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DEVELOPMENT STUDIES

THE SOCIAL-CULTURAL CONTEXT OF WOMEN PARTICIPATION IN ARTISANAL AND SMALL-SCALE MINING: CASE OF TAITA TAVETA REGION OF KENYA

[1*]David Mugo, [2]Florence Ondieki-Mwaura PhD, [3]Miriam Omolo PhD

[1]PhD Candidate, Department of Development Studies, School of Communication and Development Studies, Jomo Kenyatta University of Agriculture and Technology (JKUAT),
thiongomugo@gmail.com

[2]Senior Lecturer, Department of Development Studies, School of Communication and Development Studies Jomo Kenyatta University of Agriculture and Technology (JKUAT)
fnmwaura@ihrd.jkuat.ac.ke

[3]Director, African Policy Research Institute, (APRI)
miriamomolo@yahoo.com

ABSTRACT

In recent times, artisanal and small-scale mining (ASM) sector has experienced enormous growth globally, with much of this growth occurring in the remote rural areas of the developing countries like Africa. This has been ascribed to the widespread unemployment with a worldwide consensus been reached that ASM is to a large extent poverty driven. Despite the significant involvement and contribution of women to the ASM sector, it is evident that women have not fully benefited from it. Women's presence in the ASM sector has mainly operated at a low level of the value chain, with dismal returns. The reason for their dismal participation and low returns remains unclear. Therefore, this paper takes a focused approach examine and understand the key bottlenecks to the full participation of women in the ASM sector with particular focus on social cultural practices. To achieve this, the study used data from a cross-sectional survey of 215 women working at different nodes of the ASM sector. Descriptive statistics and Probit regression model were employed in data analysis Descriptive statistics reveal that women are mainly engaged at the subordinate level of the ASM value chain, helping in low-end activities like vending food, credit, and carrying and cleaning of ores in the mining sector. The formal education level of women in ASM is low, and a majority of them don't have

valid mining permits. Hence they are forced to work in low paying tasks in the mining sector subject to exploitation from traders. The probit model results indicated that social cultural practices had a negative and significant relationship on the effective participation of women in the ASM sector. The study recommends policies that aim at sensitizing women through educational and training programs and organizing them into groups to increase their bargaining power.

Keywords: *Artisanal and small-scale mining: Probit regression: Social cultural practices***.**

1.0 INTRODUCTION

In recent times, artisanal and small-scale mining (ASM) sector as pointed out by Hilson *et al.* (2017), has experienced enormous growth globally, with much of this growth occurring in the remote rural areas of the developing countries like Africa. This has been ascribed to the widespread unemployment with a worldwide consensus been reached that ASM is to a large extent poverty driven. Over the past decade, redundancies resulting from structural adjustments, modified trading patterns, seasonality in farming and inflation have compelled millions of varying background and skills to espouse employment in the artisanal and small-scale mining sector.

A surge in the prices of minerals, stones, and precious metals has been an impetus to expansion of the ASM sector with many participants joining the sector outside the regulatory and legal frameworks of the government and others operating in the sector informally. This has made it even harder for governments especially in the developing countries to account for the accurate figures and statistics of the participants of this sector. As pointed out by ILO (2004), ASM is a typical informal sector within the developing countries and therefore, offer employment opportunities to a substantive part of the overall labor market accounting for significant contributions to the generation of income, thereby providing the necessary survival strategy to the rather sporadic agricultural sector that were initially the main source of employment.

Despite the ASM sector providing an employment safe haven for many Kenyans, there is scanty literature covering the artisanal small-scale mining in Kenya (Mwakumanya, Maghenda & Juma, 2016). Besides, the dynamics and the labor issues of the sector continue to be poorly understood with unclear statistics of the actual number of participants and the actual contribution of the sector to the GDP. Amid all these shortcomings, the most notable aspect of the ASM that has been overlooked is the role of women in the ASM sector. Considering the level of women involvement in the sector in Kenya especially Taita Taveta at the Kenyan Coast, expanding the ASM sector in the country is not only likely to create innumerable opportunities for thousands of underprivileged women but will also have significant contributions to the GDP and reduce the country's dependency level (Mwakumanya *et al.*, 2016).

