

Effects of the mining legal framework on women participation in Artisanal and Small Scale Mining : Lessons from Taita Taveta County (Kenya)

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ABSTRACT

Artisanal and small-scale mining (ASM) is increasingly the focus of the national efforts to effectively regulate the sector as an initiative to ameliorate national benefits by increasing women participation in the sector while seeking to address challenges that they face. Despite women's participation in the ASM sector being estimated at nearly 50% in the mining areas, their significant participation has largely been overlooked. Therefore, this study aimed at evaluating the level of women participation in the ASM industry as a result of the legal framework undertaken in the mining sector and provide appropriate policy and legislative recommendations for future benefits of women. To achieve this, the study used data from a cross-sectional survey of 215 women working at different nodes of the ASM sector in Taita Taveta County. Descriptive statistics, linear regression and Probit regression model were employed in data analysis. The descriptive statistics 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 in a day working in the ASM activities. However, their operations are mainly relegated to subordinate roles of less paying jobs with only a few lucky women working in the mines as traders or owners of the mining sectors. The linear regression results indicated that there was a positive correlation between women participation in the ASM and legal framework at 1% level of significance. The study therefore, recommends policy frameworks that facilitate easy access to mining licenses by women in the ASM sector and encourage and sensitize women to take up leadership positions to ensure that their voices counts on the decision table.

Key words: Artisanal and small-scale mining: Women participation: Policy: Legal framework

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Introduction

Artisanal and small-scale mining (ASM) has in the recent times experienced a monumental growth all worldwide, particularly in rural areas of the developing countries where unemployment rates are relatively higher and widespread. There are currently more than 190.5 million people that are either directly or indirectly involved in ASM sector with women making a significant number of these participants (IGF, 2017). Despite the critical dearth of data, women have been estimated to account for 30% of the global ASM workforce and up to 50% in Africa. Albeit, the substantive figure of women in the sector, there is an alarming lack of recognition in nearly all the spheres from development programs, mining communities, public and private sectors, academia, and even the legal framework. Despite the inadequate recognition, the sector has continued to experience rapid expansion fueled by the contemporary surge in the market prices for precious metals and stones. As a result, ASM has also been categorized as a typical informal sector especially in the third world countries as it has emerged as a significant part of the labour market with cardinal contributions to the generation and production of rural income, hence a survival route for thousands of rural households (ILO, 2018). Due to these importance of the sector to the economy many people in the mining region like Kwale have joined the sector. Of this, more than 50% are women. Despite the high levels of participation by women in the ASM, they continuously faced exclusion in critical aspects, conspicuously land access and ownership, policy and decision making, leadership, and mineral rights (Ayuk et al., 2019).

Despite the potential of the ASM sector as an imperative impetus for sustainable livelihoods for women in Kwale County, cultural and institutional barriers continue to fraught women in the sector. Therefore, there is need for regulatory bodies and other bodies of the government like the judiciary to provide legal incentives

capable of ameliorating women's access to licences, land rights, and mineral rights.

Statement of 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 (Buss et al., 2017). 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 (Mugo et al., 2020).

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) (Mugo et al., 2020). 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) (Hilson et al., 2018).

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 54% 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 (Hilson & McQuilken, 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. 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). Despite having the above measures taken to strengthen women involvement in ASM, the problems facing women have further been compounded by the inability of their groups to function properly, hence continued lack of presence and influence at the policy and decision-making table. As a result, the only solution that has been tipped to save the women from their predicament is enforcement of proper legislation and policies that cater for the rights of women.

Hence, 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 study sought to investigate the effect of mining legal framework on women participation in artisanal and small-scale mining in Taita Taveta County. The study objective is motivated by increase of women in ASM where they face barriers to effectively participate in these type of work. Hence, the current was designed to determine legal framework in mining had any effect on women participation in artisanal and small-scale mining

Research Hypothesis

H_u^2 : Mining legal framework affects women participation in artisanal and small-scale mining in Taita Taveta County.

Theoretical Review/ Framework

Under this theoretical perspective, there exists mainly two approaches with regard to women and economic development namely: Women in Development (WID), that purposes at including women in development projects so as to make them more competent, and Gender and Development (GAD), which addresses disparities in women's and men's social roles as related to developme. These theories are supported on the fact that there is a need for acknowledgement that women form an integral part of their society and that supportable development must include full and equal involvement of women and men (Potter, 2004).).

