

## OCCASIONAL PAPER SERIES

### AN ASSESSMENT OF GHANA'S MINERAL POLICY IN THE ERA OF SUSTAINABLE DEVELOPMENT: A CRITICAL REVIEW OF MINERAL ROYALTIES DISBURSEMENTS FOR COMMUNITIES.

Akua A Debrah, Dennis PO Quansah and Hudson Mtegha

#### Abstract

The mineral wealth of a nation albeit arguable has a strong correlation to economic growth and development. Ironically, rural communities where such minerals are extracted tend to exhibit very little in terms of development. Translating mineral wealth to overall development in such communities has become an arduous task. Mineral wealth has failed to alleviate poverty, prevent negative environmental impacts, conserve resources and contribute to community betterment. Ghana's reforms in mineral policy helped intensify security of mining investments; however, it did little to improve the correlation between progressive growth and sustainable development in mining communities. The issue of inter and intra-generational equity in mining is at the fore front in benefit sharing between governments and mining communities. What should be the due share of mineral royalties to mining communities and who is to guarantee that such distribution is equitable and fair on the part of communities? Using, Ghana that has established a tradition in mining, we assess the mineral royalty distribution formula under the current mining law to determine in real values what mining communities are receiving and whether it is adequate to cater for inter and intra-generational equity of indigenes. Two case studies in Africa; Botswana at the national and Royal Bafokeng Nation at the community level are analysed as hallmarks of good practices steeped in positive leadership.

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# 1. INTRODUCTION

The legacies of mineral policies such as increased foreign direct investments (FDI) and foreign exchange contributions to GDP that are currently being witnessed in many African countries have been based on the Economic Recovery Programme (ERP) restructurings by the International Financial Institutions in the mid-1980s and 1990s. Arguably, this shift in policies brought substantial economic rents to governments and have somewhat sustained their economies till date. Ghana, a trailblazer in terms of mineral resource abundance was amongst the early reformers in mining policy per the structural adjustments under the ERP. By the mid-1990s there were significant FDIs inflows in Ghana’s mining sector especially from the gold sector. Accordingly, Bloch and Owusu (2011), has argued there were almost a 700% increase in gold mining production as a result of FDI inflows into the country. (See appendix 1 and 2 for mineral production quantities and increase in mineral rents as percentage of GDP). Mining in Ghana concentrates on four main minerals- gold, bauxite, manganese and diamonds with other less explored minerals such as iron ore, feldspar, silver, limestone and salt. Majorly, Gold still remains the highest contributor to mineral export earnings, with the country being second to South Africa in terms of Gold production in Africa and tenth in the world (Natural Resource Holdings, 2012). The map below of Ghana indicates the communities heavily involved in mining as those towns located north and south of the railway line towards Kumasi, which is the capital of the Ashanti region.

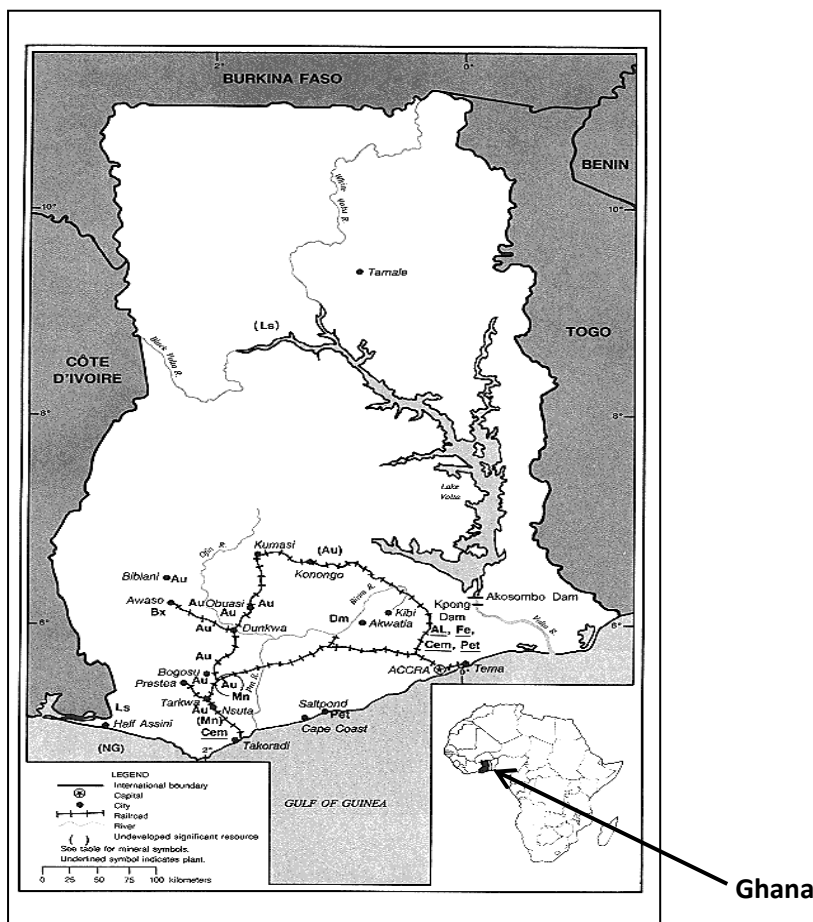


Figure 1: A Map of Ghana with some Mining Communities

Source: USGS (2013) Updated minerals information on Ghana.

\* Majority of the communities such as Tarkwa, Obuasi, Prestea, Bogoso and others along the railway line heading towards Kumasi are mining towns. Recently, regions such as Brong Ahafo and to an extent the North of Ghana have had explorations and discoveries of gold and other deposits, thus extending the coverage of mining communities in Ghana. The number of mining communities is not certain since majority of the small villages and communities are part of larger traditional areas within the districts and regions.

In 2008, Ghana started producing oil in commercial quantities and that influenced economic growth to shoot to about 14% (2006 constant prices for 2011 and 2012) using statistics from the world development indicators by the World Bank. This increased growth pattern presupposes that Ghana is doing well; however the hard realities of underdevelopment in many mining communities' make the researchers question whether these statistical growth patterns can yield long term growth and development. Even more recently in 2013, a report by Eunomix has questioned the current growth patterns in many resource-rich countries, probing whether it is sustainable and can translate to development in the long term in Africa. Moreover, in the specific case of Ghana, are mining communities getting a fair share of mineral wealth from royalties? Disputably, mineral rent has a strong correlation to economic growth; but, there seems to be gaps in terms of translating mineral wealth to overall development especially in mining communities. Reforms in mineral policy under the former Minerals and Mining Law (PNDCL 153) in 1986 and the current (Act, 703) in 2006 intensified security of mining investments but did little to address issues of intra and intergenerational equity under the paradigm of sustainable development (SD). On the contrary, Ghana has seen many contentious battles in policy over how mining revenues should be distributed and used at the national level with a somewhat lack of coherence of how the needs of indigenes of mining communities would be addressed under the (SD) framework.

Thus, the aim of this paper is to assess the mineral royalty distribution mechanism under Ghana's mineral policy framework i.e. the Minerals and Mining Act, 703 of 2006 viz a viz the principles of [inter and intra-generational equity] in sustainable development. This is to answer the question of whether communities are being sidelined and what has been at the core of issue that must be redressed. The scope of this paper is to: firstly, discuss the discourse of sustainable development-the contestations and consensus within mining. Secondly, conduct a brief historical review of mineral policies under the various political regimes with the main emphasis being on the mineral royalty distribution of the present Minerals and Mining Act 703; and finally, we consider the case of two successful models where mineral wealth distribution is addressing economic growth and the equity in mining communities. This is aimed at understanding the elements that enabled the case study countries to prosper against the odds. We conclude with impressions from the Royal Bafokeng Nation and Botswana model that the success of sustainable management of natural resources or minerals to be specific lie chiefly in the factor of leadership. We make recommendations on a royalty distribution mechanism that can aid the sustenance of mining communities in Ghana.

## 2. SUSTAINABLE DEVELOPMENT IN MINING

Sustainable Development (SD) in its basic and most accepted definition is development that meets the needs of the present without undermining the ability of the future generations to meet their needs (WCED, 1987). Thus at the core of the concept is the ability of development to benefit not only the present but the countless generations yet unborn. Sustainability implies that development be skewed towards achieving equitable, economic and environmental development goals. Our quest for economic development should not lead to the wanton destruction of the environment or make some members of the society or community disadvantaged. On the other hand, the desire to achieve equitable development and proper environmental standards should also not affect the economic development of our society. These three pillars of sustainability – society, economy and environment should be kept in relative equilibrium and balanced to achieve sustainability bearing in mind inter and intra-generational dimensions of resource usage. The fact is that sustainable development does not happen in a vacuum. It needs to be carefully discussed and planned by all stakeholders in order to become possible especially in mineral economies where the external repercussions alone can cause the destruction of whole communities' environment if unchecked. The literature points to the fact that the most contestable topic in the development literature as it pertains to developing mineral economies has been the broad based definition of SD [Wheeler

1998; Daly, 1993; Strange, 1997] and what it should mean to mining industries and economies. That is, how would such economies achieve sustainability when clearly the nature of mining with its negative externalities makes it an impossible task?