As estimated by the International Labour Organization as cited by Hilson *et al.* (2017), nearly 14 million have been employed directly in the ASM sector globally while over 100 million depend on the sector for livelihoods either as business persons or dependants. Of this, women compromise of half of the workforce with shares of around 10per cent in Asia, 10per cent-

20per cent in Latin America while the highest female percentage of the workforce, between 40per cent - 50per cent being in Africa (Bansah *et al.*, 2017). The disparity in ASM participation between African women and their global counterparts could principally be ascribed to the higher rates of unemployment. For instance, the participation of females in ASM sector in Guinea is estimated at 74per cent, while in Mali, Madagascar and Zimbabwe its estimated at 50per cent (Hilson *et al.*, 2017; Bansah *et al.*, 2017).

It has been remarkably documented that the participation of women in the sector is partially direct, where women are primarily engaged in mining operations but majorly indirect where they service the mines. Women's labor and participation has continued to be invisible and mixed particularly due the majority of them undertaking auxiliary responsibilities that makes it hard for them to be categorized as miners but rather dominantly involved in domestic spheres or informal support responsibilities (Bansah *et al.*, 2017). This implies significant discrepancy between the actual and the estimated number of women practically engaged in ASM.

Gender-roles especially in the developing countries has made women susceptible to human rights abuses, health risks and more seriously as pointed out by Weldegiorgis *et al.* (2018), sexual and gender-based violence. These challenges have to a great extent been aggravated by inadequate judicial support and lack of elementary infrastructure and services within the ASM. The domestic responsibilities of gathering water, preparing food, and taking care of families especially in the African context has disproportionately disadvantaged women and their imminent role in the ASM. Structural barriers and women's limited access to vital resources like financial credit, land tenure among other resources making it hard for women to invest in better mining technologies. Las but not least, existence of legislation and cultural taboos has barricaded women from particular roles. In many African countries, it is illegal for women to work underground with some culture barring women from entering mining sites during menstruation (Weldegiorgis *et al.*, 2018).

Despite discrepancies in the documentation of the actual numbers of women involved in ASM, women participation still remains remarkably high. On the flip side, they have continued to occupy marginal roles in the ASM sector as compared to their male counterparts and barely identified as miners in their own right but only sporadically attain decision-making roles with regard to mining equipment, operation, dealership and selling of mining outputs, an aspect that has rendered the sector incapable of alleviating persistent poverty. As a result, there is an urgent need to not only explore the factors that hamper women participation in artisanal and small-scale mining. This will not only ameliorate the process of gender mainstreaming to sufficiently inform policy but would also shed light on how women participation in ASM can be enhanced to enhance their well-being and livelihood. Therefore, this study aimed at filling these knowledge gaps and adding to the scanty literature that has covered women participation in the ASM sector, particularly in Kenya.

STATEMENT OF THE PROBLEM

The emergence of the ASM sector in Kenya presents an opportunity for development in the country, the sector offers an opportunity to potentially transform its economy. It is evident there is significant involvement and contribution of women to the artisanal and small-scale mining sector (Hinton, Veiga, & Beinhoff, 2003). Women play a much more significant role in the Artisanal and Small-scale mining (ASM) as workers or providers of support roles (e.g., as cooks and service providers) with minimal participating in decision making processes about the leadership of the sector (Yakovleva, 2007). However, a growing body of evidence reveals that women have not fully benefited from the ASM since their presence in the industry has been mainly operating at low level of the value chain, with dismal returns or benefits (Maclin *et al*., 2017).

Structural barriers limit women's ability to fully participate in and benefit from engagement in ASM. (Buxton, 2013) this include Socio-cultural taboos prevent some women from entering mine sites or participating in particular roles, women's domestic responsibilities for instance preparing food, gathering water, and caring for families means that they often disproportionately experience the negative indirect impacts (e.g. in some countries, it is illegal for women to work underground or socially taboo for them to enter a mine site if menstruating) (Mkubukeli & Tengeh, 2016). Legislation and legal framework prevent some women from controlling their income from ASM activities the sector is unregulated and thus associated with environmental degradation, poor health and safety, pollution, disease and exploitation by buyers. Women's limited access to resources and mobility due to other domestic responsibilities (e.g. land rights, male head of the household controls the family finances and financial credit) (Siwale & Siwale, 2017).

Majority of local women in Taita Taveta county live in rural communities and are into subsistence farming (GOK, 2015) and according to the Kenya National Bureau of Statistics (KNBS, 2017) has ranked Taita Taveta County 28th position among the poorest county with a poverty rate of 54per cent which is considerably high as compared to the national standards. With the emergence of ASM, many women have switched from their agricultural lands, to ASM for job opportunities, livelihood and economic opportunities (Rop, 2014).