GAD approach is more concerned particularly with the manner

by which society doles out jobs, duties and desires to the two women and men (Mugo et al., 2020). GAD centers fundamentally around the gendered division of work and sexual orientation as a connection of intensity implanted in foundations (Burns, Keswell and Leibbrandt, 2005). GAD initially see people make and look after society; however, they advantage unequally. Accordingly, more noteworthy spotlight must be set on women since they have been verifiably more hindered. Also, women and men are mingled contrastingly and frequently work in various circles of the network, in spite of the fact that there is common association. Therefore, they have particular needs and viewpoints. Due to gender roles, men can compel or extend women' choices (Unterhalter, Vaughan and Walker, 2013). Third development influences people in an unexpected way, and women and men will differently affect projects. Both must be associated with distinguishing issues and arrangements if the welfare of the community is to be progressed.

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 notion views women as mediators of change rather than as passive receivers of progress 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 approaches recommended by the GAD approach is the self-organization 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 advised on an institutional change within socio-economic and political structures to eliminate the gender variations and to strengthen the position of women. In this study, the theory will be focused to address the social-cultural (roles, responsibilities and expectations) and legal framework which either discriminates against women or not

supporting women participation in ASM.

After the publication of Ester Boserup's *Women's Role in Economic Development* (2007), the term "women in development" came into use in the early 1970s. Boserup was the first one to systematically define the sexual division of labor in agricultural economies on a global basis. She studied the shifts in conventional farming practices that have taken place since communities were modernized and looked at the differing effects on men and women's jobs. She concluded that women tend to perform the majority of agricultural work in densely populated regions where agriculture changes, while men tend to perform most of the farm work in densely populated areas where ploughing and other simple technologies is employed. Finally, both men and women are active in agricultural practices in areas of intensive irrigation-based farming. The work of Boserup was remarkable because it was focused on examination of evidence and proofs, which Social Science and Development Planners had long had available, but it was the first to systematically use gender as an independent variable. Boserup's study was later criticized for over-simplifying women's work and roles (e.g. Belleria and Gtn 1991), but it concentrated on the sexual division of labor and the discrepancies between the gender of growth and modernization strategies. Initially the word "WID" was used by Washington DC's Women's Committee. Chapter of the International Development Society as part of a deliberate Strategy aimed at drawing American policymakers' attention to new evidence created by Boserup and others (Maguire, 1984).

The Americans' liberal feminists who embraced legal and institutional reforms to ensure that women were properly incorporated into economic structures started to express a series of mutual interests that are loosely called 'Women in Development' or WID (PRESS, 2004). They focused primarily on egalitarianism and the implementation of policies and action plans to eliminate and avoid discrimination against women in the productive sector.

The WID viewpoint was closely connected with the ideology of modernization that dominated popular thought in the 1960s and 1970s about international growth. Conventional wisdom, in the 1950s and 1960s, decreed the development of developed countries' living conditions through "modernization" typically equated with industrialization. It was argued that the rapid expansion of education systems would result in stocks of well-trained employees and managers, allowing stagnant, predominantly agricultural societies to develop into developed, modernized societies.

The development of the economies of those countries will "force down" to all segments of society the advantages of modernization, i.e. improved living standards, jobs, training, adequate health care, etc. Under the rubric of WIQ, the status of women was first discussed separately from the status of men in different sectors of the economy. The acknowledgement that women's growth and social change perspectives varied from those of men was institutionalized and the studying of women's experiences and expectations became legally permissible. The WID approach in this study appeared solely to concentrate on women's work's positive aspects by ignoring or minimizing women's reproduction. Thus, WID ventures is generally income-generating activities where women are taught special skills or skills and organized into marketing cooperatives at times.

Empirical Review

Strategies that limit or prevent women from gaining concessions or land rights contribute to the feminisation of poverty (World Bank, 2000). In Kenya, female miners can have access to land but cannot control land and mining activities as well (Mishra, P. P., & Reddy, 2012). The majority of women in mining in Kenya like any other African country are in the informal artisanal mining sector, which has little regulation and is often dominated by men (Hirons, 2020). While small-scale mining has been legalised in Kenya, detailed

rules are needed to guide the operationalization and engendering of this provision(Analysis of the Mining ACT 2016).

Fearon and Agbah (2015) studied the perceptions on female taking part in artisanal and small-scale mining: A case study of Birim North District of Ghana. The study purposes to study the causes of female involvement in the ASM sector and the influence of this type of employment on women's income, health and families. The findings of the study exhibit the utility of sexual orientation mainstreaming in the small scale mining formalization process, and in addition the need to advance other practical business openings to serve women who live in the country regions. To ensure artisanal mining becomes a sustainable economic opportunity for both men and women, there is an urgent need to formalize small-scale mining operations (Zollo, 2019).