A study by the IIED in 2002 on “how sustainable development can be useful in mining” argued that although, mineral ore bodies are unsustainable it is possible for mining to contribute to sustainable development if the economic ore body could be maximized and invested for now and future generations’ benefits. Despite opposition from the many camps of environmentalist and ecologists on sustainability of natural capital i.e. the need to preserve mineral resources; mineral rents can be maximized and equitably shared in and between generations through effective leadership and governance regime which seeks the benefits of communities and society as a whole (Ibid). The sustainable development tenets of inter and intra-generational principles recognizes the need for ‘quality of life’ for everyone whereby both present and future generations have rights to their own development without any form of deprivation in resources, opportunities, benefits, etc. thus, many companies take community partnerships and participation seriously as the social license to operate.

However, in the Ghanaian instance, as we will examine in the next sections the issues of undue deprivation of resources and a lack of opportunities seem to be present (since mining communities receive the least of mineral rents) and make the researchers’ wonder whether mining policies in Ghana have inculcated equity principles under a sustainable development import to a larger degree. The former mineral and mining law, PNDCL 153 which was a pioneer law in the 1980s sought to remove regulations and encourage little government intervention; hence many social and environmental issues which fell under the purview of sustainability were not inculcated into that law as was present in many mineral laws in Africa. The current mining law, Act 703 seems to be correcting some of the injustices that had been caused by the old law; however, there are gaps that seem to be deriding the importance of sustainability in particular the frame of mineral royalty distribution. Thus, it is possible that the Act may not be deemed to pass the test of mitigating for a fairer distribution of royalties that is required to address the concerns of indigenous mining communities. Following from above, we take a historical review of some of the mineral policies in Ghana and analyze whether the legal framework for minerals has embedded in it sustainable development principles of inter and intra-generational equity. We analyze this by using the nature of mineral rent distribution and disbursement in the country and the gaps within the framework thereof.

### **3. A HISTORICAL REVIEW OF MINERAL POLICIES IN GHANA**

#### **3.1 THE NKRUMAH REGIME POST-INDEPENDENCE (1957)**

During the first republic under the Kwame Nkrumah regime, the government nationalized almost all mining companies with the exception of Ashanti Gold Company (Tsikata, 1997). The state was both producer and buyer of its own minerals. Killick (1966) argues that the nationalization path taken in respect of the acquisition of mining companies especially by the state was justified because it was an avenue after independence to protect workers’ rights to employment and for the government to gain access to foreign exchange. But that however, undermined the essence and the drive for profitability since by creating monopolies of the minerals market through the marketing boards, it could not determine the true price of minerals and hence deprived competition to drive the industry forward. Moreover, this intentional shift forced many mining companies both local and foreign out of business and further crippled Ghana’s mining industry and the eventual downturn of the economy (World Bank, 1992).

The main act in operation was the mineral policy of 1962, Act 126 which shaped policy choices and options in the 1960s and 70s. The government consolidated all rights to minerals under the sovereignty of the State through the executive instrument of compulsory acquisition. But, analysis of the Act and its implementation with its sister acts- (the Concessions Act- Act, 124 and Administration of Lands Act- Act 123) reveal no format for the payment of fair and adequate compensation; and in terms of community development, mineral royalty allocation and disbursement to host or affected communities were non-existent. Although, mention is made of using steps in administering indigenous lands or stool lands under the sister Act, Administration of Lands (Act 123) in cases of compulsory acquisition for mining; the definition of what was deemed as fair and adequate compensation were not clear in the Act. More so, a formula or mechanism of allocating mineral royalties were not fixed and subject to the dictates of what was determined by the Minister. Many scholars allude to the fact that the failure of mineral policy after independence was typically the shift to nationalization and the general fall in prices of primary commodities coupled with the lack of accountability mechanisms of the governance structures during the period of the lost decade of 1960s and 1970s in Ghana and many African countries (Tsikata, 1997; Akabzaa, 2009; ISG, 2011).

### **3.2 MINERAL POLICIES AFTER STRUCTURAL ADJUSTMENTS (1983-2006)**

After the failures and disadvantages associated with the economic model of nationalization which was pillared by the then mineral policies, Ghana adopted stringent economic reforms especially in the mining industry to revitalize the economy. Instituting the Economic Recovery Programme (ERP) by the World Bank and other affiliated financial institutions revived the mining industry and brought phenomenal increases to its Gross Domestic Product post-1985 (World Bank, 1992; UNCSD, 2010)<sup>1</sup>. During the ERP period, there were reviews of the existing legal frameworks that emphasized a private sector-led development with little governmental intervention i.e. under the neo-liberalism agenda. The main purpose of government was only to promote the mineral industry through implementing policies and regulations that would create an enabling environment for foreign direct investment (FDI) or foreign capital injection (World Bank, 1992). The macroeconomic reforms in legislation in Ghana led to a 700 per cent increase in gold mine production in the period 1986-2005 as already stated. It also strengthened the mineral rights framework for mining companies in Ghana and led to increasing successes for the industry as it became easier for mining companies to obtain mineral rights to mine for minerals and a guaranteed security of tenure<sup>2</sup> (Aubynn, 1997; Hilson and Clive, 2005; Hilson and Yakovleva, 2007).

The mining and minerals law PNDL 153, although novel in Africa and did transform the political stability and environment for mining companies; however, it was also silent on the issue of mineral royalty disbursement and what should be invested in mining communities that co-existed with mining companies. The percentage of mineral royalties paid by mining companies was scaled down in the old 1962 Mining Act, to between 3% and 12% coupled with payment of additional profit tax by mining companies. Up until the implementation of the 1992 constitution of Ghana which introduced a mechanism for mineral royalty disbursement; mining communities only received compensation for developed lands that had been compulsorily acquired and not deprivation of use.

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<sup>1</sup> UNCSD (2010:2) asserts that the mining sector accounts for 5.5% of the country's GDP and minerals make up 37% of total exports. Of these minerals, gold contributes over 90% of the value of total mineral exports with the sector's contribution to exports rising from 36.26% in year 2000 to 45% in 2008. Also, gold's total merchandise exports rose from US \$702,000,000 in 2000 to US \$2,246,000,000 in 2008 which made gold the backbone of Ghana's mining sector.

<sup>2</sup> Utter (1992) cited in Hilson and Yakovleva (2007) asserts that the macro-economic reforms in the form of investment incentives such as low royalty rate of 3 per cent, removal of restrictions on transfer dividends, reduced mining tax and waived import duties, led to an overnight inflow of foreign direct investments in the mining sector by multi-national companies.



In addition to this, communities received payment for ground rents and voluntary contributions by mining companies stipulated in contractual agreements with mining authorities (Ayitey and Others, 2011) as well as royalties that were sometimes recycled back in the form of general development infrastructure and programmes. As a result, the new law (Act, 703) sought to address some of the injustices caused by the former law and to make Ghana more investor-friendly reduced the mineral royalty range to between (3% to 6%), with the only 9 existing large scale mining companies at that time paying the minimum of 3% royalty to government (Hilson and Yakovleva, 2007). In this instance, there was also improvement in the revenue collection mechanism, however, as to whether accountability mechanisms were stringent to prevent loop holes in revenue collection, could not be determined. Only in the context of the quantum of compensation received and the translation of the rents into infrastructure development by communities is what is considered in the Ghanaian scenario.

An overview of the current legal framework, Mining and Minerals Act 703 of 2006 indicates six areas that mining contributes to the economy of Ghana: i.e. through:

1. Mineral royalties;
2. Mining revenue contributions;
3. Ground rent and property rate;
4. Voluntary contributions- in the form of social programmes and corporate social responsibility;
5. Dividends; and
6. Corporate tax and other taxes paid by multinational mining companies in operation in the country.

Through the instrumentation of the current Act 703, the Internal Revenue Services of Ghana has asserted that mining contributions have increased with mining accounting for one of the highest contributions to internally generated revenues for the year 2008 and 2009. The mining sub-sector maintained its 2009 position as the leading contributor to the Revenue Authority's (GRA's) income collections with total payments of approximately GH¢520 million (about US\$ 364 million) to the Authority and represents 21% of total GRA collections for 2010. The mining industry's impressive payment and performance have been on account of increased mineral revenue as a result of higher gold prices, which translated into higher mineral royalty payments and consequent corporate tax payments by qualifying companies<sup>3</sup>. This presents a good indication of the successes of the Act in creating an enabling environment to foster growth and development from mineral revenues. It is obvious that the current Act (Act 703) has had a remarkable impact on the economy since the calculation of mineral royalty is based on quantum of production of extracted economic minerals from ore bodies which enables mining firms to be profitable based on output. But, how has the increased contributions benefitted communities?