Given the important role of women's involvement in the economic agenda through the provision of labour, ownership of production inputs, direct participation in production process, carrying out the household chores (Mwakumanya *et al*., 2016), There is need to understand the local gender dynamics, divisions and challenges within the ASM sector this calls for the Stakeholders to identify the gender dimensions of all stages of the ASM value chain prior to developing ASM assistance policies and/or programs (Eftimie *et al*., 2012) and the need to mainstream gender in artisanal and small-scale mining sector (Rijksoverheid, 2015). This would go a long way in providing opportunities for viable employment among women in the rural areas which in turn would reduce the levels of rural poverty significantly by involving the women in the development agenda (Yakovleva, 2007).

It is important to investigate the women participation in the artisanal mining industry value chain and provide appropriate policy and legislative recommendation, this will directly inform successful design and implement ASM assistance policies and programs that could

inadvertently bridge the gap in the attainment of 10 per cent contribution of GDP by the extractive sector by the year 2030 as set out in the country's development blueprint.

RESEARCH OBJECTIVES

The research was intended to investigate the effect of socio-cultural practices on women participation in artisanal and small-scale mining in Taita Taveta County.

RESEARCH HYPOTHEIS/QUESTIONS

$\mathbf{H_{\mu}^{1}}$: Socio-cultural practices affect women participation in artisanal and small-scale mining in Taita Taveta County.

2.0 THEORITICAL REVIEW/ FRAMEWORK

Gender and development approach specifically concerns with the way in which society assigns roles, responsibilities and expectations to both women and men (Oxaal & Baden, 1997). GAD focuses primarily on the gendered division of labour and gender as a relation of power embedded in institutions (Burns, Keswell & Leibbrandt, 2005). GAD firstly view men and women create and maintain society; however, they benefit unequally. Therefore, greater focus must be placed on women because they have been historically more disadvantaged. Secondly, women and men are socialised differently and often function in different spheres of the community, although there is mutual interdependence. As a result, they have distinct priorities and perspectives. Because of gender roles, men can constrain or expand women's options (Unterhalter, Vaughan & Walker, 2013). Third development affects men and women differently, and women and men will have a different impact on projects. Both must be involved in identifying problems and solutions if the welfare of the community is to be advanced.

In the mining Sector, there is a structure of inequalities and discrimination in access to resources, skills and market which impact negatively to women more than men. The GAD concept sees women as agents of change rather than as passive recipients of development efforts in this case women are not supposed to engage only on manual jobs in the mining such as cleaning the whole value chain instead. One of the strategies suggested by the GAD approach is the self-organisation of women at the local, regional and national levels, women in mining association help women to advocate for issues that concern them and government can adopt and enforce equal opportunity laws in artisanal mining. The GAD concept urged an institutional change within socio-economic and political structures to eliminate the gender inequalities and to strengthen the position of women. In this study, the theory will be focused to address the socio-cultural (roles, responsibilities and expectations) and legal framework which either discriminates against women or not supporting women participation in ASM.

EMPIRICAL REVIEW

Eshun (2016) studied the determinants of female participation in Ghana, asserts that due to limited women participation in the artisanal mining sector, most women artisanal miners have insufficient technical knowledge of the mining market, lack adequate funding for business expansion, are not prioritized in employment and training opportunities, and are not involved in consultations preceding project implementation and decision-making along the mining value

chain. The report further reveals that the marginalisation of women artisanal miners is mainly a reflection of existing gender inequalities, deeply rooted in traditional and cultural norms. Just as widespread cultural beliefs prevent women from extensively exploring their potential in mining, most statistics do not even count women as artisanal miners at all (Buss *et al*., 2017).

Maclin *et al*. (2017) examined the motivation of women for migration to ASM in DRC Congo reveals that women are also often not involved in decision making or consulted during negotiations preceding project implementation; and are overlooked in the payment of compensation and royalties. They are also not prioritised in employment and training opportunities in mining, says the same report. Additionally, women have highly precarious or non-existent rights in a vast majority of resource-rich African countries. This gender bias is compounded by limited access to resources such as credit, education and technology; seldom enforced legal protection; and limited influence in decision-making spheres. Thus women often lose critical livelihood, and economic opportunities, access to land, face exclusion from resource management and are affected disproportionately by land degradation arising from mining operations (Mishra & Reddy, 2012).