Hirons (2020) in a study, Local perspectives on the artisanal and small-scale mining in the Madre de Dios gold fields, Peru noted that formalization is not only about the control and mitigation of the adverse impacts of ASM but also about harnessing the helpful participations, and channelling benefit flows toward politically chosen directions. The article emphasised the need for government to formalising artisanal mining operations; supporting women artisanal miners with training and technical expertise and engendering policies and development plans involving women artisanal miners.

Spiegel (2015) in his investigation Shifting Policies and Recentralizing Power the Case of Zimbabwe's Artisanal Gold Mining Sector. The examination uncovered how and why governments recentralize expert in rustic asset administration, even in the wake of presenting decentralization changes. These proactive formalization strategies gave worldwide offices the feeling that administration experts in Zimbabwe were effectively trying to urge casual laborers to take part in the formal economy,

and hence gave contributors a feeling of trust in getting to be engaged with ASM. While this certainty prompted different universal help programs, this was added preferred standpoint to women' investment.

Hinton et al. (2003) in the study, women and Artisanal Mining: Gender Roles and the Road Ahead noticed that context of women and artisanal mining, key administration issues relating to the adequacy of approach in propelling correspondence, especially as far as land rights, portrayal of women in basic leadership forms, and an institutional situation that is helpful for investment by women. In a few nations, women may have legitimate access to arrive, these hindrances on women' territory rights prevent their capacity to get to different assets of unfit to utilize the property as security to get credits, women experience issues embracing elective advances and enlisting work when required (Mkubukeli and Tengeh, 2016). In addition, women will be unable to get to other strong administrations, for example, augmentation projects and preparing on inventive land administration approaches.

ASM is normally sought after to intensify better control of unfriendly social and natural effects of mining (Weng et al., 2018). In Kenya, the Mining Act 2016 tends to these basic issues and generally, has arrangements that advance great practice. Models of good work on with respect to administration incorporate arrangements to permit examinations and reviews of mineral tasks (Rijksoverheid, 2015). Despite that, as with most things law and strategy, the way to how the lawful and administrative structure will affect the mining area remains predicated on usage and requirement. The extraordinary trouble in securing mining licenses; absence of topographical data on the yield limit of their mines because of an absence of accounts for the work of surveyors/geologists; absence of specialized know-how of the division because of inaccessibility of limit building openings; absence of data available elements including

charge motivating forces will in general thwart women investment in high quality mining in Africa(GOK, 2015).

Research Gaps

In the context derived above, in the concept of effect of mining legal framework on women participation in artisanal and small-scale mining in the concept of Kenya is underrated or not brought out to give a clear view of how to handle. This therefore imposed a greater challenge on the researchers and governmental organizations who rely on the past knowledge to derive conclusions on how to improve women participation in AMS. Therefore, the current study was designed to help these managers and retail shop owners in identifying these offender characteristics. On the effects of these challenges imposed on the women who work in AMS, majority of studies were designed outside the Kenyan context. Therefore, with little known on Kenyan perspective, this creates a major research gap which help the author to do analysis and compare the results of other countries with the findings of the current study.

Conceptual Framework

Legal and Regulatory Framework in Artisanal and Small-scale mining

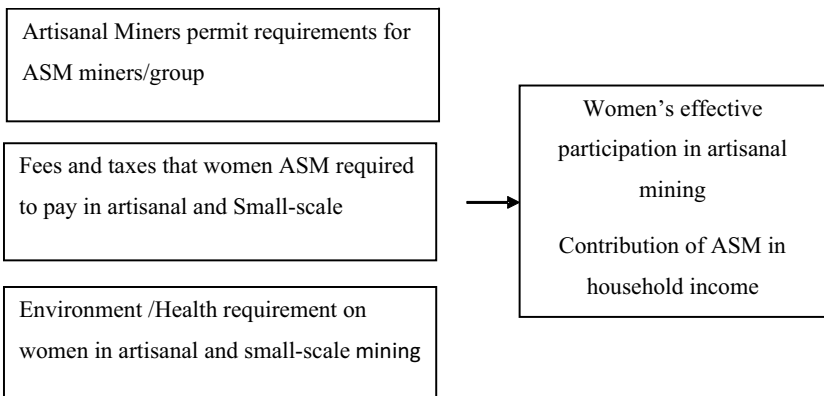


Figure 1: Conceptual framework of legal and regulatory framework factors that influence women's effective participation in artisanal mining

The legal and regulation frame worked have been operationally defined as procedure or requirement for artisanal miners' operations. This include artisanal miners permit requirements for ASM miners/groups, affordability of Fees that women ASM required to pay and availability of environmental Permit (NEMA). The fees or amount of payable tax to business whether paid either annually or periodically to either County or National Government, the technical or administrative support provided by County and National Government officers to artisanal miners and finally identify how women are involved in decision-making processes in mining issues.