#### **4. SHARING OF BENEFITS BETWEEN GOVERNMENT AND LOCAL MINING COMMUNITIES**

According to the new mining law, the distribution of mineral royalty must be done in conjunction with the 1992 Constitution, Act 591 of the Republic of Ghana. Table (1) gives an overview of the beneficiaries of the distribution and the allotment per the guidelines of the constitution. The share

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<sup>3</sup> Ghana is the second largest producer of Gold in Africa and the current rise of metallic commodity prices globally has caused an increase in production from mining companies operating in the country. Appendix 1 as indicated earlier shows the correlation between mineral rents and GDP and the upward trend in GDP positively correlates with the increase in mineral rents that government is receiving from mining companies.

that accrues to communities fall under the Office of the Administrator of Stool Lands (OASL) <sup>4</sup>. Although, the evolution of mineral policies in Ghana indicates that the current mineral regime seems to be the most favourable, the effectiveness of mineral royalty disbursement and usage under the legal framework has not been very optimal since there are issues like lack of community satisfaction, engagement and development, and addressing equity (Aryee, 2009). Generally, there is a created notion that governments are not doing enough to help mining communities who are in most cases uneducated and sometimes unprepared for some of the negative externalities associated with mining.

<b>Beneficiaries</b>	<b>Percentage Share of Mineral Royalty</b>
Government Consolidated Fund	80%
Minerals Development Fund	10%
Office of the Administrator of Stool Land (OASL)	10%
<b>TOTAL</b>	<b>100%</b>

**Table 1: Mineral Royalty Distribution in Ghana (Percentage share)**

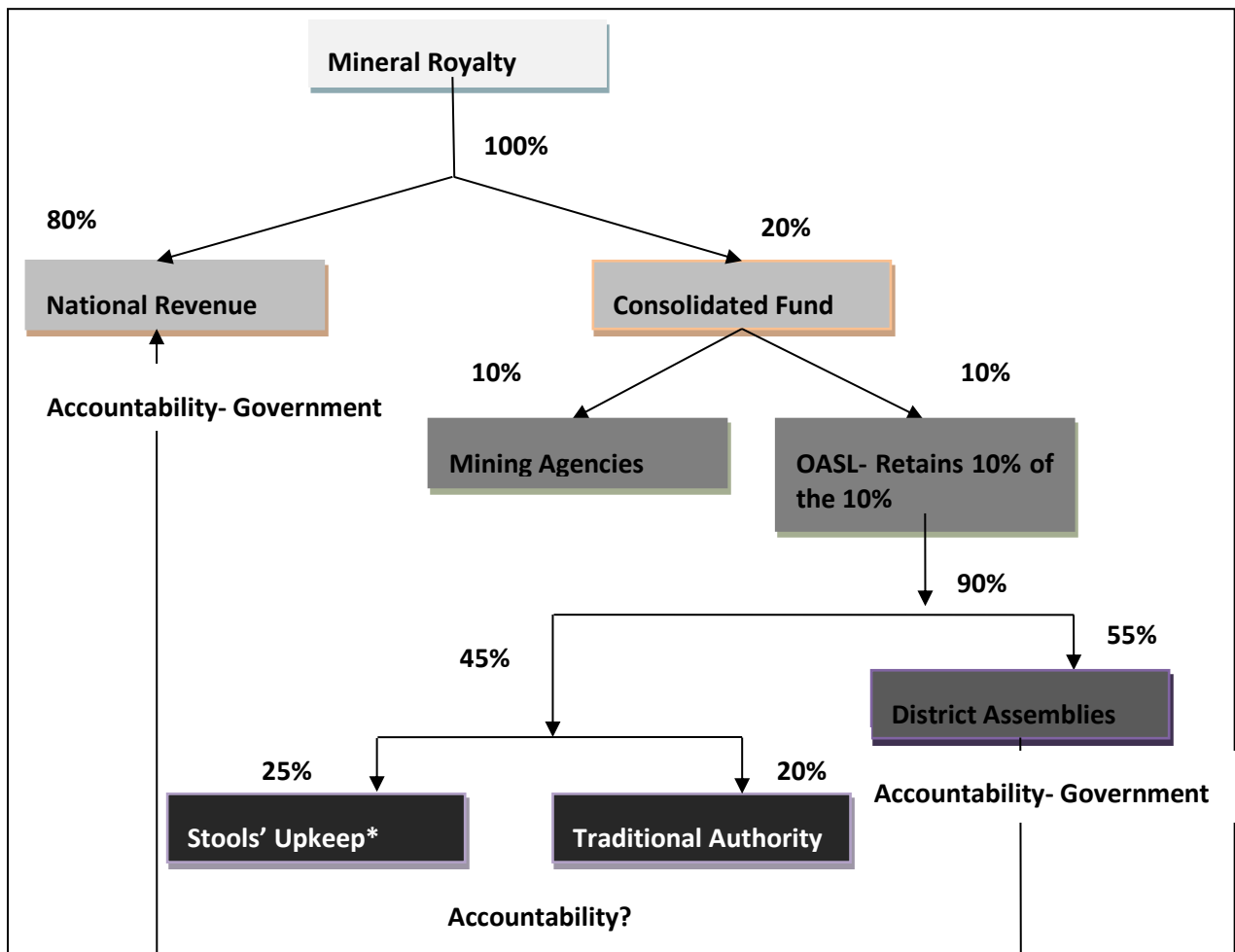
Source: Extracted from [Article 257, 1-6] of Act 591, the Constitution of the Republic of Ghana

The above table represents the overall disbursement of mineral royalties. Communities in general, fall under the disbursement of 10% of the royalty given to the OASL. Within the OASL there is a further allotment of (45%) of the remaining 90% given to traditional authorities on behalf of mining communities and to mining stools for their upkeep. Further, the hierarchical flow structure (Fig 1) below also presents a pictorial view of the disbursement from the national government to community level.

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<sup>4</sup> The Office of the Administrator of Stool Lands (OASL) is one of the land sector agencies that is responsible for the administration of stool lands. Stool lands constitute about 80% of all lands in the country, they are lands that are under the trusteeship of stool head- chiefs, clan or family heads and by law they have right to dispose of the land through sale or redistribution amongst indigenes. However, because majority of the minerals in Ghana fall under stool land territories, these lands per the mineral law must be paid some form of royalty, and it is the sole responsibility of OASL to discharge this duty.





**Figure 2: Ghana’s Mineral Royalty Disbursement Tree**

Source: Authors’ Interpretation from Act 591

\*Stools as used here refers to traditional interpretation of lands owned by indigenous people but held in trust by chiefs, family or clan heads which sometimes represent a whole traditional authority with territorial jurisdictions of large area of land.

The accountability concerns noted in the fig 2, questions the checks and balances available as to its adequacy in safe guarding mineral rents for future generations. At the national level, the Auditor’s General Department verifies and checks budgets drafted out of the national revenue of which mineral rents and royalties contributes a major chunk. However, at the community level, there are issues of concerns as to how stools and their set-up are held accountable for the use of mining revenues. The Minerals and Mining Act, Act 703 gives room for there to be royalty payments of (20% of the 90%) to mining communities or to the traditional authorities which are under the jurisdiction of such mining communities, however, the law has not been decentralized enough to hold chiefs of mining communities accountable to what they use the mineral rents for.

The figures below are also a diagrammatic representation of the mineral distribution formula according to Act 591. Fig 2 shows a sunbeam chart of the distribution which elucidates in real terms what mining communities get which is 2.25% and 1.8% of the entire 100% of mineral royalties that the State receives from the mining industry which are in operation in rural traditional communities.

