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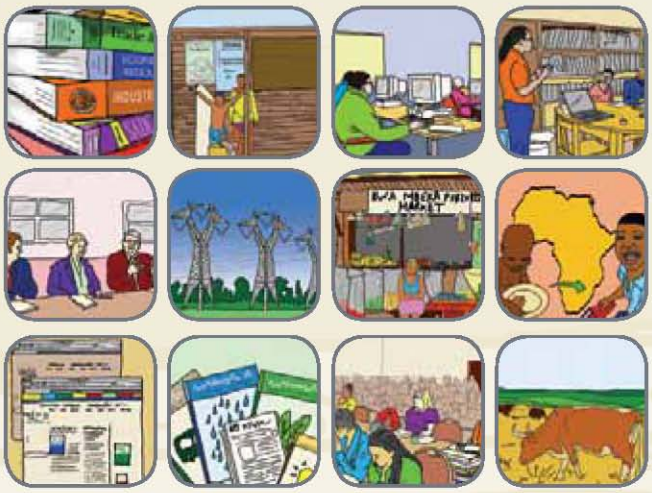

Trade and Pro-Poor Growth

Thematic Working Group

Small-Scale Mining and Its Impact on Poverty in Namibia: A Case Study of Miners in the Erongo Region

Jacob M. Nyambe and Taimi Amunkete

December 2009

indigenous **growth**

SMALL-SCALE MINING AND ITS IMPACT ON POVERTY IN NAMIBIA: A CASE STUDY OF MINERS IN THE ERONGO REGION

by

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Executive summary

This project was designed to explore small-scale mining activities in Erongo Region of Namibia. The main objective was to explore possible contributions of small-scale mining to poverty alleviation in Namibia. The study seeks to achieve three specific objectives, namely activities of small-scale mining, the role of small-scale mining with regard to poverty alleviation, and suggesting policy recommendation that may help to improve small-scale mining activities. With the use of two questionnaires that were drafted, key stakeholders and small-scale miners were interviewed face to face.

It was found that small-scale mining contributes to poverty alleviation through employment creation, income earning opportunities, and sustaining local businesses by means of purchases done at local and nearby towns. However, the actual figures about how much this sub-sector contribute in gross domestic product terms to the economy of Erongo Region is not available. This remains an area to be explored but constrained by lack of data both at the regional and also at the national level. Small towns such as Karibib and Omaruru are key beneficiary towns and are located in the heart of small-scale mining activities. The incomes of miners are mostly spent on four key aspects, namely food, transport, education and medication. Most of the miners have attained low education level and this has an influence on how miners plan, operate their mining activities and how they spend their income. With regard to exports of stones, there are concerns of restrictions on the exportation of semi-precious stones unless they are taken as souvenirs by tourists. If this restriction can be lifted this may help to open up to competition and investors are likely to consider taking up the opportunity to invest. Amending the mining Act to make it more investor friendly may also stimulate activities of small-miners and help to improve their earnings.

It also came to light that miners in Erongo region face other challenges such as lack of access to finance, lack of appropriate tools and machinery, conflicts over rights to mine with land owners, lack of formal or established market for semi-precious stones and lack of clear price signal from an existing informal market for semi-precious stones. With regard to policy issues, miners are not very much enlightened about the mining act. However, the act also does not stipulate clearly which provisions apply to small-scale mining and the role of the government in protecting small-scale miners versus the land owner. The mining Act is seen by miners as being pro-farm owners on whose land mining takes place. Many of the miners live in abject poverty with very little or no education and a very small likelihood that their situation will improve anytime soon. Problems such as diseases due to lack of sanitation facilities, lack of safe drinking water, fraud and theft still exist among small scale mining communities and all of these impacts negatively on the lives and activities of small-scale miners.

With an expectation of revealing details of small-scale mining in Namibia, the study suffered from inadequate literature available in the public domain on small-scale mining activities in Namibia and elsewhere. Against this weakness, researchers around the globe but particularly those in developing countries are encouraged to further their research ideas in the areas of small-scale mining areas to assist with shaping policies in this regard.

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List of abbreviations

BIDPA	Botswana Institute for Development Policy Analysis
ERC	Erongo Regional Council
ERSMA	Erongo Regional Small-scale Miners Association
EU	European Union
ILO	International Labour Organization
LaRRI	Labour Resource and Research Institute
MME	Ministry of Mines and Energy
MMSD	Mining, Minerals and Sustainable Development
NDP	National Development Plan
NIMA	Neuschwaben Independent Miners Association
NEPRU	The Namibian Economic Policy Research Unit
UN	United Nations
SADC	Southern African Development Community
SADRN	Southern African Development Research Network

1. INTRODUCTION

1.1. The basis of the study

Small-scale mining in Namibia is not well understood. There is very little if any research done on the activities of small-scale miners in Namibia. For almost 60 years of existence of small-scale mining activities in Namibia, this sub-sector has continued to employ workers to unearth semi-precious stones. However, it is not known how much small-scale mining operations contribute to poverty reduction. There is lack of data and research reports available to the public on the activities of small-scale mining and that area makes it difficult to understand this sub-sector. In order to understand how small-scale mining activities are undertaken in Namibia and also to contribute poverty alleviation, research is needed to guide development in the sub-sector. It is this very reason that implores this investigation.

The study is based on the following objectives: to explore economic activities of small-scale mining in Erongo region; to determine how small-scale mining impacts on poverty in Erongo, and to shed light on relevant policy recommendations for this sub-sector. The questions upon which the objectives rely are: What is the modus operandi of small-scale mining activities? How does small-scale mining impact on poverty in the Erongo region? and What lessons can be drawn from operations of small-scale mining activities?

1.2. Research Methodology

A sample of 60 respondents was drawn randomly from a population estimated to be 2000 small-scale miners. Miners are based at locations across Erongo region. He sample was drawn from miners that belong to cooperatives. Mining cooperatives were identified prior to conducting the actual filed survey. These mining cooperatives are in the following geographical location: Omatjete, Uis, Okombahe, Omaruru, Tsubusis, Karibib, Otjimbingwe, Usakos, Usakos-Henties Bay T-junction and Walvis Bay. Of these 10 locations, four locations were randomly selected to be part of the sample, namely, Otjimbingwe, Omaruru, Okombahe and Usakos-Henties Bay T-junction.

Regarding data collection, a structured questionnaire was drafted to capture responses during the survey of small-scale mining operators and their workers. Additionally, stakeholders in the mining sector such as the Ministry of Mines, Erongo Regional Council and the European Delegation Office in Windhoek were also visited to get views on small-scale mining in Namibia. A discussion guide was used to interview stakeholders who are based at the MME and at Erongo Regional Council and Karibib Town Council. The analysis takes two forms, namely literature review and data from the field survey. The Statistical Package for Social Sciences was used for analysis of field survey data.

1.3. Justification

The imperatives of studying small-scale mining in Namibia in the context of the Botswana Institute for Development Policy Analysis (BIDPA) and the Southern African Development Research Network (SADRIN) Pro-Poor Growth theme are important in that it would provide the latest and substantial evidence on activities of small-scale mining and how this sub-sector impacts on poverty alleviation. As stated earlier on, very little work has been done with regard to studying activities of small-scale mining in Namibia particularly in relation to poverty alleviation. From a policy perspective, the findings of this study would contribute to shaping policy on small-scale mining in the Southern African Development Community (SADC). For Namibia in particular, the findings are a bonus in that they are evidence based policy suggestions. The study also serves as a capacity building exercise for the Namibian Economic Policy Research Unit (NEPRU) researchers involved. Furthermore, NEPRU which undertook the study has strengthened its research arsenal to participate in future collaborative or related research calls.

2. THE STUDY AREA

2.1. Background on Namibia

Namibia is a lower middle income country with a high unemployment rate that stands at 37%. The majority of the unemployed are the youth. The population is approximately 2 million. Slightly above 60% of the population still reside in rural areas. A very small fraction of the population commands the economic basket of the country and this came to be the case due to historical colonial policies that favoured a certain sect of the population. The country is generally arid. Among other primary sectors, mining has been the major key contributor to the country's gross domestic product.

Since the struggle for political independence ended, another war for economic independence was started with the introduction of the National Development Plans (NDPs) 1, 2 and recently 3. All the three development plans are benchmarked on the ideals of Vision 2030. Vision 2030 is a blue print visionary policy document that seeks to ensure that Namibia becomes a developed country by the year 2030. All NDPs emphasise the significance of mining as an important sector to bettering the lives of the poor in Namibia. Namibia is the world's fourth largest producer of uranium but it also produces among others, diamond, zinc, copper and gold (National Planning Commission, 2008). Diamonds have remained the major foreign income earner to the economy. Following is a brief overview of Erongo region where the research has been undertaken.

