Effect of mining on farming in Jos South Local Government Area of Plateau State’. M A Adegboye
356 . *Journal of Soil Science and Environmental Management* 2012. 3 (4) p. .

357 [Amutabi and Lutta-Mukhebi ()] ‘Gender and mining in Kenya: The case of the Mukibira mines in the Vihiga
358 district’. M Amutabi , M Lutta-Mukhebi . *Jenda: A Journal of Culture and African Women’s Studies* 2001.
359 1 (2) p. .

- 360 [Global trends in artisanal and small scale mining (ASM): A review of key numbers and issues ()] *Global trends*
361 *in artisanal and small scale mining (ASM): A review of key numbers and issues*, 2017. Winnipeg: ISSD.
- 362 [Carrington et al. ()] *Globalization, frontier masculinities and violence: booze, blokes and brawls*, K Carrington
363 , A Mcintosh , J Scott . 2010. 50 p. .
- 364 [Hilson et al. ()] ‘Going for gold: transitional livelihoods in Northern Ghana’. G Hilson , R Amankwah , G
365 Ofori-Sarpong . *J. Mod. Afr. Stud* 2013. 51 (01) p. .
- 366 [Ofosu-Mensah ()] ‘Gold mining and the socio-economic development of Obuasi in Adanse’. E A Ofosu-Mensah
367 . *African Journal of History and Culture* 2011. 3 (4) p. 54.
- 368 [Okoh ()] ‘Grievance and conflict in Ghana’s gold mining industry: The case of Obuasi’. G A Okoh . *Futures*
369 2014. 62 p. .
- 370 [Hiese and Meyer ()] *Impact of Education and Training*, M Hiese , W Meyer . 2004. Luxembourg: CEDEFOP.
- 371 [Boateng et al. ()] ‘Impact of Illegal Small-Scale Mining (Galamsey) on Cocoa Production in Atiwa District of
372 Ghana’. D O Boateng , F N Y Codjoe , J Ofori . *International Journal of Advanced Agricultural Research*
373 2014. p. .
- 374 [Akabzaa and Darimani ()] ‘Impact of mining sector investment in Ghana: A study of the Tarkwa mining region’.
375 T Akabzaa , A Darimani . *Third World Network* 2001.
- 376 [Hilson et al. ()] ‘Improving Awareness of Mercury Pollution in Small-Scale Gold Mining Communities: Chal-
377 lenges and way Forward in Rural Ghana’. G Hilson , C J Hilson , S Pardie . *Environmental Research* 2007.
378 2007. 103 (2) p. .
- 379 [Earthworks and Canada ()] *In: Troubled Waters: How mine was dumping is poisoning our oceans, rivers, and*
380 *lakes, Earthworks and Mining Watch Canada*, Mining Watch Earthworks , Canada . 2012.
- 381 [Macintyre ()] ‘Informed consent and mining projects: a view from Papua New Guinea’. M Macintyre . *Pac. Aff*
382 2007. 80 (1) p. .
- 383 [Attipoe-Fittz ()] ‘Interview with Selasi Seth Attipoe-Fittz, Deputy National Coordinator’. S Attipoe-Fittz .
384 *National Youth Employment Programme (NYEP)* 2010. 2010.
- 385 [Barreto ()] ‘Legalization guide for artisanal and small-scale mining (ASM) draft for discussion’. M L Barreto .
386 *ARM Series on Responsible ASM* 2011. (5) .
- 387 [Malhotra et al. ()] *Measuring women’s empowerment as a variable in International Development. Washington*
388 *DC. The World Bank*, A Malhotra , S R Schuler , C Boender . 2002. Gender and Development Group and
389 Social Development Group
- 390 [Ocansey ()] *Mining Impacts on Agricultural Lands and Food Security*, I T Ocansey . 2013. Turku, Finland.
391 Turku University of Applied Sciences (Unpublished dissertation)
- 392 [Owusu-Koranteng ()] *Mining is Killing Agriculture*, D Owusu-Koranteng . 2008. Western Region-Ghana:
393 WACAM.
- 394 [Gier and Mercier ()] *Mining women: Gender in the development of a global industry*, J Gier , L Mercier . 2006.
395 1670 to 2005. Macmillan.
- 396 [Gratz ()] ‘Moralities, risk and rules in West African Artisanal Gold Mining Communities: A case study of
397 Northern Benin’. T Gratz . *Resources Policy* 2009. 2009. 34 (1) p. .
- 398 [Li ()] *Negotiating livelihoods: women, mining and water resources in Peru. Can. Women’s Stud*, F Li . 2009b.
399 27 p. .
- 400 [Fisher ()] ‘Occupying the margins: Labor integration and social exclusion in artisanal mining in Tanzania’. E
401 Fisher . *Development and Change* 2007. 38 (4) p. .
- 402 [Hilson ()] ‘Once a miner, always a miner’: Poverty and livelihood diversification in Akwatia’. G Hilson . *Ghana.*
403 *Journal of Rural Studies* 2010. 26 (3) p. .
- 404 [Obeng-Odoom ()] ‘Problematising the resource curse thesis’. F Obeng-Odoom . *Development and Society* 2012.
405 41 (1) p. .
- 406 [Progress of the world’s women ()] *Progress of the world’s women*, 2000. 2000. New York: UNIFEM. UNIFEM
- 407 [Childs ()] ‘Reforming small-scale mining in sub-Saharan Africa: Political and ideological challenges to a Fair
408 Trade Gold Initiative’. J Childs . *Resources Policy* 2008. 33 (4) p. .
- 409 [Hruschka and Echavarria ()] ‘Rock-solid chances for responsible artisanal mining’. F Hruschka , C Echavarria .
410 *Arm Series on Responsible ASM* 2011. p. 3.
- 411 [Verbrugge ()] *Scratching the surface. Locating women in Tanzania’s artisanal and smallscale gold mining sector.*
412 *PhD Dissertation*, H Verbrugge . 2017. Department of Social Sciences, Anthropology, University of Leuven
- 413 [Hilson ()] ‘Small-scale mining and its socioeconomic impact in developing countries’. G Hilson . *Natural*
414 *Resources Forum*, 2002. 26 p. .