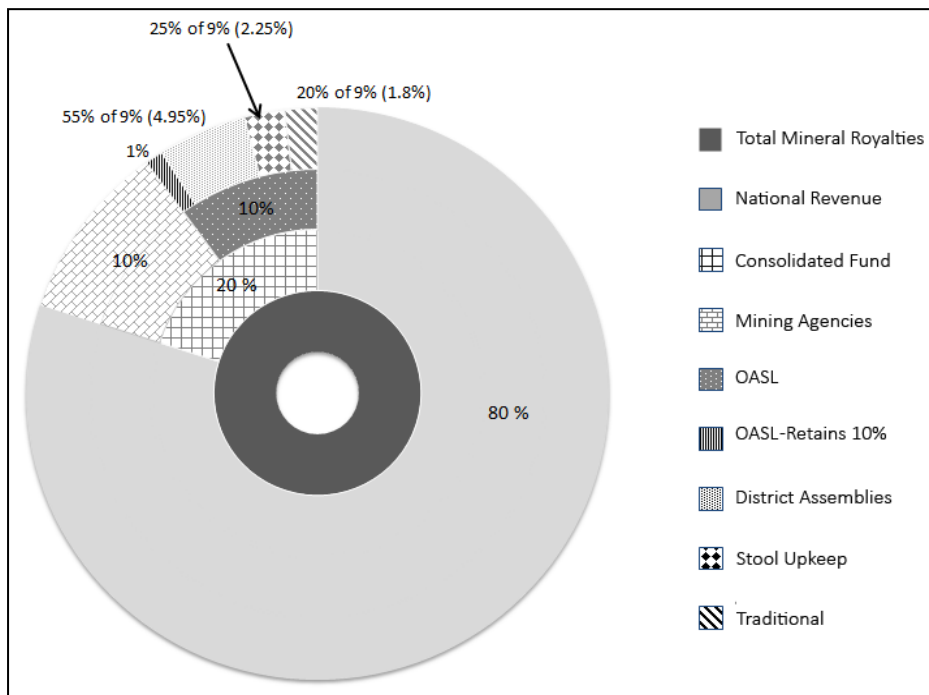


Figure 3: A Sunbeam Pie Chart Showing a Breakdown of Mineral Royalty Distribution in Percentages

Source: Authors' Interpretation from Act 591

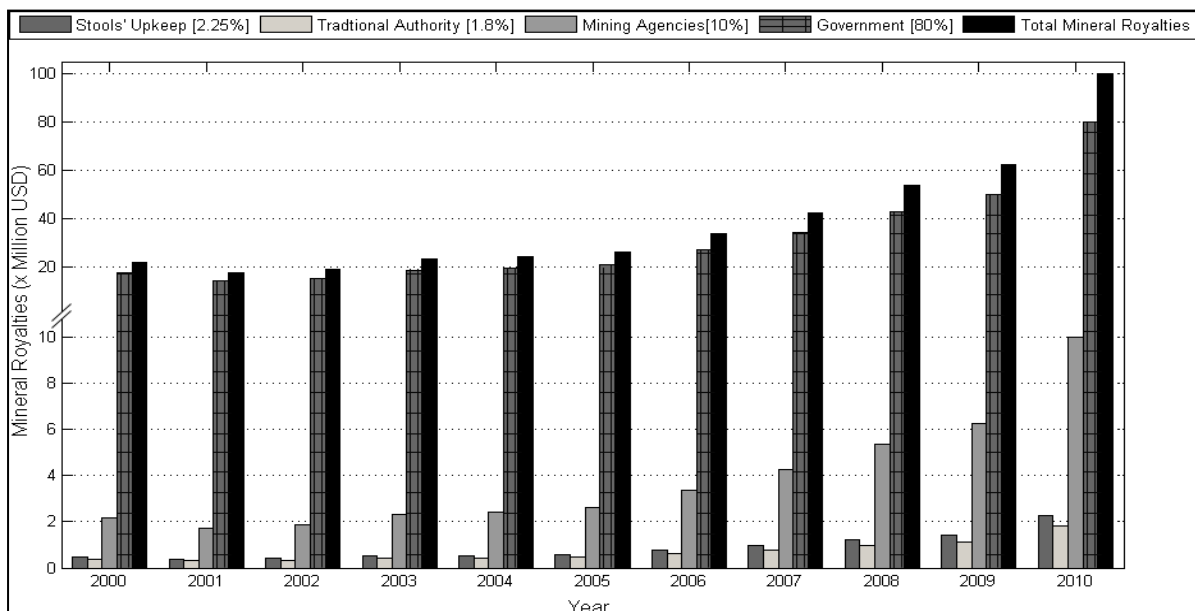


Figure 4: A Bar Graph of the Share of Mineral Royalty Distribution of Mining Communities to the Total Mineral Royalties Received by Government and Mining Agencies (2000- 2010).

Data source: Minerals Commission, Statistical overview of Ghana's Mining Industry (1993-2003)

\* The mineral royalties' received by government were converted into dollars with the rates of conversion for each year listed in appendix 3. The formula of the distribution to traditional authorities was applied to determine how much they receive from the share of the mineral royalty. Appendix 4 and 5 (conversion from Ghana cedis to United States dollars & application of the formula respectively) showcase the data that was analyzed to obtain the graph above.

Fig 4 is suggestive of the application of the distribution formula to total mineral rent receipts by the state. The values on the graph show a clear divergence between what accrues to mining traditional communities for their upkeep and that of government. Although, the bar graph indicates a rise in mineral royalties to communities from 2000 to 2010, from the researchers' perspective it is inadequate over the long haul especially providing for inter-generational equity. Rural development on the whole in most mining communities is premised on the voluntary contributions from mining companies and the apportioned rents that such authorities receive in most cases. An exception in this case is when government apportioned sums from national budgets specifically for rural development which also seldom happens. Thus, if the sum that they receive is not substantial then mining communities and government would find it difficult to address inter and intra generational concerns. The average sum accruing to mining communities is approximately US \$700,000 and US\$800, 000 for the upkeep of stools as a share of the total \$ 38, 500, 000 of mineral rents. In 2010, which saw the highest year of mineral rents receipts for the decade, the State received mineral royalty of approximately US \$1 billion as compared to traditional mining communities and their stools that received \$3 million dollars combined.

Year	Mineral royalties ('000 US\$)	Mineral royalties (stools' upkeep [2.25%]) ('000 US\$)	Mineral royalties (traditional authority [1.8%]) ('000 US\$)
2010	99,858,000	2246.805	1797.444
Average*	38,425,00	864.5584091	691.6467273

**Table 2: Mineral Royalties of Traditional Authorities as a Share of the Total**

\* Extracted from appendix 4. The mean represents calculations of mineral royalty from 2000- 2010 with the mineral royalty distribution formula. The year 2010 was the highest that has ever been recorded of mineral royalty payments by mining companies to government.

Moreover, traditional mining authorities in Ghana which many mining communities fall under their jurisdiction according to the mining law are supposed to share the total average of US\$870, 000 amongst themselves. It is needful to mention that the sum that accumulates in the sharing of benefits does not compound in the coffers of one mining community but are shared amongst all mining communities under the jurisdiction of traditional authorities. The essence of these discussions is to showcase the percentage of royalties that traditional authorities receive from the general coffers of mineral royalty and that which accrues to government in real terms. The results presented is somewhat similar to the conclusions of Kasanga (1997) work on mining communities<sup>5</sup>, although his work was a critique of the old law; the inequities of the inadequate sum of mineral royalties and compensation received by mining communities are still evident in the current law.

Nevertheless, as was mentioned earlier, the constitution working hand in hand with the mining Act stands empty of proper guidelines in the allocation and distribution of mineral rents that would allow for clarity for the contending interests and of all stakeholders in its implementation. Inasmuch as the law has been salient for the revamp in Ghana's mining sector it has not really translated a net benefit for the rural development of mining communities<sup>6</sup> since the standard of living is typical of many poor non-mining rural communities but with the added bonus of having lands seized and returned in worse off conditions because of the negative externalities that are sometimes associated

<sup>5</sup> Kasanga (1997) research questioned the compensation paid for agriculture lands especially cash crops such as cocoa which are seasonal and can earn farmers in mining communities' income for over 30 years; unlike the compensation paid usually in lump sum that are consumed by the owners of the lands in less than a year. The mineral royalties that the communities receive on the whole is fairly inadequate to further the course of rural development.

<sup>6</sup> See Adjei (2007) dissertation on impacts of mining on communities and alternative livelihoods that can help mining communities cope with underdevelopment.

with mining. There are numerous concerns about the negative impact of mining on the environment. In the case of Ghana, the Centre for Environmental Impact Assessment (CEIA) and Wassa Association of Communities Affected by Mining (WACCAM) which are quasi government and non-governmental organizations respectively have through rigorous research identified many fatalities associated with mining on communities<sup>7</sup>.

On the face value the distribution of mineral royalty in Ghana as elaborated in Figures 1, 2 and 3 seem to give the impression of a good allocation but when one assesses the values based on real figures i.e. the mineral royalty that government receives and what communities get as share of the benefit, is inadequate for such communities to use or invest for the welfare of present and future generations. The essence of inter and intra- generational equity in mineral rent distribution, is for governments to find a mechanism for benefit sharing so that all would be better off since the opportunity cost of mining to communities is for them to partake in the (whole life) of the net present value of the mineral rents for the infrastructural, social and human development of all time affected generations. Therefore, we suggest that the problem of equity in mining communities in Ghana concerns amongst others inadequate mineral rents and the posture of leadership- be it at the government or traditional level as the needed catalyst for development and addressing 'equi-generational'<sup>8</sup> concerns.