2.2. Erongo region

Erongo region is one of the thirteen regions of Namibia. Erongo is the second economically advanced region following Khomas region. In 2006, Erongo region registered a population of 99

013 people which constitutes 5.4 percent of the total Namibian population. There are about 27 713 household which constitutes 7.5 percent of all households in the country. The total population is made up of 67.5 percent males and 32.5 percent females. Average household size is 3.6. The main source of household income in this region is wages and salaries, which constitutes 75.3 percent. The total literacy rate is at 95 percent. Per capita consumption is N$14 743. The Gini-coefficient[1] for this region is 0.57 and shows high income inequalities in that region.

Due to activities of small-scale mining that are widely spread across regions of Namibia, the Ministry of Mines and Energy (MME) came forward with funding to the tune of N$ 500 000 per region for all 13 regions to assist activities of small-scale miners. In the same vein, the European Union Delegation to Namibia availed N$8.3 million to support small miners in the Erongo Region and their cooperatives with capacity building in the form of business management courses that are tailor-made to their entrepreneurial engagements. So far only small-scale miners in the Erongo Region are formalised as opposed to most informal ones in other regions of the country. The effort to formalise most of the miners is going on and is pursued by the MME together with Regional and Town Councils. However, this process is slow.

Small-scale mining in Namibia operates in the ambiance of well-established large-scale mines. At the back of the thriving large-scale mining in Namibia, small-scale miners are finding it difficult to operate efficiently due to high input costs, lack of appropriate tools and uncompetitive prices for their products. The domestic market remains a niche but lack of formalisation and organisation of small-scale mining operations has kept this sub-sector on a low level of the growth pyramid.

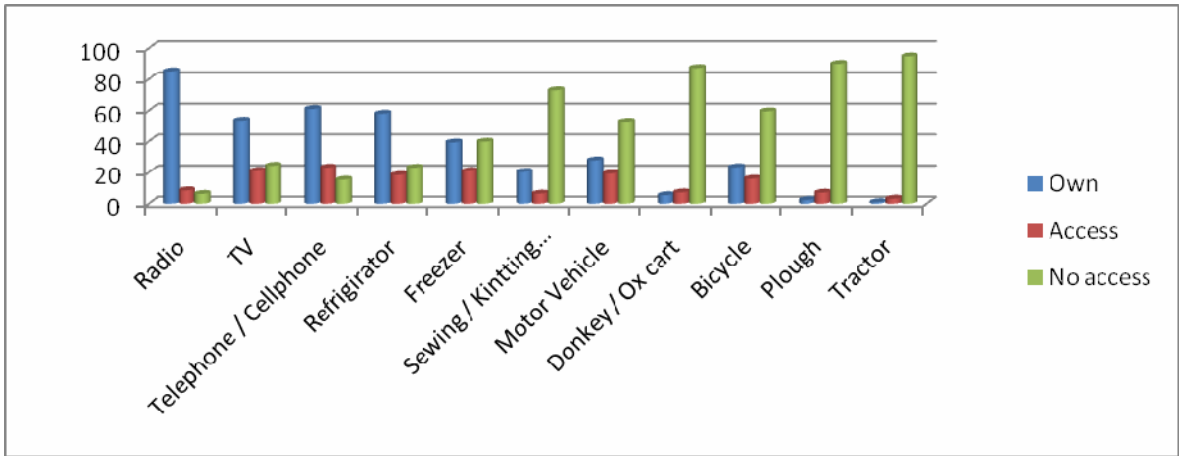
Underdevelopment of small-scale mining continues to deny many jobseekers employment opportunities they hope to find. Most of the mining activities in the sub-sector involve extraction of gemstones, crystal specimen, tantalite and cassiterite (Ellmies et al, 2006). Particularly, precious stones that are extracted include fluorite, dioptase, topaz, aquamarine, quartz, amethyst, tourmaline, and garnet. Unlike most of the countries in the world in which small-scale mining activities include extraction of gold, in Namibia it is not the case. There is no gold extraction operations carried at the sub-sector level. Gold mining is only done at large-scale mines. Some of the small-scale miners have valid Non-Exclusive Prospecting licenses while others operate illegally (Krappmann, 2006).

According to Krappmann (2006) there are four groups of small-scale miners that exist in Namibia, namely; the mineral specimens and gemstones which constitutes 80%, ornamental stones constitute 10%, tin – tantalum constitute ±5% and building materials also ±5%. These groups could be engaged in mechanised operations or operations with small tools that are hand operated. There are also advanced small-scale mining operators who have more capital and could employ up to 50 workers.

[1] "It is a measure of the income distribution in a country. It compares the actual distribution to a totally equal distribution. The coefficient ranges from 0 to 1. An equal distribution of income gives a coefficient close to 0. The more unequal the distribution is, the closer the coefficient is to 1" Central Bureau of Statistics (2006)

Marketing of precious stones takes place at certain places such as the Usakos-Henties Bay T-junction. Tourists from all over the world who pass at selling points remain the clients for the sellers of precious stones. The traditional buyers of the stones remain those from South Africa. They constitute a bulk of the buyers for the items displayed at the respective sites. Prices are not very consistent and as such one can say there are weaknesses in terms of how prices are determined but also that due to desperation, sellers are at times taken for a ride by buyers.

On socio-economic front, the average household size for Erongo is 3.6. The main source of income is wages and salaries (National Planning Commission, 2006). Regarding ownership of assets in Erongo, Figure 1 provides the picture.



Source: National Planning Commission (2006)

Figure 1: Ownership of assets

Many people in Erongo own radios, followed by cell-phones and refrigerators. Erongo being an arid region with very little annual rainfall shows as in Figure 1 that people have no access to tractors and ploughing equipments. The majority have no access to sewing machines. Sewing is can also help people to generate income for their livelihoods. Some of the reasons why people have no access and or don't own some of the assets could be the fact that Erongo is dominated by fisheries and mining. It is not surprising as mentioned already that the main source of income is wages and salaries. It is because many people get employed in the fishing sector and mining as well.

Table 1: Comparing Erongo with Khomas and Ohangwena on literacy, income inequality and population size

Region	Literacy[2] (%)	Per capita Income (N$)	Population size	Gini Coefficient
Erongo	95.0	14948	99013	0.57
Khomas	95.7	22860	258504	0.57
Ohangwena	76.4	3551	236748	0.45

Source: Computed with data from the National Planning Commission (2006) and National Planning Commission (2008)

Erongo region is the second economically advanced region, following the Khomas region. Both regions have a Gini Coefficient of 0.57 which is very high but slightly lower than the overall Gini Coefficient of the country. However, in comparison to the Ohangwena region, which is one of the least advanced regions in terms of economic activity, the Gini Coefficient of the Erongo is much higher. This proves that despite the Erongo region being better off than the Ohangwena, income disparities in the Erongo are relatively higher. The Khomas region, which is the region in which the capital of the country is located, has a relatively high population of 258 504. The Erongo region has a much smaller population of 99 013. The Ohangwena region, which is much smaller in size compared to Erongo however, has a much larger population size of 236 748.

For the population group of age 15 and above, both the Erongo and Khomas region has a literacy rate of 95 percent or more. Literacy rate for the Erongo region is lower at 76.4 percent. Compared to the Khomas region, income per capita is lower; however, the Erongo has a much higher income per capita than the Ohangwena region. Reasons for this could be that the fact that the Ohangwena region is rural and the main source of income is communal farming unlike the other two regions.

[2] Literacy rate for the group of population 15 and above.

3. LITERATURE REVIEW: Cross-cutting issues in small-scale mining activities

3.1. Main issues

The degree and level to which small-scale mining is carried out in different countries differ in terms of the number of workers per mine, the tools and machinery used, the amount of capital invested, and the revenues collected. For this reason, there has not been one specific definition that captures all intricacies of small-scale mining. In the Mining, Minerals and Sustainable Development (MMSD) final report titled 'Small-scale mining and sustainable development within the SADC region' which was compiled by Dreschler (2001) the definition of small-scale mining varies by geographical configuration. Other organizations such as the United Nations, International Labour Organization and the Intermediate Technology Development Group define small-scale mining differently.

According to Dreschler (2001) small-scale mining "refers to operations of individuals organized in groups (four to eight individuals) or co-operatives of ten or more individuals, which are entirely financed by exiting resources at a certain limit, and carried out on a full-time basis using simple traditional techniques and tools of low mechanization levels." Many other definitions of small scale mining, though different in a sense from the African perspective, all take it to account the issue of low level mechanisation and reliance on manual labour rather than on machinery. The United Nations (1972) defines small-scale mining as, "any single unit mining operation having an annual production of unprocessed materials of 50 000 tonnes, or less as measured at the entrance of the mine" (Dreschler, 2001).

Krappmann (2006) classifies small scale mining into three categories in accordance to size, namely micro-scale miners[3], mechanized small-scale miners[4] and the most advanced category of small-scale miners[5] represented by mining enterprises.