Danellie (2015) Women in mining regions are particularly vulnerable to socio-economic hardship and mostly are forced towards mining for the economic survival of their families. The study indicated women take on multiple roles simultaneously leading to them being over-worked and overburdened. Many of the women reported extreme tiredness with their mining work additional to their domestic responsibilities, and many confirmed fatigue lead them to undertake what they considered unsafe practices to complete their job to get back to their families. From the study, the interviews process highlighted critical challenges experienced by women in small-scale mining. For instance, the barriers cited by the group to attend formal training programs included: Males discourage women from attending courses, women uneasy at attending a male-dominated event, time limitations, primarily responsible for child rearing, market gardening and other domestic responsibilities (Anyona & Kipsang, 2015)

Romanus *et al.* (2012), asserts that the mining industry in most communities is dominated by a male culture of systemic sexual harassment and bullying by men. Women feel that they work harder than their male colleagues in most small-scale gold communities in the world (The industry and the Federal Government, 2001). In Ghana, although women undertake the same labour as men in the gold industry inequities exist in the pay. Cultural beliefs and traditions strongly influence interactions between individuals and groups, the nature of community organisation and societal rules or norms.

Bansah *et al*. (2017) in the research on the role of female participants and reasons why they engage in ASM, observed that over 100 women between the ages of 18 and 50 participate in ASM for survival. They involve in ASM primarily because they have no alternative employable skills and income sources. Reasons assigned to working in ASM by the women include, lack of employment and alternative sustainable sources of livelihood, neglect by husbands, loss of parents at an early age, need to care for siblings, retrenchment of husbands from large firms, and lack of sustainable income. The majority (41per cent) of these women were youth between the ages of 18 and 30 years while 32per cent were between 41 and 50 years.

Rethinking Alternative Livelihood Projects for Women of the Pits a study conducted by (Boateng, 2017) involving 20 participants were between 14 and 62; eight were married, six were widowed or divorced, and the remaining six were single. Identified that poverty, lack of economic opportunities, and unattractive rural poverty alleviation strategies have contributed to the plight of these women. Women seemed to have less knowledge about the long-term repercussions of standing in muddy waters and washing sand for gold.

CONCEPTUAL FRAMEWORK

Socio-cultural is operationally defined as the cultural beliefs that hinder or support working women involvement in mining. The attitude about women's role in mining, female role models and mentors in ASM mining and gender-based biases on women at the mining, that is, entering quarry holes. The women roles and responsibilities on artisanal mining in Taita Taveta will helps us answer the question of how they are involved in values chain, average daily or monthly income for women data will give feedback on income disparities between men and women. It is of interest to understand the cultural women restricted activity in mining and finally since the participants are in support groups the member's culture and rules will be essential to know. It was conceptualized the socio-cultural context of women influenced their ability to effectively participate in artisanal mining as shown in Figure 1.