The problems relate to compensation, accountability and leadership and how these can be used to ensure that current and future generations can benefit from the resources. In some cases, major tracts of lands are seized and payment of compensation for deprivation of use is most often not adequate to account for sustainability of current generations let alone provide for the future. Since majority of the rural folks are uneducated when they are paid such capital sums as compensation they tend to exhaust it before the end of their lifetimes or even provide equity for future generations- (the exception to this scenario is the current Newmont model of compensation in the Ahafo region of Ghana)<sup>9</sup>. Furthermore, the alternative lands that are given as compensation for use sometimes are not adequate or are not of the same quality as the ones lost to mining companies. Furthermore, the royalty share that accrues to mining communities and managed in trust for communal welfare are often not adequate to provide for infrastructure and basic key facilities that can enhance livelihoods and support that of future generations. However, recognition of the issue of sustainability in term of intra and inter- generational equity must also be seen in the context of providing economic, environmental and social security for future generations. Otherwise, the sustainability of future generations may become comprised when mining is exhausted or when the mining project ends. There is therefore the need for mining communities to receive a good share in the royalty distribution formula to enhance equity and fairness for present indigenes and also to secure the sustainability of future of generations' worth.

Moving on, there are also no forms of accountability mechanisms for defining how the mineral royalties are used by traditional mining authorities. Mineral royalties that are disbursed to traditional authorities and for the up keep of traditional stools and their secretariats do not have suitable accountability mechanisms to check how the rents are expended by a governmental body. Ultimately, what enables the structure of sustainable development to hold in mining is the framework of good governance and leadership at all levels, i.e. at the national, regional and

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<sup>7</sup> See <http://www.ghanabusinessnews.com/2011/08/15/mining-activities-in-obuasi-tarkwa-pollute-262-rivers-plague-residents-with-keratosis-and-diabetes/> for some of their reports.

<sup>8</sup> "Equi-generational" as used in this context refers to achieving equity within and amongst different generations.

<sup>9</sup> Newmont Ghana Gold Limited (NGGL) operation in the Ahafo region has taken a different approach to compensation for developed lands and deprivation of use. Community valuers working with the Land Valuation Board of Ghana and NGGL valuers work hand in hand in coming to a conclusion of a defined compensation. Here, there are options of lump sum payment and or investment of payment whereby indigenes deprived of lands would be paid an annual sum over a period of time. See study by Ayitey and Others (2010) on the Newmont model.

community; hence there is need for such mechanisms in the traditional community level. Interestingly, in the case of Ghana because chiefs are held in high esteem and their authority not questioned, the subjects or indigenes under the rule of traditional systems dare not question the powers of the stools or heads of the traditional areas under their jurisdiction on how royalties are used.

The problem of inter and intra-generational equity in Ghana is profound since Ghana has been the trailblazer in many policy restructurings and strategies for inculcating the principles of sustainable development in mining in the Africa region. However, since when it comes to best practice it is still far behind in implementing certain key structures, strategies and institutions that would allow for greater sustainability in mining; the next section assesses some of the success stories on the level of the national and community and what enabled such countries to thrive against all odds. The case studies that are presented here are meant to give an indication of how good practice in sustainable development in terms of providing for the security of current and future generations have been done coupled with a well-driven leadership agenda. Botswana which is one of the case studies has grown phenomenally since the 1970s and 80s with its dependence on mineral rents and good mechanism for distribution of mineral resources by the state and has been able to translate mineral wealth to overall development. On the other hand, the Royal Bafokeng Nation (RBN) which is a tribal community through the peculiar land rights system present in South Africa has as a result been able to enjoy rights to minerals on their land. The RBN case is quite unique in all of Africa since mineral royalties are fully paid to the mining communities that make up Royal Bafokeng. In essence, it is to identify key elements and what Ghana can learn from such models so that mining can better contribute to the wealth of both current and future generations in communities.

## 5. MINERAL WEALTH MANAGEMENT OF ROYAL BAFOKENG NATION AND BOSTWANA

### 5.1 ROYAL BAFOKENG NATION

The mineral wealth of a country is the sovereign property of its people and should be used for their benefit. Rents from its extraction should thus be used to fuel economic development. Covering an area of 1400 sq km in South Africa’s North West Province, and home to approximately 300,000 people, the Royal Bafokeng Nation (RBN) has chalked great success at attaining economic development for its people through proper management of the rents from mineral resources. The map of South Africa below gives the positioning of RBN close to the northeastern part of the North West Province.



**Figure 5: Map of South Africa Indicating the Location of the Royal Bafokeng Nation**

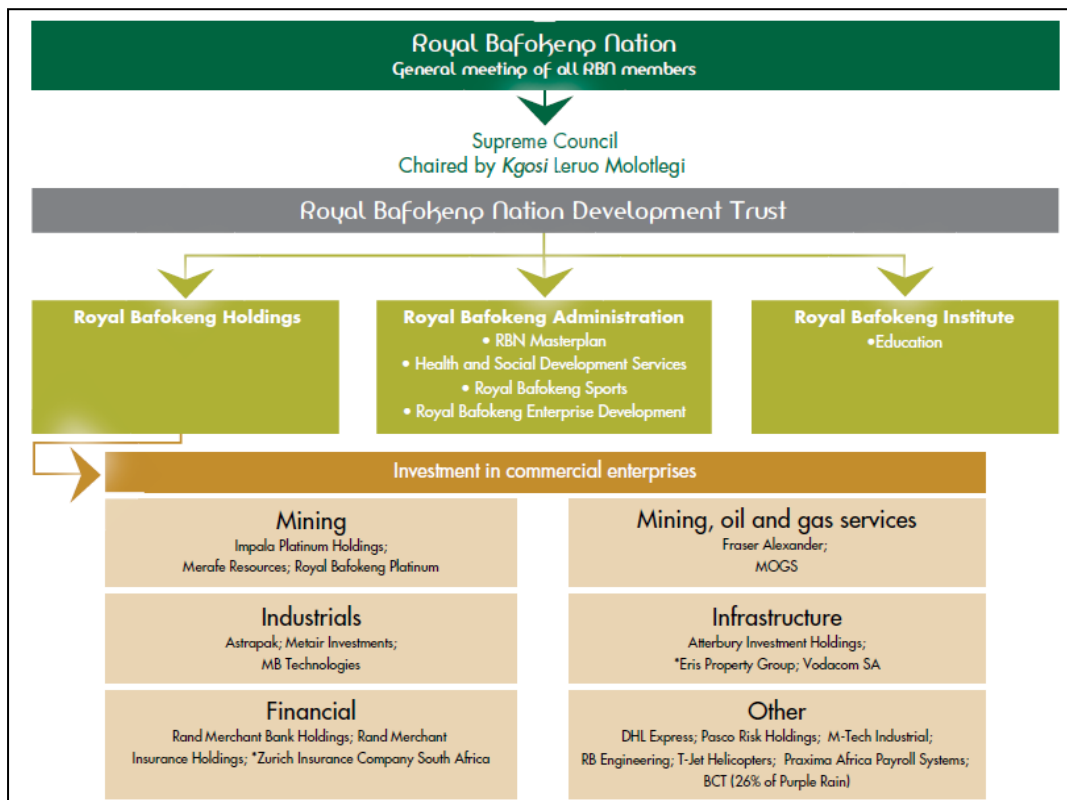
Source: Extracted from the RBH (2012), Integrated Review Report

Mineral revenues derived majorly from platinum are used to fund very urgent and important social development programs for the people such as the establishment of 'education for leadership', Royal Bafokeng Sports and health care systems for the indigenous peoples. At the moment the RBN is touted as one of the largest (or possibly the largest) community based investment companies in Southern Africa (Cook, 2013). The mineral royalty distribution is different from other parts of sub Saharan Africa, since the tribal nation- Royal Bafokeng receives mineral royalty directly from the second largest platinum mining company in South Africa. After independence in 1994, the RBN succeeded in obtaining mineral rights to their land and through that process obtained a 22% share of royalty from Impala Platinum Mining (Implat) together with accumulating shares in the company. Currently, RBN has embarked upon many projects and used its mineral wealth to transform the lives of indigenes on the land.