3.2. Legislation and unbecoming practices

The MMSD final report on small-scale mining in the SADC region concluded that, "mining laws in Southern Africa are made mostly for large scale mining and are not supportive and appropriate for

[3] These are individuals or small groups of artisans who use mostly primitive and labour intensive methods of excavation.

[4] This category uses compressors or other mining tools often applying blasting and of which units consist of groups of up to 6 individuals.

[5] This category consists of those operators with more capital and they can have up to 50 employees.

small-scale mining needs". Regulations make it difficult for most small-scale miners to operate as in many countries, mining laws have not been set to take into account the needs of small-scale miners and the process of regulation could be expensive and cumbersome especially to miners at 'micro-level'. This has given rise to illegal mining activities in many countries. Five years ago, out of 2000 small-scale miners in Namibia, 80% of these activities were carried out illegally. The situation has since changed and over 95% of small-scale miners are now registered.

3.3. Health and safety

Conditions in small scale mining are not the most favourable in many countries. Since it is also informal, there are no specific regulations regarding health and safety within small scale mines unlike with large scale mine. A number of deaths have been recorded in many SADC countries as a result of small scale mining; however, more deaths have been recorded in large scale mining in total. During the eleven year period between the years of 1984 and 1995, a total of three hundred and twelve large scale miners had been killed in comparison to nine small scale miners in Zambia (Dreschler, 2001).

In larger mines, though still categorized under small scale mining, the absence of machinery means work has to be done manually, thus resulting in fatalities. Also, many mines are not carefully planned due to the fact that they are illegal and therefore, structures are made in such a way that they are easily concealed. In many countries across the world, including Namibia, measures for prevention of mining accidents and other fatalities either do not exist or are not properly enforced.

3.4. Child labour

According to the International Labour Organization (ILO) report, children between the ages of 6 – 17 both boys and girls often get involved in small-scale mining doing everything from mining, processing to selling of products. Even in cases where small-scale mining is conducted legally, the use of child labour is not legal. The majority of these children do not attend school and have very little or no education at all. Many do not receive wages for the work but they continue to engage in small-scale mining activities for reasons such as, to support family, make a living, take care of school and personal expenses or simply because it was the only work available. These children are exposed to dangerous condition and "are not only exposed to immediate risk but they are also jeopardizing their long term development – both physical and socio economic" (ILO, 999).

According to the Labour Resource and Research Institute (LaRRI) (2004) in a report titled, 'The informal sector in Namibia' prepared for the National Union of Namibian Worker (NUNW), "there is almost no child labour in the small to medium enterprise (SME) sector" in Namibia, and small-scale mining being a component of SME, it therefore concludes that there is also almost no child labour in small-scale mining in Namibia.

3.5. Challenges faced by small-scale mining

3.5.1. Access to finance and other operational concerns

In its report of 1999, the ILO reported that a questionnaire which was distributed to different government employers' organizations and mining unions in Africa, Asia and Latin America, 15 possible issues affecting small-scale miners were listed whereby respondents chose 'obtaining finance' as the number one issue affecting them. Environment, safety, and technical assistance were also at the top of the list of issues that were considered to affect small scale miners the most and other issues such as; obtaining equipment, need for training, obtaining permits and occupational health also received a considerable amount of votes. The rest of the issues listed, namely; transport, tax regime, job security, child labour, working conditions and selling arrangements altogether accounted for only 15 percent of the votes.

In many countries, small scale miners are unable to secure loans from banks and other financial institutions for their starting capital and this is especially the case for female miners and for miners who operate without licenses. This is also due to lack of collateral and the possible inability and unwillingness of the miners to pay back their loans.

3.5.2. Equipment and machinery

One of the reasons why small scale miners are classified as small-scale miners is because of the kind of equipment and machinery they use. In many African countries, small-scale miners use traditional techniques and low level equipment in excavation or digging while as in South America, miners use rudimentary tools, manual devices or simple portable machines (Dreschler, 2001). These tools are often not sufficient to carry out their activities and thus, they often do not perform to their maximum capabilities. This lack of equipment is worsened by the fact that miners do not have starting capital in order to acquire the tools they require. More so, miners have no access to credit from formal financial institutions for them to finance their operational requirements.

An excursion report by Ellmies, Hahn and Mufenda (2005) titled 'Excursion to Small-scale Mining Operations in Namibia', lists the challenges faced by small-scale miners at Farm Neuschwaben, a small-scale mining community in the Erongo Regions, as follows:

- Lack of adequate mining equipment
- Difficult and unsafe excavation conditions
- The need for capital during periods with no tourmaline
- Absence of a buyers scheme organised by government
- Poor quality drinking water
- Lack of toilets

(Ellmies, Hahn & Mufenda, 2005)

3.6. Benefits and weaknesses of small-scale mining

3.6.1. Employment creation and poverty reduction

According to the ILO, small-scale mining to some may be "dirty, dangerous, disruptive and should be discouraged. To others it is profitable, productive, or simply the only way out of poverty". This is true for many if not most small-scale miners for whom small-scale mining provides the much needed income used in many households mainly in Africa, Asia and South America and to a certain extend improves the living standards and livelihoods of these people. According to Hilson (2006) in his report titled 'Small-scale Mining, Rural Subsistence and Poverty in West Africa', by 2006 an estimation of about 13 million people worldwide were involved in small-scale mining activities and that another 80-100 million people were depending on it for their survival. In many African countries, employment due to small-scale mining in both legal and illegal mines ranged from1000 in Burundi up to between 50 000-350 000 in Zimbabwe in 1999. In Namibia, a total of 2000 people by the year 2006 were involved in small-scale mining, some of them on a part-time basis as they were employed elsewhere and engaged in small-scale mining only for miscellaneous income purposes (Krappman, 2006).

3.6.2. Local and sustainable development

In many small-scale mining communities in some Southern African countries such as, Malawi, Mozambique, Tanzania and South Africa, infrastructure development has taken place in and around the areas where miners have chosen to settle in order to bring basic services to the people. In Malawi, facilities such as, schools, health clinics, piped water have been built for the miners, as well as local villagers. In Tanzan0ia, non-governmental organizations have taken initiatives to "promote projects of 'work for food' and maintain some of the tertiary and rural roads" in certain provinces in order to make access to the mining sites easier as roads are often destroyed during rainy season. However, many other services such as health and education are still not fully accessible by small-scale miners in this country (Dreschler, 2001). The European Commission in Namibia has an ongoing program to support small scale miners in certain regions of the country titled 'The Small Scale Miners Project' and according to its action plan, assists miners in terms of, project initiation and setup – registration of business entities, awareness campaigns, training (technical training on the production of minerals, HIV/AIDS training, business management, legal training, health and safety, basic jewellery, environmental awareness), training for managing small-scale miners' association, procurement of equipment and materials, design, set up and maintenance of market structures and other aspects.

3.7. Gender issues in small-scale mining

The ILO (1999) in its report for discussion at the tripartite meeting on Social and Labour Issues in SSM of 1999 reported that "of the world's 11.5 to 13 million small-scale mine workers about 3.4 to 4 million could be women, many of them working part time. A further 1.5 – 2 million women could

be involved indirectly." These figures can be expected to have increased a lot given the worldwide increase in the involvement of women in small-scale mining activities and the amount of time lapsed between then and now. According to the report, there were large variations among different countries in the proportion of women in SSM, with countries such as Zimbabwe having a proportion of 50% of total SSM labour force consisting of women, 40% in Tanzania, 30% in India and just about 5 percent in Malaysia." Several African countries were recorded to have a proportion of up to 60% or more.

In Southern Africa, Zimbabwe being a classical example of a country with a high representation of women in small-scale mining, Dreschler (2001) further explains that within this sector, women are involved in the more informal work of SSM such as panning.