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.

$$n = \frac{N}{1+n(e)^2} \dots\dots\dots\text{equation 1}$$

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;

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

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.

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

Primary data was then collected through semi-structured questionnaires. This process involved administering the questionnaires to the respondents with help of research assistants. This enabled similar understanding of the questions by all respondents thus minimizing misinterpretation of concepts by different respondents. Questionnaires are used frequently in educational research to measure attitudes, beliefs, opinions, and other types of information. Information about a population can be inferred from the study participants' survey responses, also known as the sample (Rowley, 2014). According to Zohrabi (2013), questionnaires allow respondents to analyze their answers without an interviewer's intervention carefully. Semi-structured questionnaires 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.

Data analysis 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:

$$\hat{Y} = b_0 + b_1X_1 + b_2X_2 + \dots + b_pX_p$$

where \hat{Y} is the predicted or expected value of the dependent variables,

distinct independent or predictor variables,

where \hat{Y} is the predicted or expected value of the independent variable.

X_1 through X_p are p distinct independent or predictor variables, b_0 is the value of Y when all of the independent variables (X_1 through X_p) are equal to zero, and b_1 through b_p is the estimated regression coefficients.

Legal and Regulatory framework

X_4 = ASM Permit requirements for ASM miners/groups

X_5 = fees that women ASM required to pay

X_6 = Environmental permit approval required i.e. NEMA

Results and Discussion

Effect of mining legal framework on women participation in ASM

Table presents the results for correlation between women participation in ASM activities and legal and regulatory framework governing mining sector in Taita Taveta County. The results suggest a significant ($p=0.00$) and negative linear correlation between legal and regulatory framework and women participation in ASM activities. The correlation returns a coefficient of 0.48.

Table 1: Correlations between women participation in ASM and legal and regulatory framework

		Legal and Regulatory framework
Women effective Participation in ASM	Pearson Correlation	0.48 ***
	Sig. (2 -tailed)	0.00
	N	197

Note: ** indicates significance at 1 percent level

The ANOVA test result indicates a positive and significant ($p=0.00$) effect of women participation in ASM and the legal and regulatory framework (Table 4.15). The study therefore rejects the second null hypothesis and concludes that legal and regulatory framework affects women effective participation in ASM.

Table 2: ANOVA test

The R square value in this case is 0.23 which clearly suggests that there is a strong relationship between legal and regulatory framework and women participation in ASM as indicated in Table 4.16. This indicates that 23 per cent variation in dependent variable

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.18	1.00	0.18	16.21	0.00
Residual	2.22	195.00	0.01		
Total	2.40	196.00			

a. Dependent Variable: Women effective Participation in ASM

b. Predictors: (Constant), Legal and Regulatory framework

(women participation in ASM) is explained by the legal and regulatory framework governing the mining sector in the study region.

Table 3: Simple Regression Results for the Legal and Regulatory framework on Women Participation on ASM

Model	<u>Unstandardized</u>		<u>Standardized</u>		
	<u>Coefficients</u>		<u>Beta</u>	<u>t</u>	<u>Sig.</u>
	B	Std. Error			
(Constant)	0.73	0.03		25.54	0.00
Legal and Regulatory framework	0.04	0.01	0.48	4.03***	0.00

Model summary

a. Dependent Variable: Women effective Participation in ASM

R=0.48

R Square =0.23

Adjusted R Square=0.17

There was a positive and significant ($p=0.00$) correlation between women participation in ASM and the legal and regulatory framework governing the mining sector in Kwale County as presented in Table 5. The R square value of 0.35 suggests that there is a strong relationship between legal and regulatory framework and women participation in ASM as indicated in Table 7. This result suggests that 35 per cent variation in women participation in ASM is determined by the legal and regulatory framework. When the analysis is done to find the effect of all the independent variable on Women Effective Participation in ASM, Legal and Regulatory framework have ($\beta=0.04$, $t=4.03$, $p\text{-value}=0.00 < 0.05$), Legal and Regulatory framework showed a positive and significant relationship with Effective Participation in ASM and when other factors are kept constant a unit increase in Legal and Regulatory framework produce a 0.04 change in Effective Participation in ASM.