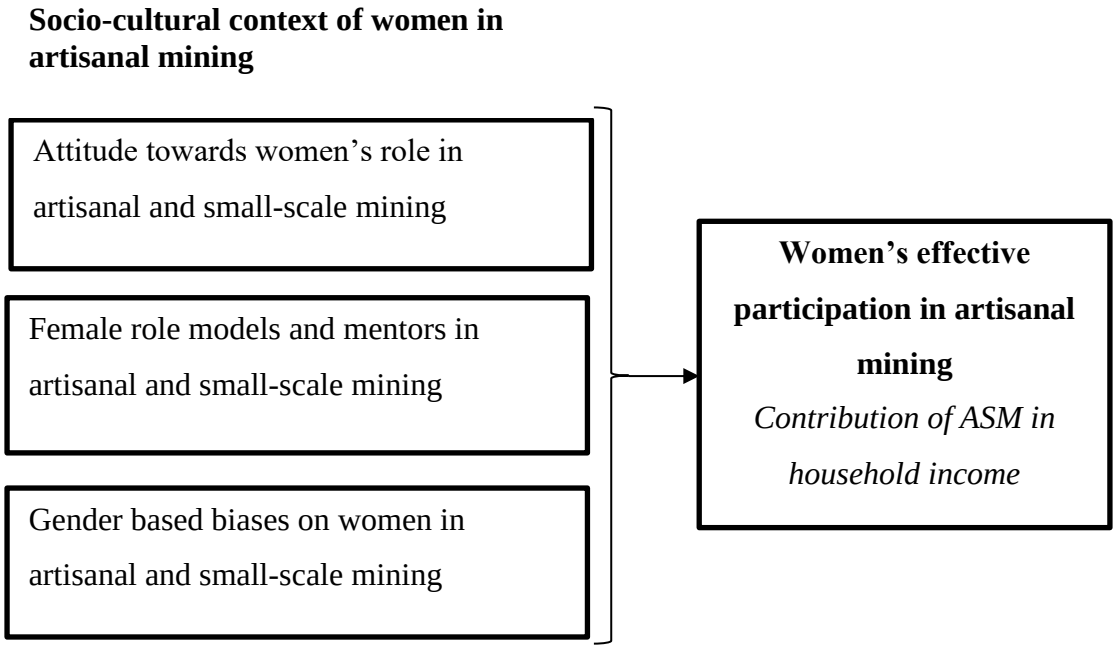

Figure 1: Conceptual framework of socio-cultural factors that influence women's effective participation in artisanal mining

3.0 RESEARCH METHODOLOGY

The sampling frame was generated from the list of all women artisanal miners in Taita Taveta County. The choice of the 16 women mining groups was informed County ASM registry and they had been in operation for more than three years. The list was filtered to include women had consistent membership and were stratified per sub-county for equal representation.

Stratified random sampling was used to get the sample from the four sub-counties of Taita Taveta County. A sample size of 230 women artisanal miners was systematically selected according to Mugenda and Mugenda (2003) formula as presented in equation 1.

$$n = \frac{N}{1+n(e)^2} n = \frac{N}{1+n(e)^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

equation 1

Where n is the sample size, N is the population size, and e is the level of precision. When this formula is applied to the sample, the following sample is obtained.

Therefore;

$$\frac{230}{1 + 230(.05)^2} = 126 \, women$$

Since it was not possible to interview all the women group in the county, a Stratified random sampling technique as presented in equation 2 was used.

$$Sample\ size\ of\ the\ strat = \frac{(size\ of\ entire\ sample) \times 16 (layer\ size}{230\ (target\ population} = 10$$

$$Sample\ size\ of\ the\ strat = \frac{(size\ of\ entire\ sample) \times 16 (layer\ size}{230\ (target\ population} = 10 \quad \ldots\ldots\ equation\ 2$$

Primary data was then collected through interview schedules using semi-structured questionnaires.

Semi-structured interviews were used to collect data from professionals in mining matters at both the national and county government this include County Executive committee for mining, Director mining and field mining officer. This helped the interviewer to ask vital questions similarly each time but to allow for changes in the request of the inquiries and to test for more data; the respondents could answer the inquiries in any grouping they picked. The area of focus was effects on legal framework and access to finance.

Data analyses involved reducing the accumulated data to dummy variables developing summaries and applying statistical techniques (Liu, Liu & Shi, 2020). Both quantitative and qualitative data analysis approaches were used in this study. Prior to analysis, raw data from questionnaires was checked for completeness and coded for analysis. Data was analysed using Stata version 13 and Excel version 2013 for both descriptive and inferential statistics. Percentages and mean were used to define the set of data by identifying the central position within that set of data. A chi-square test for independence was used to compare if two variables in a contingency table are related.

Finally, Simple and Multiple regression analysis were applied to help us comprehend which amongst the independent variables are connected to the dependent variable and to further

explore the forms of these relations between a dependent variable and one or more independent variables (Liu *et al.*, 2020). It was estimated using the following formulas;

The multiple linear regression equation is as follows:

$$\hat{Y} = b_0 + b_1X_1 + b_2X_2 \ldots + b_pX_P$$

where $\hat{Y}\hat{Y}$ is the predicted or expected value of the dependent variable, X_1X_1 through X_PX_P are pp distinct independent or predictor variables, b_0b_0 is the value of YY when all of the independent variables (X_1X_1 through X_PX_P) are equal to zero, and b_1b_1 through bp is the estimated regression coefficients.