However, despite the increased representation of women in SSM, and apart from the challenges faced by all small-scale miners, women still face some challenges unique to them as women. These are listed by the Dreschler (2001) as:

- Lack of technical management skills
- Lack of access to credit facilities
- Bias and stigmatization
- Lack of exposure to appropriate technology
- Lack of exposure to market

3.8. Environmental concerns

In some small-scale mining activities, not much waste is generated. For example, in Malawi where products such as gemstones, dambo sand, river sand, clays, coal, ceramic clays, terrazzo, stone aggregate, ornamental stones and limestone are mined, the most common waste produced here is top sand which is disposed off simply around the mining area. However, in many other countries, small-scale mining has a considerable impact on the environment, for example the use of mercury in gold mining. Although in Namibia, gold mining is not conducted at small scale level, unlike in many countries; rivers in Namibia may still be contaminated with mercury from small scale gold mines in neighbouring countries such as, Zimbabwe, Zambia, Malawi and Mozambique (Dreschler, 2001). Ellmies et al (2005) outline the adverse environmental impacts of various small scale mines around the country to be; open holes, audits and mining pits, trenches, steep walls of the pits, waste rock disposal in the mining areas. Mining settlements also cause environmental degradation in the form of, "destruction of the vegetation due to collection of firewood, missing toilets and unorganized disposal of waste"

3.9. Semi-precious stones mined by small-scale miners

Gemstones and other products mined in many small-scale mines across the world and also in Namibia include:

agates	amethyst
aquamarine	basic rocks
bauxite	beach sand
beryl	chromite
clays	corondum
emeralds	flourite
gamat	garnet
glass or silica sand	gold
granite	limestone
kaolinitic clays	mica
opal	ornamental stones
phosphates	quartz
rear earth	rosequartz
ruby	sapphire
strontianite	syenite
tantalite	terazzo
titanium minerals	topaz
tourmaline	tin
uranium	vermuculate

dreschler (2001) and ellmies et al (2006)

3.10. Income and market for small-scale mining products

According to Krappmann (2006) income from small-scale mining in Namibia is meagre in most cases with average monthly production per miner being about 10kg of cassiterite or 1kg of tantaline concentrate selling for approximately N$5 to N$15 on farm Neuschwaben. He further explains that “contrary to regular earnings from the production of metal concentrates, the mining of gemstones and crystal specimen lures small-scale miners with potentially much higher earning. However, due to the nature of mineralization, mining of these

commodities often constitutes a gamble and cannot provide stable income." According to Galfi, miners at Neuschwaben, Uibas-Oas and Kleine Spitzkoppe earn about N$250, N$500 and N$200 respectively and miners at Neuschwaben may on the sale of a single packet of tourmaline earn up to N$500 000.

In some Southern African countries such as Malawi, some of their minerals are exported abroad to neighbouring countries and others, i.e. corundum is exported to Europe, USA and Asia (Dreschler, 2001). Many small scale-miners in Namibia have a very small-market and most of them sell their products to tourists (Ellmies et al, 2005).

Some of the main buyers of the small-scale miners in the Erongo region are:

- H. Mahlzahn – Omaruru
- Von Bach – Swakopmund
- MacDonal – Usakos
- Swakopmund jewellers
- International buyers – those having direct links with the miners (e.g. Switzerland, Germany) buyers comes once a year to areas such as Brandberg West

3.11. Contribution of SSM to GDP elsewhere

Table 2: Percentage contributions of SSM to GDP in selected countries in Southern Africa in 2001

Malawi	Mozambique	Tanzania	South Africa	Zambia	Zimbabwe
0.9	2.0	2.8	8.0	12.1	8.0

Source: Dreschler (2001)

4. RESULTS FROM THE FIELD SURVEY AND ANALYSIS

4.1. Socio-economic features of miners

4.1.1. Gender

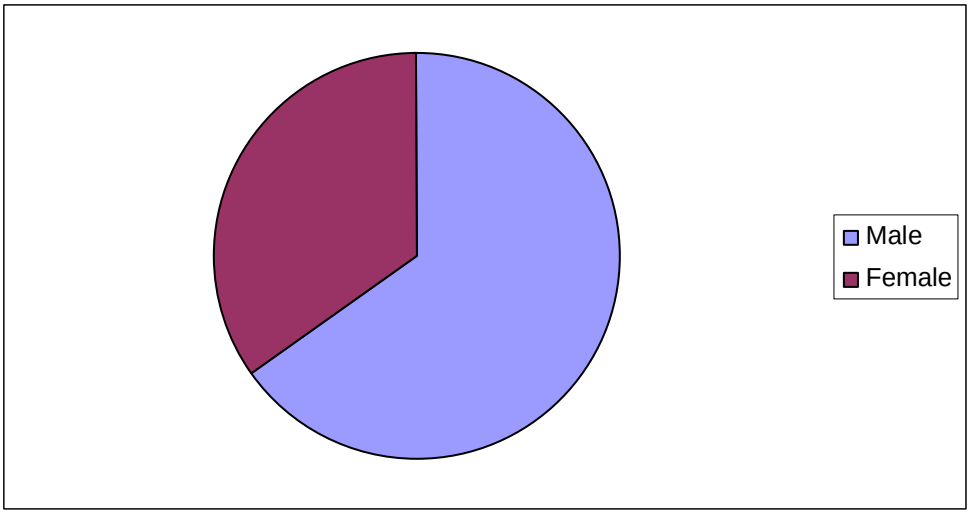


Figure 1: Gender of respondents

In this project, a total of 60 respondents were interviewed. Among the respondents, 35 percent were female, while 65 percent were males. This shows that women are less engaged in small-scale mining. For this type of activity one has to use manual labour and more energy is required to hammer rocks in search of stones and this could be deterring many women from participating.

4.1.2. Age

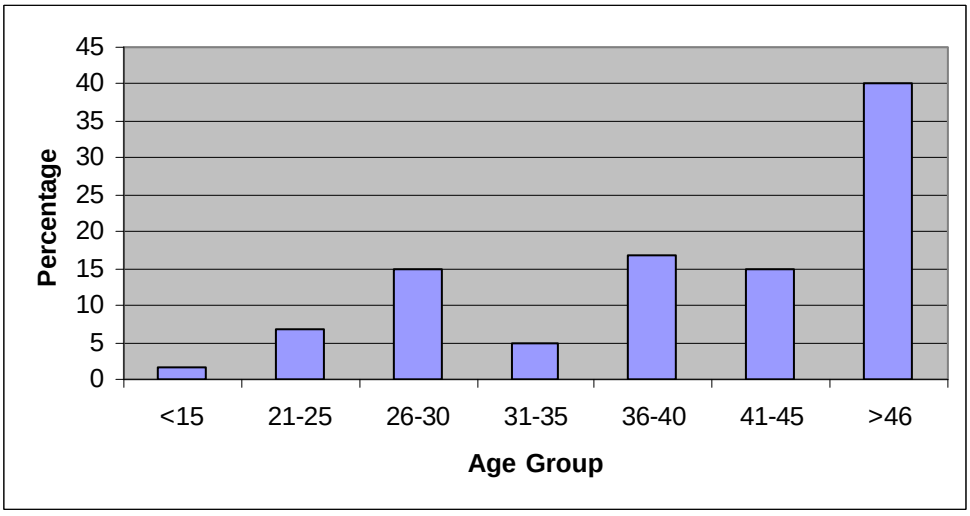


Figure 2: Age of respondents

In Figure 2, 40 percent of the miners are older than 46 years of age. Those between 36-40 years constitute about 17 percent of miners. The lowest is 1.7% which is of miners below the age of 15 years. In other words there are some under-age miners in Erongo but their percentage is insignificant although it raises concerns due to the UN and ILO's legal instruments that disallow child labour practices. Only 15 percent of the respondents are aged between 26 to 30 years. It shows that the youth are less involved in small-scale miners compared to older ones. Another 15 percent of the miners in this study are aged between 41 to 45 years old.

4.1.3. Education

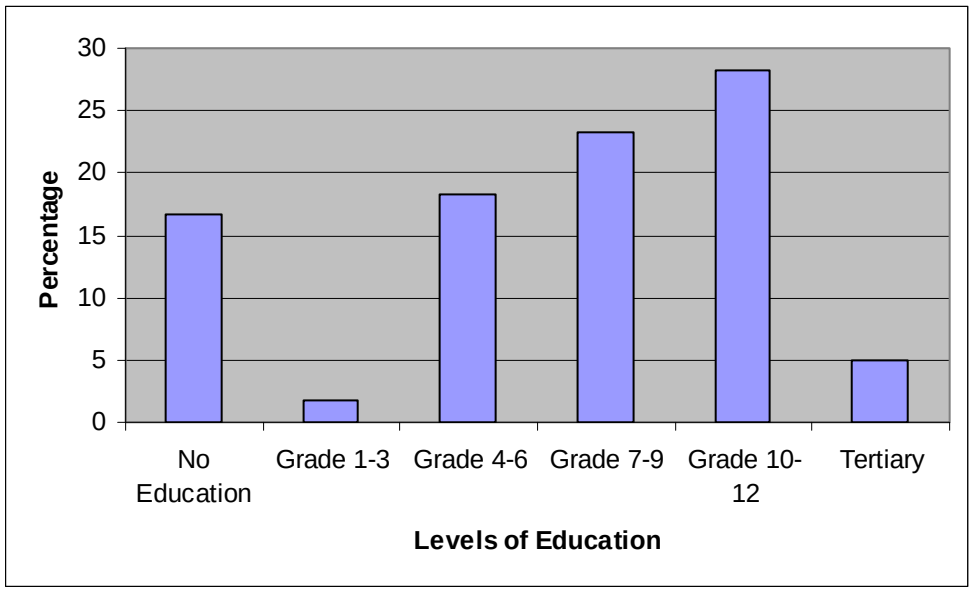


Figure 3: Education level of miners

Of the total miners interviewed, a significant 28 percent have attained a grade 10 and/or 12 certificate. A total of 50 percent of the miners however have only attained grades between one and nine while as 17 percent of the miners have not had any form of education at all. 5% percent of the miners however, have had some form of tertiary education. The issue of a lack of education clearly manifest itself in how the miners sell their stones and the prices they sell it for, in comparison to the real value of the stones. All is not dark and gloomy however, as some of the miners, despite a lack of formal education, have received some hands on training in the field of value addition thus enabling then to sell their stones at a price reasonable to them.