Table 4: Probit model results on factors influencing women participation in ASM

Variables	Coef.	Std. Error.
<i>Mines related characteristics</i>		
Role in mining:		
owner of the mines (1=yes)	0.162*	0.512
Worker (1=yes)	1.770**	1.312
Own mining license	0.521**	0.132
Nature of mining operations:		
Underground mines (1=yes)	-0.922	0.965
Use of explosives	0.651	0.531
Nature of machines used in mining:		
Mechanized (excavators) (1=yes)	-0.609**	1.492
Non-mechanized (hand tools) (1=yes)	1.262**	1.530
<i>Institution characteristics</i>		
Buyers of the mined products (1= licensed buyer)	0.681*	0.948
Group membership (1=yes)	0.162***	0.082
Access to credit (1=yes)	0.687***	0.948
Distance to the near est mines	-0.392**	0.931
Constant	-11.684	5.907
Number of observation	215	
LR chi ² (20)	40.37	
Prob>chi2	0.005	
Pseudo R2	0.485	

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Results of the goodness of fit model show that the log-likelihood of the fitted model was 40.37. The likelihood ratio was 60.31, with 20 degrees of freedom. This means that for the equation, Legal and Regulatory framework relative to Effective Participation in ASM, at least the predictors' regression coefficients is not equal to zero. A small p-value from the likelihood ratio test shows that at least one of the regression coefficients in the model is not equal to zero. The

current model had a p value= 0.005; therefore, the null hypothesis that all the regression coefficients across both models are simultaneously equal to zero was rejected. The Pseudo R² of 0.485 was within a satisfactory range because, according to Macffaden (1974), Pseudo R² lying between 0.2 - 0.4 is satisfactory.

Discussion of the Findings

This section discusses the findings above in relation to other research studies conducted. The present study found out the effect of mining legal framework on women participation in artisanal and small-scale mining in Taita Taveta County. The section is organized as per the objective and includes a comparison with other studies.

The effect of mining legal framework on women participation in artisanal and small-scale mining in Taita Taveta County.

As stated earlier, the legal and regulation framework are the procedures or requirements for artisanal miners' operations which entails artisanal miners permit requirements for ASM miners/groups, affordability of Fees that women ASM required to pay and availability of environmental Permit from National Environment Management Authority (NEMA). The current found that Legal and Regulatory framework have a positive and significant relationship with Effective Participation in ASM. The results concur with those of Rijksoverheid (2015) who stated that in Kenya, the Mining Act 2016 tends to these basic issues and generally, has arrangements that advance great practice. Models of good work on with respect to administration incorporate arrangements to permit examinations and reviews of mineral tasks.

Women who participated in the ASM business as the owners and had their own valid ASM permits were able to get better pay and work in a better position as compared to those who are employed. This can be attributed to the empowerment and confidence self-employed women had when operating their own mining business

as compared to when employed by other people who usually discriminate or relegates them to lower jobs

The final buyer of the mined products determined the level of women's engagement in the ASM business. In cases where the buyer/trader is licensed, the participation of women tends to be higher than where a final buyer is an unauthorized person (broker). This can be attributed to the profit margin or incentives women get when dealing with an authorized deal than a broker who mostly exploits them through low pay. This result concurs with those of Perkes (2011) in Congo, where better pay attracted women in the ASM business, as they used the income to improve their livelihoods.

Conclusion

The results reveal that some of the major hindrances to ASM advancements are mainly policy issues. Key among them is the failure by government to provide engendered policy to enable women participation. However, some of these issues have been addressed in the newly passed Mining Act 2014 although some might have to be handled at the implementation stage. Enhance mining regulations will prevent illicit dealings, reduction of illicit mining, boost revenue collection and ensure better environmental control.

The results showed that Legal and Regulatory framework have a positive and significant relationship with Effective Participation in ASM. Therefore, we conclude that for women to efficient in ASM participation, there should be implementations of Legal and Regulatory framework that will favour their work inputs.

Despite having mining bill 2014, there is need for vigorous public/ASMs sensitization on the new Mining Bill 2014, legal rights and obligations. Most of the problems in the extractive industry including conflicts are due to ignorance. Sensitize the

ASMs on their environmental obligations. The education level of women, their role in the mining sites, group membership and access to permits by women had a significant impact on the participation of women in the ASM sector.

Policy recommendations

There is a need for the 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.

Also, there is a need to establish a field office of the body offering the ASM mining licenses near the mining area so it can be more comfortable for women to access them. With the growing knowledge of digital technology in Kenya, the government can consider introducing an online license application or giving the necessary resources to county offices to offer licenses to the needy miners.

Policy gaps also exist and there is need for both levels of government to come up with proper policies and strategies that will improve women's participation in group activities and leadership positions in the community. 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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