The availability of the right sort of leadership in this case traditional leadership has been essential in making this development a reality. Recognising mineral resource as a depleting and unsustainable source of income, the leaders of the RBN sought ways and means of creating a more sustainable form of wealth for themselves and future generations. They then went ahead and leased parts of these lands to various mining companies and were as private landlords able to control the resource and its royalties for their benefit (Ibid). Although this process was fraught with a lot of resistance and opposition from other stakeholders such as the Bophuthatswana regime, apartheid and the government among others, the RBN was able to sail through successfully in its determination to use mineral resources to provide for the needs of its communities and that of the future Bafokeng generations that will be without the advantage of platinum as a resource to exploit. This emphasizes the great foresight and sophistication of the RBN leadership. It is not a coincidence that such traits were also eminent in the Botswana leadership that ensured a positive outcome for Botswana's diamonds (Quansah, 2011).

In order to ensure that resources have a greater effect on the development of its people and also make the community self-sustaining, the RBN established the Royal Bafokeng Holdings Limited (RBH) in 2006. RBH has the sole responsibility of optimizing the Bafokeng Nation's investments as well as ensure sustainability. This it has achieved excellently. The RBH portfolio irrespective of the economic recession earned the RBN a 30% return on investments within its first 3 years of existence (Cook, 2013; RBH, 2012). The RBN holds in high esteem the views and opinions of the people in determining the management of the portfolio. As such the yields from the RBH have been focused on service delivery within the RBN. Over 95% of houses in the RBN have electricity and water, more paved roads etc. than other parts of South Africa. Schools and clinics within the RBN are also better than those provided by government (Cook, 2013). The RBH which has gained the requisite capacity over the years' reports to the whole community on the aims, objectives and strategies devised for the RBH through an annual general meeting where all of critical issues and needs of the community are brought to bear. This makes the traditional leadership of the RBN accountable to the people for all decisions made (RBN, 2012). The priority of the head of the RBN supreme council chaired by the current traditional leader Kgosi Leruo Molotlegi, is for all stakeholders to substantially inform and shape the strategies of the RBH. The flow diagram below is indicative of the current projects that are under the RBN development trust with the two other arms of Royal Bafokeng Administration and Institute seeing to the social and environmental needs of the people.





**Figure 6: Structure of the Royal Bafokeng National Development Trust**

Source: Extracted from the RBH, Integrated Review (2012)

Not only does the RBN focus on the needs of the present, but it is planning for the future RBN people as well. Funds are being invested in other sectors such as telecommunications, infrastructure, and financial services amongst others. Investments in these other areas help reduce the dependence on the depleting mineral resources by the present generation as well as ensure that the livelihoods of future generations are not affected negatively. This illustrates the fact that for mining to contribute to sustainable development, the wellbeing of the local community should be the prime concern of the mining companies, governments and other stakeholders in the industry. It is evident that the RBN had a robust institution in their investment vehicle (i.e. RBH) and also had a leadership with great foresight to include all the contested interest of stakeholders in their community.

## 5.2 BOSTWANA

Botswana, a once very impoverished country at the time of its independence in 1966 has been able to transform its bleak developmental prospects and the livelihood of its people after some few decades. Undoubtedly, such progress has been due to the country's ability to manage and properly utilize the rents accruing from its huge deposit of mineral resources. Unlike other African countries with such deposits, Botswana has used its resources to catapult its economy into middle-income status. It was able to avoid the usual political and economic degeneration associated with such huge mineral deposits in African countries. The resolve has been that mineral wealth rather contributes to the deterioration of the already weakening institutions in major parts of Africa. About 40% of the Botswana government's revenue is from the mineral industry. Its priority was not to quickly share

and loot the rents obtained from diamonds, but rather invested them in social and physical infrastructure and other productive sectors of their economy such as industry<sup>10</sup>. Interestingly, the location of Botswana identified in fig 6 shares boundary to the Northern Province of South Africa where the RBN is located.

The Botswana leadership had a singular objective of using mineral revenue to avoid external debt, stabilise growth and encourage economic diversification. It adhered to a strict policy on the control and use of mineral resources. Revenues were devoted for investment spending in the interest of the present Botswana society and the future generation who might not have the opportunity to mine diamond resources. This led to the development of an improved physical and social infrastructure, an enhanced education and health care delivery system for the populace. According to Onthusitse Melaetsa, the principle Mineral officer, the pillars of Botswana's mineral policy are in six areas:

- protection of private property rights and accepting foreign investors as an integral part of the business community as well as their entitlement to make and repatriate profits;
- formation of joint ventures with private enterprise who are providers of technical, commercial and financial capabilities;
- adoption of commercial principles in the planning and operations of mines;
- security of tenure that allows for automatic progression from exploration to mining;
- clear and streamlined licensing procedures; and
- environmental obligations that relate to international best practice (Melaetsa, 2012).

Such determination in the proper use of resources has been noted by Stiglitz (2003), Quansah, 2011 and Dougherty, 2011, as a very important milestone and makes the case of Botswana very unique when compared with the general experience with resource-led development in Africa. Botswana's disciplined and determined leadership has played a key role in ensuring such success. It did not allow the influence from the strong international and regional forces to negatively affect the use of its resources but rather took advantage of the opportunities presented them. The leadership partnered with the Multinational Companies and allowed them a great role in mining their resources but then was able to keep them in check and to ensure that bargains were in the best interest of the society. As exemplified in the agreement between the State and De Beers (an international diamond conglomerate), the state with the huge diamond resource as an advantage was able to strike a favourable bargain of 50% share to ensure greater benefits from the exploitation of its diamonds (Samatar, 1999). The royalty of 5% on precious stones is paid to the governments as a form of tax on the diamonds extracted and government's equity share in the major mining companies provides one of the avenues for local ownership while securing equity for that of future generations. As evidenced above, Botswana had a lucrative revenue-raising mechanism in its 50-50 share with De Beers and also its disciplined leadership had a commitment to ensure that diamonds enure to the benefit of all using firm fiscal frameworks.

## 6. ANALYSIS

Mining activities have great impact on the people and the community. It could create employment opportunities for the youth in the community, introduce better roads and improved communication systems, bring about an increase in social vices such as prostitution and armed robbery. It could also lead to the destruction of livelihoods and the abrogation of certain sacred cultural practices.

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<sup>10</sup> Samatar, 1999; Acemoglu et al., 2002 and Hillbom, 2008 have all paid glorious tribute to how the Botswana governments used diamonds to develop very important sectors of their economy and to ensure the developmental transformation of the country.

Obviously, mining can either be a blessing or a curse to the community in which the mineral wealth is located. However as per the RBN's platinum and that of Botswana's diamonds, there is always the possibility of ensuring that it becomes a blessing. This is dependent mainly on the kind of leadership available. A leadership that is determined and ready to ensure that sustainability principles are inculcated in the extraction of the resource and the use of its rents especially enhancing benefit sharing for all (case in point is the 50:50 share of diamond rents by the government of Botswana and that of de beers). However the available institutions controlling these mineral rents also counts a lot in determining whether the resource will be a blessing or a curse (See Quansah, 2011). The RBH had a very strong and positive effect on the success story of the RBN by being able to chart a good developmental path for the RBN. A look at the policies outlined in Botswana's mineral policy also exemplifies the importance of institution in the sustainable use of resources. There was a focus on ensuring that the right to private property was upheld thus enabling the private enterprises with the needed technical and financial capabilities to join forces with the government to develop the diamond resources. Both case studies exhibit strong and good leadership operating in well governed institutions. This ensures proper planning and control of the use of the revenues obtained from minerals. Such rents can then be channeled into providing a sustainable form of living for communities and the nation as a whole.

As argued by Danielson and Lagos (2001), such sustainability should be agreed upon by all instead of being imposed. Moreover they admit that capacity building is a necessary requirement. As realized from the RBN case study, the RBH has a structured reporting system which allows the community to be informed on major decisions to be taken and also lets them discuss their needs. This in effect prioritizes the needs of the community in its decisions on the use of the resources. Thus, recognizing that the bottom line concerning mining is not sustainable due to the depleting nature of the mineral resources, and that rents should be used to cater for the needs of the local community- the leadership of the RBN has resorted to the creation of a master plan by 2035 which aims to make RBN self-sufficient national economy that is sustainable (RBH, Integrated Review, 2012). Through the process of heavy infrastructural development, investing in community asset and human capital, it aims to diversify its portfolio that can help sustain the equi-generational peculiar challenges such as poverty, high unemployment and HIV Aids that is akin to many poor communities in South Africa- (RBN has set up community schools and mobile clinics to improve service delivery in the community) (See the Integrated Review, 2012).