4.1.4. Marital status

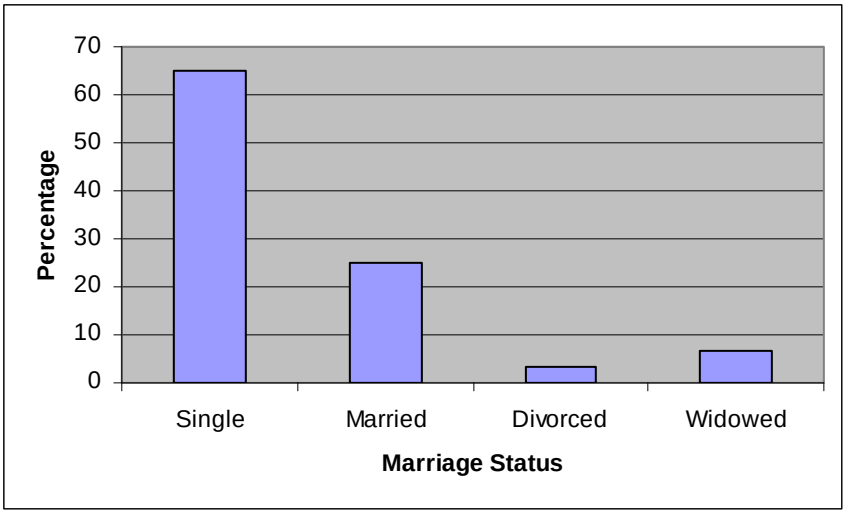


Figure 4: Marital status

Statistics on marriage reveal that, a hefty 65 percent are single. Only 25 percent of the respondents are married and the remaining 10 percent are either widowed or divorced. This gives the impression that the majority of the miners especially those who are single may not have the same trouble as the married others with regard to taking financially providing for their families. However, it is as common practice in African cultures to take in and financially provide for extended family members or to cohabitate without marriage. Therefore, it comes as no surprise that even unmarried farmers have a number of dependants already.

4.1.5. Household size

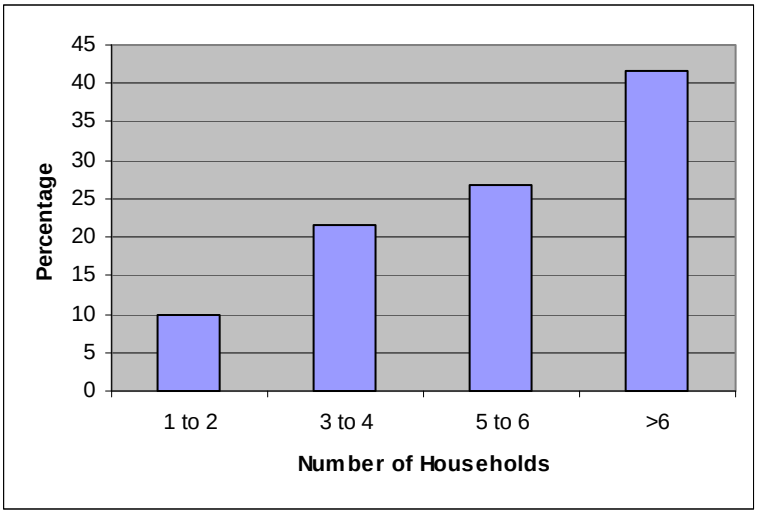


Figure 5: Household size

A significant 42 percent of the miners in the sample have a household size of 6 or more people while only 10 percent of these miners have a household size of 2 or less. The remaining percentage of the miners all had o population size of 3 to 4 or 5 to 6 people.

4.2. Institutional organisation and marketing issues

4.2.1. Group membership

Since the EU injected capital to assist small-scale mining activities in Erongo, group membership came as one of the issues that we expected to be seen in place. Group membership has widely been regarded as a better mechanism to use when dealing with many people operating in a similar or somewhat related type of activity. However, group lending is also associated with other challenges among others an element of lack of proper independent decision making due to in most cases pre-set standard use of the funds or resources which are shared. On the other hand however, the peer pressure enforced by this approach is also an effective instrument for progressive development of the entire group. When followed properly group lending could assist many needy miners in realising their aims in mining activities. The picture on group membership appears in Figure 6 below.

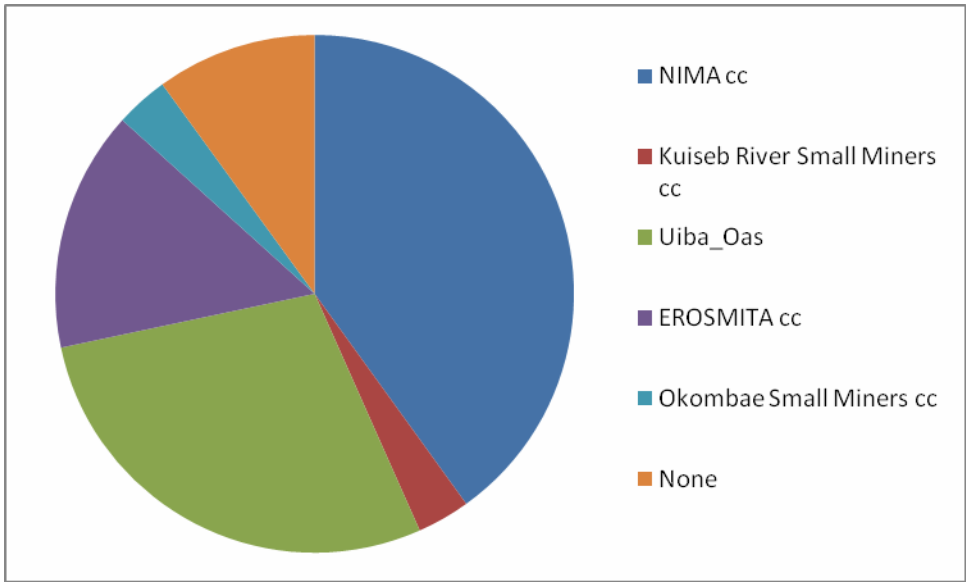


Figure 6: Cooperative affiliations of miners in Erongo region

Figure 6 shows various cooperatives to which miners are affiliated. The largest cooperative in Erongo region is NIMA cc. Of the respondents interviewed in this study, 40% of were from this corporative followed by the Uiba-oas with 28% of its members taking part in the study. The smallest of all the small-scale cooperatives in that region are Kuiseb River Small Miners CC and Okombahe Small Miners CC.

4.2.2. Marketing issues

Erongo region is endowed with various semi-precious stones and are geographically spread across the region. Common stones which respondents sell are tourmaline, quartz, topaz, and tantaline. Most of the miners; 62% are not novices to mining activities. They record experience of more than 9 years of mining. The rest of them have experience of less than 9 years. Interesting however, is the fact that although miners started digging a few years ago, they only started selling stones quite a while after that. The reasons are those associated with lack of proper equipments which delays them to arrive at reasonable sizes of stones. They spend years excavating and quite often they come out with very little to sell. Another reason why it takes miners a long time before they begin to sell semi-precious stones is the lack of organised markets. Besides the new markets currently construction in the areas previously mentioned, the remaining miners (those not residing anywhere close to this areas) will continue to face this very same problem.

The results also show that marketing of semi-precious stones only started at independence in 1990. However this does not preclude the fact that mining was there even before independence. This simply means that miners who were interviewed happen to be those who only began to sell at or after independence. There may be several reasons why they failed to sell before that time and one of the possible ones is the draconian nature of apartheid laws that were restrictive on advancement of the welfare of Africans. In this study we found that the majority of miners sell their stones at Oiba-Oas or also known as the Hentis Bay T-Junction to Spitzkoppe where a new formal market has been constructed. The second largest group sell at farm Neuschwaben while as others sell along the road to passer-bys especially tourists.