Social-cultural Practices

X_1 = attitude about women's role in in ASM

X_2 = Female role models and mentors in ASM

X_3 = Gender based biases on women in ASM

4.0 RESULTS AND DISCUSSIONS

A. Effect of social-cultural practices on women participation in ASM

Correlation coefficient indicates the extent of interdependence between the two variables, Social-cultural practices and women participation in ASM activities. The term socio-cultural practices is operationally defined as the cultural beliefs and practices that hinder or support working women involvement in mining. These were; attitude about women's role in ASM, female role models and mentors in ASM and gender based biases on women in ASM. Table 1 shows there is a negative linear correlation between Social-cultural practices and women participation in ASM activities. The findings indicate a strong significant negative correlation of 0.571 since the level of significant is less than the set 0.05.

Table 1: Correlations between women participation in ASM and cultural practices

	Social-cultural Practices		
	Sample size	Sig. (2-tailed)	Pearson Correlation
Women effective participation in ASM	197	0.000	-0.571**

**p<0.05

The ANOVA test presented in Table 2 indicates that social-cultural practices have significant effect on women effective participation in ASM. Since the p value is actual 0.000 which is less than 5 per cent level of significance. Since the regression model women participation = 0.459 - 0.264 (SCP) was significant (Table 3), the study therefore rejects the first null hypothesis and concludes that social-cultural practices has a significant relationship with women effective participation in ASM.

Table 2: ANOVA Test of social-cultural practices

	Sum of Squares	Degrees of Freedom	Mean Square	F
Regression	0.41	1	0.41	40.28**
Residual	1.99	195	0.01	
Total	2.40	196		

**p<0.05

The R square value in this case is 0.33 which clearly suggests that there is a strong relationship between social-cultural practices and women participation in artisanal and small-scale mining as indicated in Table 3. This indicates that social-cultural practices explain of 33 per cent of the variation in women participation in artisanal and small-scale mining.

Table 3: Regression results for the effect of social-cultural practices on women participation in ASM

	Coefficients			
	Unstandardized		Standardized	
	B	Std. Error	Beta	t
Constant	0.46	0.03		17.19**
Social-cultural Practices	-0.26	0.04	-0.57	-6.35**
Dependent Variable: Women effective participation in ASM				
R =0.57				
R Square=0.33				
Adjusted R Square=0.27				

**p<0.05

Table 3 indicates that the regression weight for social-cultural practices was positive and significant (β= -0.26, t= -6.35, p < 0.05). The regression estimate for social-cultural practices was -0.26, this indicates that a unit increase in social-cultural practices would result in 26 per cent decrease in women effective participation in ASM.

4.0 CONCLUSIONS

The key findings reveal that most women who participate in ASM business are the main breadwinners in their households; therefore, ASM business plays an important role in their livelihoods. On average, women spend more than eight hours working in the ASM activities; however, their operations are mainly focused on the subordinate roles where they are left to perform less paying jobs. Majority of them work as ore cleaners, food vendors, sellers of airtime to men working in the ASM sector, and some go to the extent of working as sex workers. Only a very few lucky women work in the mines as traders or owners of the mining sectors.

Firstly, most of the women despite being bread winners in their households, they spend relatively less time at the mines as compared to their male counterparts because of their roles in household chores. The mines are not safe and more so lack of places to accommodate the

children while the women are working making it a challenge for them. This reduces the women's average incomes from mining activities significantly.

In addition, most of the women engage in ASM business as employees due to lack of enough capital to participate in ASM as the owner (traders or owner of the mines), some of them lack money to buy mechanized equipment that can increase their scale of operations. Hence they are forced to engage in poor and remote mines where they are forced to work in the high labour demanding and low paying jobs. All the stated constraints force the women to work in low levels of the mining chains and as a result earn little which is not enough to meet households' basic needs.

As a result, there is an urgent need for the government (both national and county), civil society organizations and relevant stakeholders to sensitize women in the ASM sector through educational and training campaigns that target to reduce illiteracy levels among women.

5.0 RECOMMENDATIONS

There is a need for government and relevant stakeholders to mainstream gender and come up with proper policy frameworks, particularly when it comes to a mining license. This can be achieved by reducing the procedural and paperwork required to obtain work permits. Besides, the government can introduce licenses under different categories where women can easily access medium or small scale mining licenses. License acquisition should be introduced in online portals where women can be trained to access them from anywhere without necessarily travelling to head offices.

Women should be sensitized and encouraged to go for top leadership position within the society. This will help women share ideas and the problems they face in the ASM industry. The policies and strategies can include coming up with proper health and safety programs which can enable women bring their children to the worksites. This will allow the women increase the time spent in the mining activities as they will be able to take care of the children at the same time work in ASM.

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