The model of RBN points to one obvious fact that in order to ensure sustainability within the mining sector we need to work out how best rents can optimally be distributed among the people in a way that it offsets the negative impacts on communities. At the national level, although the Botswana model does not have mineral royalty mechanism for equitable distribution and thus does not receive the 22% that RBN had initially obtained from Implats, the government through cautious investment in booming sectors such as manufacturing; public goods of democracy, rule of law; service delivery in education and health; increasing the value addition of diamonds through processing; and private sector development has been able to sustain and grow the economy. Outstandingly, the leadership of the Botswana government over the years has created a robust mineral policy framework based on mineral led development strategy and stringent fiscal discipline that has enabled trade and successive investment strategies to address issues of infrastructure and distribution of mineral rents (Lewin, 2010).

As with the RBN and Botswana, achieving sustainability in the mining sector required some hard decisions and foresight from policymakers. For example, the community has a great say in the use of resources and the extraction process. But, in order for this to happen there is the need to take proper and legal control of the resource. Like the RBN, the lands on which mineral resources were legally secured years before the resources were discovered despite the lack of legal recognition during the apartheid era. It thus cleared any controversy when it came to exercising their authority on how resources are extracted as well as the payment of royalties and compensation after

obtaining independence. Moreover, it is also very necessary that the state ensures that whatever agreed sharing ratio of the rents is always in the favour of its people and the key principles of trade and investment in macroeconomics discipline is strongly upheld. As exemplified by Botswana, the state had a stake in all the mining concessions granted to the multinational companies, and was thus able to enforce its policies and regulations on mining in the communities. As such the participation of the people in the legal process becomes necessary as well as investor friendly policy choices to secure mine investments.

And through a good fiscal regime, benefit sharing has been in the favour of the citizens thus commanding very high mineral rents for investment and development (For instance, Botswana's National Development Plan is in sync with its fiscal rules which have incorporated into their constitution- this makes any expenditure going beyond the planned budget unacceptable- IMF, 2012). Government nominal mineral royalty at gross market value per month which is paid for diamond is at 10% for diamond at market value, 5% for precious metals and 3% for all other metals coupled with dividend shares of 50:50 with De Beers. The legal requirement of a stipulated percentage of ownership in all mining companies or (the right to sell that interest) enables the government to be able to voice out their concerns and work together with the mining companies to seek suitable and acceptable solutions which is aimed at the development of the economy (Melaetsa, 2012).

The case studies as discussed cast light on the necessity of dialogue as crucial both at the community and national level. However as seen in both case studies, dialogue becomes beneficial to the community only when they have visionary, effective and selfless representatives at the dialogue table. Representatives that are ready to ensure that the community is greatly compensated for the negative environmental and social impacts brought about by externalities associated with mining. Undoubtedly, Ghana has made great strides in its mineral policy framework to guarantee security of investments and to an extent has addressed fiscal issues to enable its tax and mineral royalty regime contribute to national development. But, its current model has gaps pertinently- how do you reinvest mineral royalties for communities to greatly benefit not just at the national expense; and the legal mandate to hold traditional authorities accountable at the traditional community level. Crucially, the fiscal rules stringently observed, the mineral development strategy both in the cases of Botswana and RBN and the transparent and accountable traditional and government institutions enabled the tangible results of economic growth and development that have been observed. Inherently, the inclusive institutions of that robustly adhere to the defined developmental strategy always creates a 'win win' solution for all contested stakeholders in the mining economy. Some identified comparisons on these grounds are made between all the three case studies are shown in table 3. However, the 'success factor' for which Ghana can learn from these two case studies is the strategy of development infrastructure planned by transparent and accountable community leaders.

	GHANA	ROYAL BAFOKENG NATION	BOTSWANA
Revenues <ul style="list-style-type: none"> <li>Royalty rates</li> <li>Dividends</li> <li>Profit Shares</li> </ul>	Mineral Development Fund = 10% OASL = 10% Government = 80%	22% (This contribution has in recent times been transferred to profit share holdings in Implat)	5%  50%
Distribution and long-term investment: <ul style="list-style-type: none"> <li>To lower levels of government</li> <li>To local communities</li> <li>To traditional authorities</li> </ul>	80%  2.25%  1.8%		<ul style="list-style-type: none"> <li>Investment into the Pula Fund</li> </ul>
Key Institutions	<ul style="list-style-type: none"> <li>District Assembly</li> <li>Traditional Authority</li> <li>Office of the Administration of Stool Lands (OASL)</li> </ul>	<ul style="list-style-type: none"> <li>Traditional Authority</li> <li>Royal Bafokeng Holdings (RBH)</li> </ul>	<ul style="list-style-type: none"> <li>Government ministries</li> </ul>
Accountability mechanisms	<ul style="list-style-type: none"> <li>Auditor's general department</li> </ul>	<ul style="list-style-type: none"> <li>Annual General Meeting between the community and the RBH</li> <li>Reporting system of the RBH</li> </ul>	<ul style="list-style-type: none"> <li>Government fiscal framework. This framework guides expenditure and ensures that mineral revenues are allocated to only budgeted expenditure within the year.</li> </ul>

**Table 3: Major Comparisons between Ghana, Botswana and RBN**

## 7. CONCLUSIONS AND RECOMMENDATIONS

The key to ensuring that mineral rents and mining in general inure to the benefit of the entire populace and the mining community in particular is through a sound mineral development strategy backed by robust institutions that forwards the agenda of an inclusive leadership and governance. There should be a leadership that is willing to work for the interest of the people which is encapsulated in a 'clear cut' mineral development vision and strategy. Moreover the available institutional set up should support the work of such leadership. A careful analysis of both case studies exhibits great correlation between leadership, institutions and the optimal use of mineral resources for on the whole development. Botswana's disciplined and determined leadership enforced policies that ensured that through strict fiscal regimes, rents from mineral resources were used to provide better physical and social infrastructure such as roads, housing, electricity, clean drinking water, hospitals and schools for its populace. The RBN also had a traditional leadership that was focused on extracting as much positive benefits as possible from the mining of its platinum resources. Working through the RBH, it invested the rents wisely in many profitable investment portfolios. The aim was to put the RBN in a position to offer good standard of living for all of its

citizens, provide superior education, job opportunities and a thriving local economy for both its present and future generations by optimizing rents from their mineral resources. Both the RBN and Botswana leadership did not consider their personal enrichment or just an improvement in the livelihood of the present populace but rather planned for the benefit of future generations with the requisite accountability mechanisms.

Although, the mining law of Ghana has been circumspect in guaranteeing mineral investments what should the analysis of these two models mean for Ghana in the era of sustainable development? The idea of sustainability and preserving for current and future generations means that first and foremost there should be substantial enough mineral rents to make plans for investing in infrastructure for rural development. When it comes to the mechanism of distribution, there are two ways that government can analyze the situation and choose an optimal path that can redress issues of intra and intergenerational equity. The Botswana model, presupposes that government is the main receiver of mineral rents and as such does not need to redistribute but it is under obligation to provide development to its entire people. Thus, the model suggests a sizable ownership of a share in multi-national companies to garner mineral rents and royalties so that government can use this to provide general services such as health, education, environmental protection and infrastructural development. Hence, government has a greater say in what happens in mining companies to facilitate local ownership and provision.

The second model- the RBN which although unique has been able to garner and secure a royalty percentage (which it currently receives as shares in Implats) in PGMs are used for development through a consultative mechanism which provides an avenue for all indigenes to define their interests and needs. Since the latter of the tribal model is akin to the structure of Ghana's rural and customary systems, opting for the RBN model would be the most ideal. But that would also mean totally overhauling the legal process to restructure the model of distribution to enable mining communities to receive more rents and that would be an impossible task since it also would have to follow the tense process of constitutional review and before a 'repeal' could be sanctioned. Instead of taking that stance, the researchers purport that there is a need rather to revise the percentage of what should accrue to mining communities to reflect the negative externalities that they sometimes face and a local development investment strategy/ framework be set up for mineral rent usage that is regulated by law. By so doing stronger accountability mechanisms can be put in place as a check and balance to the rule of traditional authorities in mining areas. Finally, we recommend that 'the Minerals and Mining Act- Act, 703' should inculcate such mechanisms as social license and consultative process as a legal requirement to gaining entry by mining companies while encouraging a stronger voice for the community in determining how mineral royalty would be used by traditional authorities.