4.3. Income dynamics

4.3.1. Income at peak season

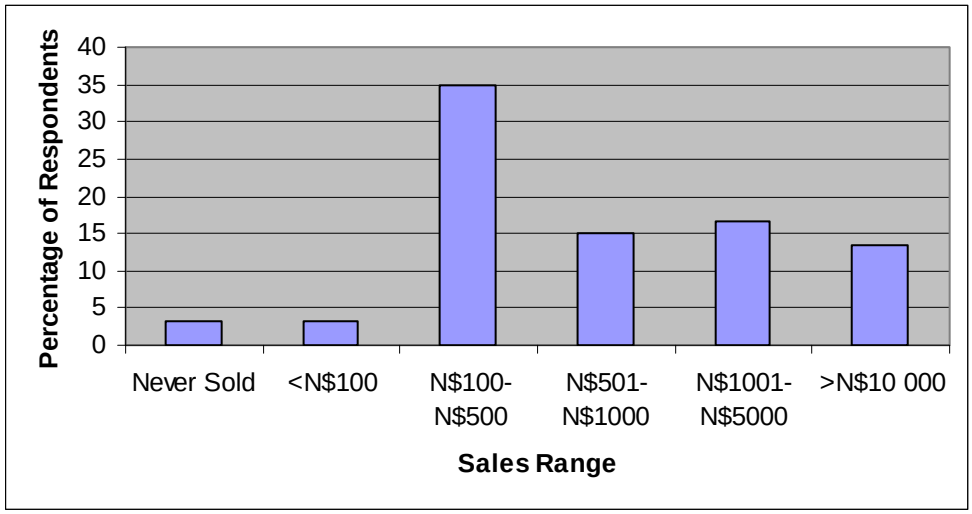


Figure 7: Estimated monthly income during peak season

Peak season for these miners is usually at times when many tourists visit coastal parts of Namibia. This is usually between the months of June and August. During peak season, about 35 percent of the small scale miners generate an estimated monthly income of between N$100 to N$500 from selling such stones. About 17 percent of miners generate an estimated monthly income that falls between N$1001 to N$5000. Following that is 15 percent of miners who generate an estimated monthly income of between N$501 and N$1000 and another 13.3 percent of the miners who estimate their monthly incomes during this period to be more than N$10 000.

4.3.2. Income at low season

Low season is anytime of the year excluding June to August.

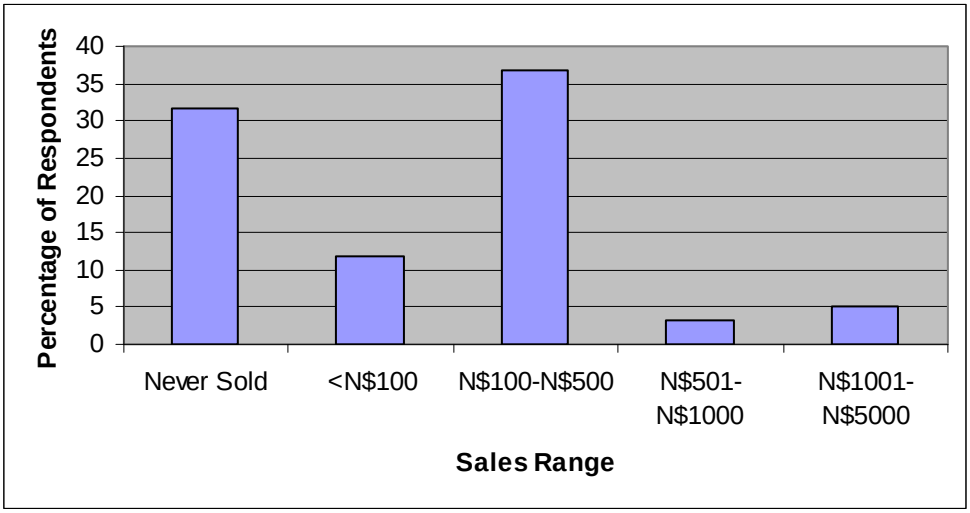


Figure 8: Estimated monthly income during low season

During low season 36.7 percent of these miners generate a monthly income between N$100 to N$500 from the sale of stones. Due to fewer buyers available during low season, stones are usually kept sometimes for months without getting sold. The sales of these stones heavily depend on local demand during low season.

4.3.3. Savings

The results show that 61.7 percent of the respondents do not save any portion of their earnings from small-scale mining while the remaining percentage does. Given the situation with a lack of buyers, and the fact that a lot of time is required if one is to dig out quality stones which are worth a lot of money, miners go for very long periods of time sometimes without selling anything at all or selling low quality stones for very little money. This makes it impossible for many of the miners to have any savings as they hardly make enough to sustain themselves and their families during that period.

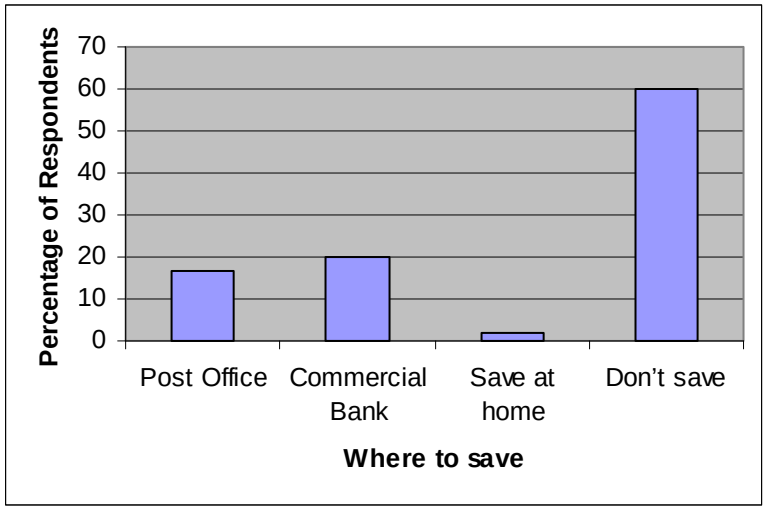


Figure 9: Saving options

4.3.4. Short-term training

Although the majority of the small-scale miners do not earn high incomes from this activity, 38.3 percent have indicated that they are able to save a portion of their monthly incomes. Out of the total number of respondent, 16.7 percent have indicated that they save with the Post Office, 20 percent with commercial banks while 1.7 percent saves at home. This hints that small-scale miners prefer to save their income at commercial banks as opposed to the Post Office or keeping it at home. Therefore, despite lack of education, it is evident that many of the miners who save know the benefits of keeping their money at the post office or at commercial bank rather than at home.

Figure 10: Training

From the total number of respondents about 62 percent have received some sort of formal training in various aspects of small scale mining. The remaining 36.7 percent had not at all undergone any formal training but have acquired their skills from family members or simply learned to do the work by themselves. Given that small scale mining requires manual labour,

not much training is necessary especially when it comes to the actual digging work. Many of the miners have been able to do this work only with the guidance of fellow miners who have either been in the business for a long time or those who have received training from some source. Also, many of the miners have been doing this work since childhood and have become quiet good at it given the little tools and machinery they have at their disposal. However, training is necessary when it comes to value addition (i.e. cutting and polishing), identifying places where stones can be found, health and safety, etc. For this reason training still remains an essential tool which gives these miners extra knowledge required to advance in their activities.

4.3.5. Sources of working capital

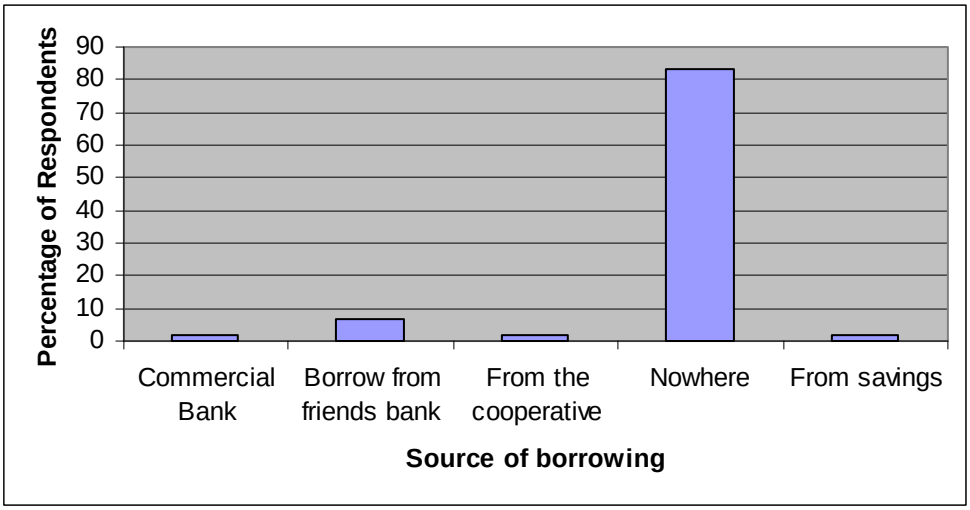


Figure 11: Borrowing options

Results show that more than 80 percent of the miners interviewed do not borrow money from anywhere for purposes of financing their small-scale mining activities. However, a very small proportion of these miners borrow from friends, commercial banks, or use their savings to finance their working capital requirements in order to conduct their activities at a more commercialised level. This lack of borrowing or borrowing facilities can be attributed to the fact that small-scale miners are poor people who, according to banks or financial institutions, are not creditworthy and therefore, these institutions are reluctant to give loans to them. A lack of education also plays a role here in that, miners are not aware of what they need to do in order to be able to acquire loans from commercial banks or other financial institution.