- 415 [Organization ()] *Social and Labour Issues in Small-Scale Mines: Report for Discussion at the Tripartite Meeting*
416 *on Social and Labour Issues in Small-scale Mines*, I L Organization . 1999. Geneva: International Labour
417 Organization.
- 418 [Hilson and Potter ()] ‘Structural adjustment and subsistence industry: artisanal gold mining in Ghana’. G
419 Hilson , C Potter . *Development and change* 2005. 36 (1) p. .
- 420 [Chambers and Conway ()] ‘Sustainable rural livelihoods: Practical Concepts for the 21 st Century’. R Chambers
421 , G Conway . *IDS Discussion Paper* 1992. IDS. 296.
- 422 [Eshun ()] *Sustainable small-scale gold mining in Ghana: setting and strategies for sustainability*, P A Eshun .
423 2005. Geological Society, London, Special Publications. 250 p. .
- 424 [Hoadley and Limpit Law ()] *The Artisanal and Small Scale Mining Sector & Sustainable Livelihoods*, M Hoadley
425 , D Limpit Law . 2004. South Africa: School of Mining Engineering.
- 426 [Dordunoo and Sackey ()] *The effects of economic policies and reforms on poverty alleviation in Ghana*, C K
427 Dordunoo , H A Sackey . 1997. Eschborn, Germany: GTZ.
- 428 [Kitula ()] ‘The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case
429 study of Geita District’. A G N Kitula . *Journal of Cleaner Production* 2006. 14 (3) p. .
- 430 [Akabzaa et al. ()] ‘The Glittering Facade, Effects of Mining Activities on Obuasi and its Surrounding Commu-
431 nities’. T Akabzaa , J S Seyire , K Afriyie . *Accra: Third World Network* 2007.
- 432 [Peprah ()] *The Impact of Industrial Surface Gold Mining on Food Crop production in the Tarkwa-Abosso Area.*
433 *Unpublished dissertation*, E Peprah . 2002. Legon, Accra, Ghana. University of Ghana
- 434 [McLeod (2001)] *The impacty of regulations and procedures on the livelihoods and asset base of the urban poor:*
435 *a financial perspective. Paper presenyted at the International Workshop on Regulatory Giidelines for Urban*
436 *Upgrading*, R McLeod . 2001. May 178-18, 2001. Bourton-on-Dunsmore.
- 437 [Amponsah-Tawiah and Dartey-Baah ()] ‘The mining industry in Ghana: a blessing or acurse’. K Amponsah-
438 Tawiah , K Dartey-Baah . *International Journal of Business and Social Science* 2011. 2 (12) .
- 439 [Nyame and Grant ()] ‘The political economy of transitory mining in Ghana: Understanding the trajectories,
440 triumphs, and tribulations of artisanal and small-scale operators’. F K Nyame , J A Grant . *The Extractive*
441 *Industries and Society* 2014. 1 (1) p. .
- 442 [Kranz ()] *The sustainable livelihood approach to poverty reduction. Swedish International development Cooper-*
443 *ation Agency*, L Kranz . 2001. Stockholm: Sweden.
- 444 [Tsuma ()] W Tsuma . *Gold Mining in Ghana: Actors, alliances and power*, 2010. LIT Verlag Münster. 15.
- 445 [United Nations Development Programme (UNDP) (2010)] *United Nations Development Programme (UNDP)*
446 *(2010)*, New York. (Marginalized Minorities in Development Programming)
- 447 [Bebbington and Williams ()] ‘Water and mining conflicts in Peru’. A Bebbington , M Williams . *Mountain*
448 *Research and Development* 2008. 28 (3) p. .
- 449 [Women in Aerisanal and Small-Scale Mining: challenges and opprtunjioties for greater participation ()]
450 *Women in Aerisanal and Small-Scale Mining: challenges and opprtunjioties for greater participation*, 2018.
451 Winnipeg:ISSD. IGF
- 452 [Duflo ()] ‘Women’s empowerment and economic development’. E Duflo . *NBER Working Paper No. w17792*,
453 (Cambridge, Massachusetts) 2011.
- 454 [Telmer and Veiga (ed.) ()] *World emissions of mercury from artisanal and small-scalegold mining*, K Telmer ,
455 M Veiga . Mason, R. and Pirrone, N. (ed.) 2009. New York: Springer. p. . (Mercury fate and transport in the
456 global atmosphere)