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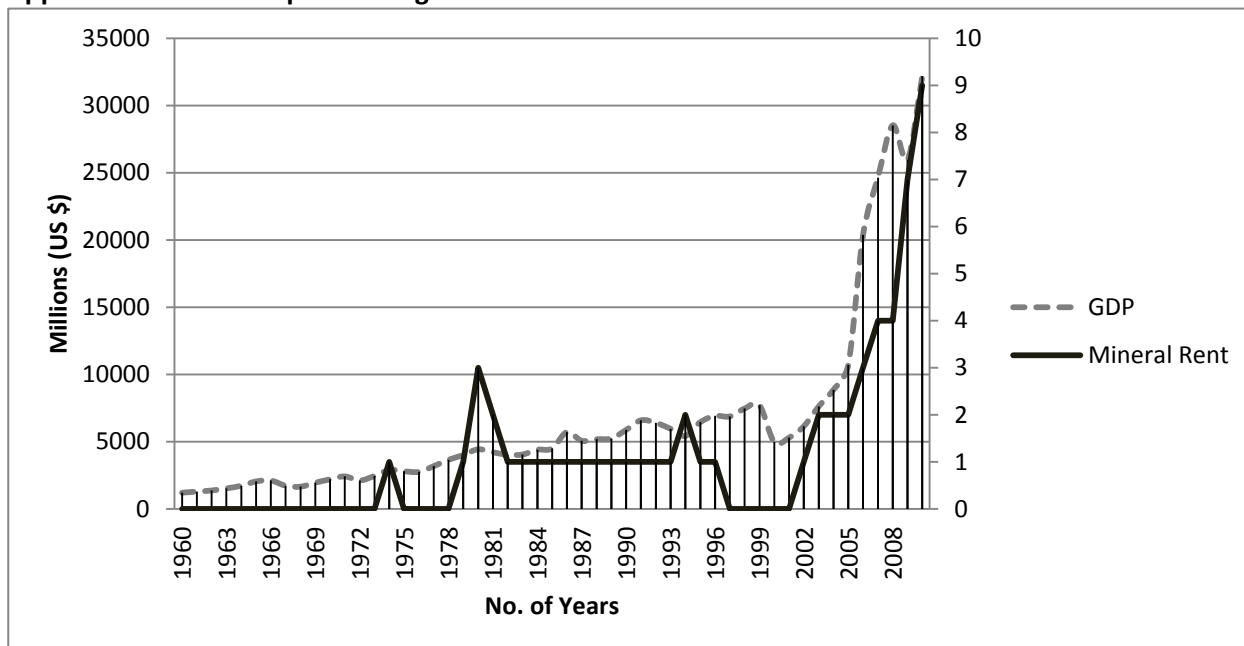
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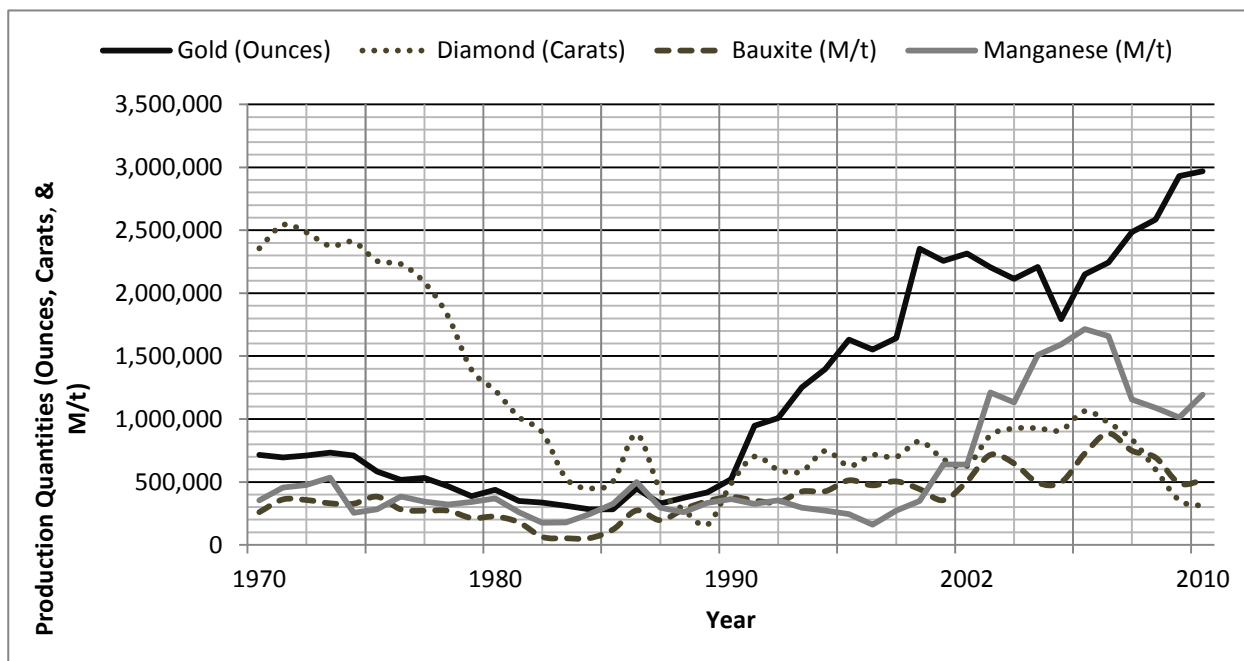
## APPENDICES

### Appendix 1: A Line Graph Showing a Positive Correlation between GDP and Mineral Rent in Ghana



Source: World Bank (2012)

### Appendix 2: Production Quantities of Minerals in Ghana



Source: Minerals Commission (2010)

The line graph below indicates the production proportions of the four main minerals in the country. As can be seen from the line graph in figure 2; production quantities have risen over time with all the four main commercial mineral commodities with the second graph indicating a positive correlation between mineral rents and Ghana's Gross Domestic Product. The rise of mineral production which has influences over percentage of mineral rents allotted to the government as can be witnessed

from the second graph shows also a rise in the trend of GDP which is almost parallel to increase of mineral rents.

**Appendix 3: Dollar Rates Conversion for the Years (2000- 2012)**

Year	Dollar Conversion	
	Bidding	Asking*
2000	5319.511	5526.609
2001	7010.844	7344.141
2002	7712.723	8223.335
2003	8373.722	8644.416
2004	8818.089	8915.193
2005	8965.913	9074.095
2006	8866.994	9445.244
2007	0.92975	0.96515
2008	1.0652	1.09936
2009	1.41389	1.44955
2010	1.41664	1.44903

Source: Oando (2013)

\*The researchers used 'the asking price' to convert from Ghana cedis to US dollars for the year 2000 to 2012

#### Appendix 4: Mining Contributions: Mineral Royalties and Total Royalties (2000- 2010)

Year	Mineral royalties ('000)	Total royalties ('000)	% mining contribution
2000	118,736,935	120,402,330	98.6%
2001	127,358,386	128,658,185	99.0%
2002	153,452,471	154,282,756	99.5%
2003	200,867,945	202,377,432	99.3%
2004	215,743,706	219,754,239	98.2%
2005	235,951,903	245,129,408	96.3%
2006	316,254,789	357,167,242	88.5%
2007*	40,882	41,844	97.7%
2008*	59,005	62,915	93.8%
2009*	90,416	96,653	93.5%
2010*	144,697	150,539	96%

Source: Minerals Commission (2010) Statistical overview of Ghana's Mining Industry (1993-2003); Internal Revenue Service (2004-2010)

\* Contributions for 2007 & 2010 are in GH¢. All others are in cedis, (¢10,000: GH¢1)

#### Conversion from Ghana cedis to United States dollars

Year	Mineral royalties ('000 usd)	Total royalties ('000 usd)	% mining contribution
2000	21,485	21,786	98.60%
2001	17,341	17,518	99.00%
2002	18,661	18,762	99.50%
2003	23,237	23,411	99.30%
2004	24,200	24,649	98.20%
2005	26,003	27,014	96.30%
2006	33,483	37,815	88.50%
2007*	42,358	43,355	97.70%
2008*	53,672	57,229	93.80%
2009*	62,375	66,678	93.50%
2010*	99,858	103,889	96%

Data source: Minerals Commission, Statistical overview of Ghana's Mining Industry (1993-2003)

\* Contributions for 2007 & 2010 are in GH¢

### Appendix 5: Application of the Royalty Formula for Traditional Mining Communities to the Total Mineral Royalty

Year	Mineral royalties ('000 US\$)	Mineral royalties (stools' upkeep [2.25%]) ('000 US\$)	Mineral royalties (traditional authority [1.8%]) ('000 US\$)
2000	21,485	483.4125	386.73
2001	17,341	390.1725	312.138
2002	18,661	419.8725	335.898
2003	23,237	522.8325	418.266
2004	24,200	544.5	435.6
2005	26,003	585.0675	468.054
2006	33,483	753.3675	602.694
2007*	42,358	953.055	762.444
2008*	53,672	1207.62	966.096
2009*	62,375	1403.4375	1122.75
2010*	99,858	2246.805	1797.444
Average	38,425	864.5584091	691.6467273

Data source: Minerals Commission, Statistical overview of Ghana's Mining Industry (1993-2003)

\* Contributions for 2007 & 2010 are in GH¢