4.3.6. Perception about performance of mining activities

Views on whether there is any growth in the small-scale mining industry are quiet diverse, with 28.3 percent of the respondents strongly agreeing that there is growth , about 22 percent of the respondents simply agreeing. Furthermore, 23 percent are neutral, while as 17 percent disagree and the remaining 10 percent strongly disagree. The overall impression from the

view point of the miners suggests that there is in fact growth in the small-scale mining business though probably not much of it.

4.3.7. Start-up capital

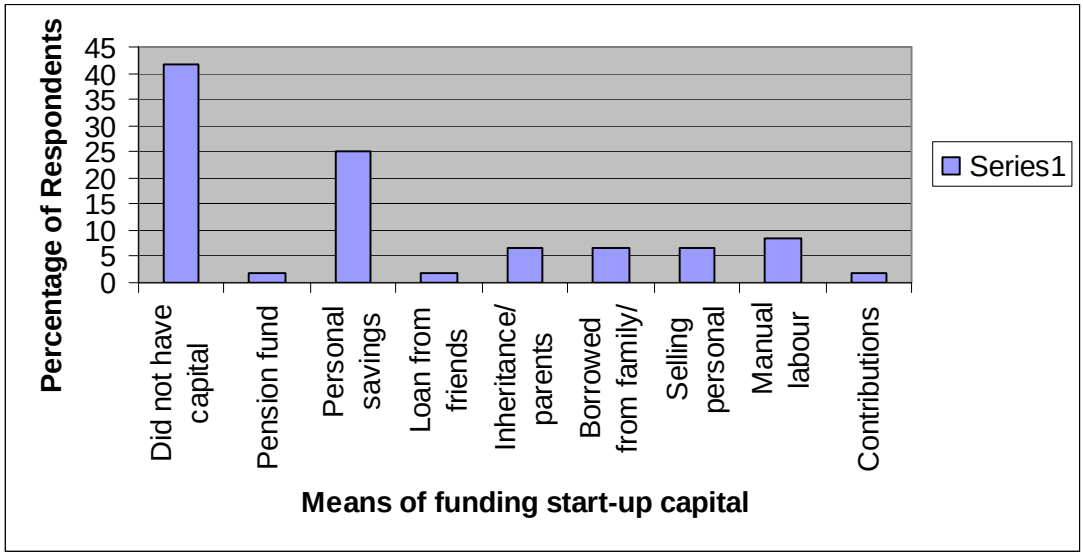
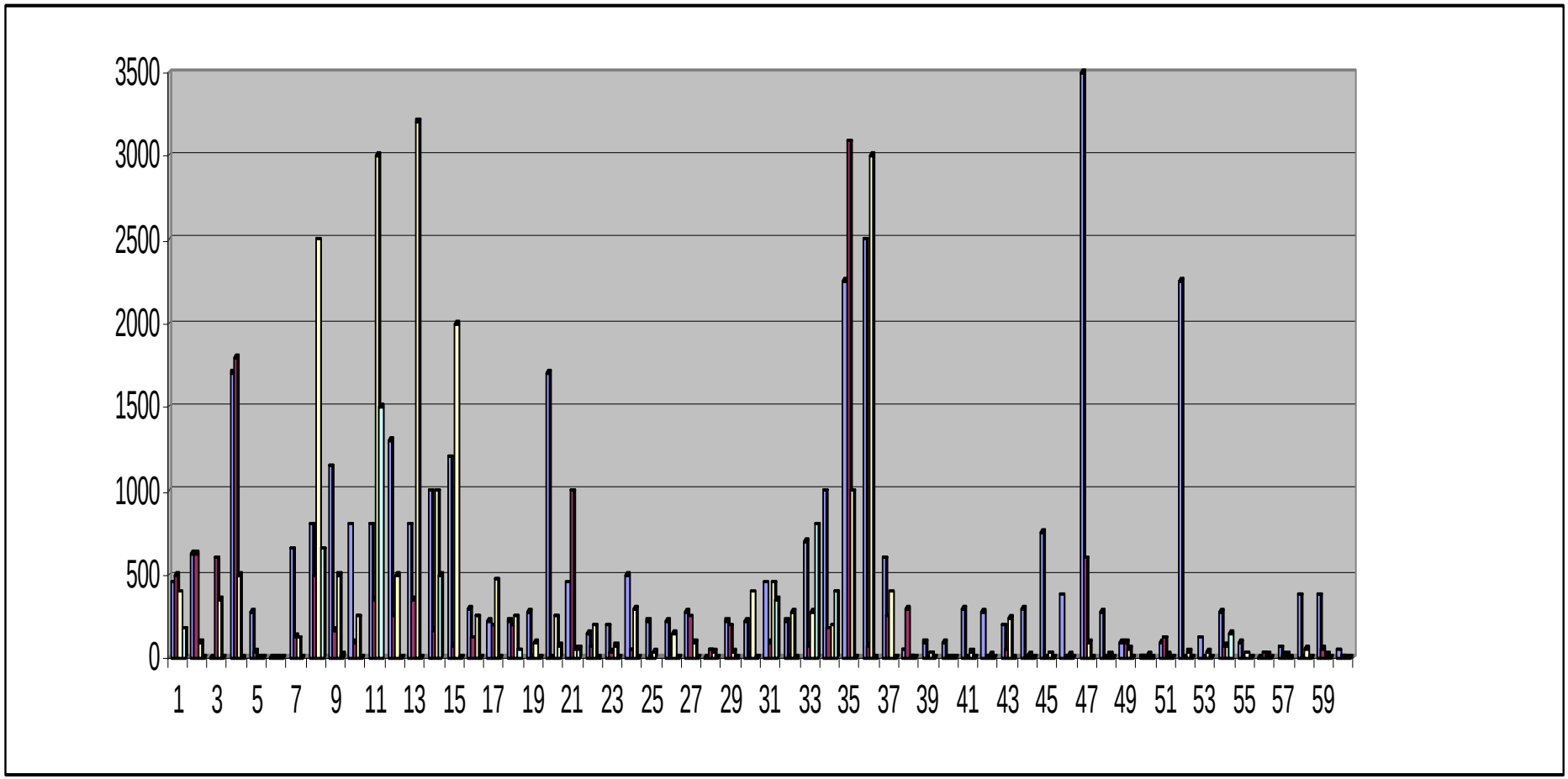


Figure 12: Sources of start up capital

Results show that 41.7 percent of the miners did not use any starting capital when they first engaged in small-scale mining. This is evident seeing as many of the miners do not own any of the assets such as machinery which are necessary for small-scale mining. Most of the tools miners own are simple hand tools which they may have received from friends and family members or inherited from their parents and were not bought using any capital. 25 percent of the miners have however used their personal savings as a source of capital for their small-scale mining activities. The remaining 33.3 percent indicated they had either acquired their starting capital by borrowing from friends, selling personal belongings/ livestock, engaging in other forms of manual labour or inherited it from parents or close family.

4.4. Major expenses of miners

Expenses that one incurs on a monthly basis can help to point at how poor small-scale miners spend their income. In this study we present monthly expenses of miners on four aspects, namely; food, transport, education expenditure (for children of miners) and medication. Although the study did not pin down whether or not miners are poor or severely poor, the presentation on their expenditures gives some indication of their spending patterns and also on the aspect on which they spend more on a monthly basis. Below is the presentation of key areas on which miners spend their income.



Blue = Food; Red = Education; Yellow = Transport; and Red = Medication

Figure 13: Expenses on food, education, mediation and transport

Figure 13 show that food takes a big chunk of miners' income on monthly basis. Transport expenses are also high but this expense is not necessarily dominant compared to that on food. However, when one considers the level of income spend on the four main spending areas, it become a concern due to the fact that spending on food takes a big chunk of most of the miners' income. Despite these expenses which take up a lot of miners' incomes, small-scale mining remains an important business undertaking that impacts positively on poverty alleviation.

4.5. Challenges faced by miners

4.5.1. Access to finance

Amongst others, one of the challenges faced by small-scale miners in the Erongo and perhaps the most constraining one is that of a lack of financial resources. Given that most of the miners are poorly educated or not at all educated, they do not have access to credit facilities as financial institutions feel they do not have the required collateral in order to get loans to finance their mining activities. Also, investors avoid small-scale mining business as it is considered to be a risky business. For this reason, they are unable to obtain the necessary machinery and only have access to measly hand tools. In cases where miners are able to rent machinery, they are faced not only with the costly challenge of having to transport these machines from the Erongo Regional Small-scale Miners Association (ERSMA) but also having to carry the heavy equipment up the mountains where most of their activities take place.

ERMSA is an organization established by the small-scale miners and was entrusted with a number of machinery by the ERC for the purpose of renting them to the miners. The machines were purchased by the ERC using the funds donated by the EU. However, there are not nearly enough machines to cater for all miners as there are about five compressors for a total population of ±2000 miners. Renting the machines in itself is a challenge as a compressor for example is rented at N$500 per week and this excludes the cost of diesels which is usually at about N$400 per week. Miners dig for stones over a long period of time without any income and they spend most of their savings on food for consumption while digging.

4.5.2. Market and buyers

Another common problem faced by small-scale miners is the issue of markets and buyers. In most cases, miners sell their stones at below market value due to a lack of formal market structures and processing facilities and also due to a lack of knowledge as to the real value of the stone and the fact that in many cases, miners are not in much of a bargaining position as they are in need of the money at the given time. Despite the fact that some of the miners were trained in cutting and polishing, the problem of lack of markets and buyers still remains a major detriment. To solve the problem, ERSMA had come up wit the idea of buying stones from which had come up with the idea of selling on behalf of the miners and selling it to buyers at a reasonable price as compared to what the miner would have sold it for, and then splitting the payments with the miner using a certain formula. However, there exists a lack of trust between the miners and ERSMA and therefore miners feel reluctant to implement this decision. From the side of the government, unnecessary bureaucratic hassles for getting export permits at MME for mineral specimen and semi-precious stones restrict or limit tourists in buying stones, thus making it difficult for miners to sell their products.

4.5.3. Land issues

Most of the mining activities take place on commercial farmland privately owned by individuals. However, minerals on the privately owned piece of land remain property of the state as by the laws of the country. Quite often miners are denied access to these farms by farm owners. Miners argue that by having prospecting licenses they should be allowed to mine. On the contrary farmers also cite various problems that are caused by miners and/or mining activities such as damage to fences. Farmers are of the opinion that, when miners dig holes on their farms, at times animals fall into uncovered pits. Prospecting on farms is the most difficult issue because getting permission to access the farm is subject to contractual arrangements that stipulate a lot of money to prospect. Seeing as many of the miners are poorly educated, not all of them are equipped with knowledge of the mining act and this is to the advantage of farmers who are against the idea of having miners mining on their land. A fee of N$2000 is payable to the farmers every month for the use of the land and N$10 000 once off fee is payable for rehabilitation of the land.

4.5.4. Other challenges

Apart from those challenges, other physical dangers are involved in small-scale mining such as the high risk of accidents in mining shafts. Also, the living conditions in which some of the miners live is a major health hazard as they do not have access to safe drinking water, sanitation and also lack other basic services putting them at risk of getting contaminated with certain diseases such as cholera. Theft and fraud in the form of false and glued stones is also common among miners.

4.6. Contributions of small scale mining to the local economy

Small-scale mining contributes to the economy of the Erongo in the sense that, when miners sell stones and receive money for it, they spend this money on goods and services in the Erongo region. Many who sell valuable stones at high prices are able to open up and operate their own businesses giving them a new source of income. Local GDP of Karibib shows that small-scale mining does contribute to the economy of the town. A big size of tourmaline could fetch about N$75 000.00 and some of the miners have been able to make up to this much money from these stones. The sub-sector is somehow neglected yet very useful. Multiplier effects may occur. Selling of mineral specimen gives income for approximately 10 street dealers and 2-3 professional mineral dealers that in turn increase income in rural areas where most of the miners live. If small scale miners are successful their income is significant.

Through linkages, miners look after the economy of Erongo. When miners sell valuable stones they end up spending that money in local shops. Other miners from other regions also send remittance home thus in general the Namibian economy benefits. In general, small-scale mining helps reduce poverty in the Erongo and in other regions as it helps people to be able to afford basic services such as food and shelter for themselves and their families, send their children to better schools and by committing to mining, small miners get benefits from selling gemstones and continuation of excavations testifies to this benefit. Livelihoods are created from excavating gemstones.

4.7. Government policies and statutory laws

The following policies and statutory regulation have been identified as being not user friendly in terms of advancing welfare concerns of small-scale miners:

- The current Act is not explicit with regard to small-scale miners. The consensus reached by the ministry, to have the farmers and the miners draw up a contract in order for the farmer to allow the miner access to the land for mining purposes has not been helpful as it allows for the farmers to set the conditions of the contract out the range of the miners thus making it impossible for the miners to access the land still.
- The system of obtaining export permits by tourists which are currently obtainable at the MME in Windhoek is too cumbersome for tourists and therefore many opt not to.
- Policies in place are not pro-poor and especially to support small-scale miners. There is lack of awareness at the side of the government with regard to the activities of

small scale miners. Interest is more on precious stones such as diamonds and others which are mined by multinational corporations.

- Although licensing of semi-precious stones is in place, every willing person can engage in small-scale mining activities due to a lack of enforcement mechanisms that could deter those that are not licensed. There is also a need for allocating land for small-scale mining with proper guidelines. Quite often misunderstandings occur as a result of frequent visits to the same sites by prospecting miners. There is proper regulation on mining of precious stones in place but very little on semi-precious stones.
- Prospecting licence is acquired at N$50.00. The prospecting license comes out the same time when applied for; however, mining claims take about two months to come out which is long period of time.

5. CONCLUSION AND RECOMMENDATIONS

A number of factors have been identified to be constraints to business activities of small-scale mining in Erongo and most probably in the rest of the regions where mining activities take place. These are in the areas of finance, education, markets, buyers and investors as well as other social problems faced by small-scale miners. Tackling these issues would be a huge step towards advancing small-scale mining activities in Namibia.

Pertaining miner education, miners need to be trained on safety issues, health (HIV), use of equipments and value addition. The lack of awareness regarding the mining Act is a major hindrance to SSM activities as miners are not aware of their rights and in many cases do not know whether or not they are acting within their boundaries regarding the land issue between them and the farmers. For this reason, miners need help in understanding the existing laws on small-scale mining and mining in general but they also need to be educated about environmental awareness. As is the case anywhere else, some miners in Erongo region are more advanced than others. What is good about this is the fact that miners could learn from each other's best practices. Many of the least successful miners can learn from those who have been in the business for longer periods or those more successful. The more skilled miners could take the initiative to educate and inform others.

With regard to the issue of markets, there are currently two market places in construction, one on the turnoff to Spitzkoppe on the road between the towns of Usakos and Arandis and the other at the town of Uis. Once these markets are complete, miners will be much better off as they will have a formal location to sell their products and where tourists and other interested parties can come to buy these products as opposed to when they would sell in the street or at whatever location they found suitable at the time. Creating or finding a market for miners is needed, even locally to get a stand for them so that they could display their products. Another way of getting more publicity for small-scale miners is by organising for example a Namibian Mineral Show in order to get small-scale miners in direct contacts with international dealers and collectors. However, the current export permit procedure put in place by the MME does not do much to help the miners. It is in fact more of a hindrance to the sales of the miners as in many cases, tourists who purchase stones from small-scale miners are required to go through the cumbersome process of obtaining an export permit. For that reason, they opt not to buy especially in cases where they are in a hurry to return to their

countries or simply do not have the time to try and obtain a permit. Demand for semi-precious stones is the best driving force for the small-scale miners' businesses.

There is a need for miners to be provided with financial resources in order to acquire the necessary equipment and materials such as explosives and other things necessary to make it easier for them to dig up the stones faster than they would have without this machinery. Machinery for value addition is necessary in order to enable miners to sell their products at higher prices after the value addition processes (batting, cutting and polishing). Sponsorship of mining equipments or on lease agreements is required in order to extract big quantities. With these machines, transportation is going to be necessary in order to carry equipments to and from the mining site. Due to the nature of working conditions in which miners operate, beneficiary funds that insurer the lives of miners should be put in place.

In order to help advance small scale mining activities in the Erongo region, the government, the miners and other stakeholders need to take a strong stance to address these issues. Government and stakeholders could take the initiative to educate miners on the issues mentioned earlier while as miners need to show a strong will to learn these things. Organizations such as ERSMA need to come up with innovative ideas of getting more buyers and assisting miners with their sales and attracting investors. Organising for a platform where small-scale miners can get into direct contacts with international dealers and collectors will gain more publicity for small-scale mining. From the MME's side, lifting the export permit procedure or at least, finding a way to make it less cumbersome for buyers would be beneficial. Only when issues such as these are addressed can we have a truly advanced small-scale mining sector capable of significantly contributing to the economy of of Namibia. This will then go a long way in improving the livelihoods of not only the miners but also the communities in which they live.

6. Shortcomings of the study

Accessing sampling sites was difficult due to the nature of the terrain. In most cases, small-scale mining takes place at mountainous sites. To reach some of the sites requires a four wheel drive and unfortunately researchers could not afford that due to limited financial resources for the project. Since four wheel drive cars are expensive researchers had to rely on a sedan which also could not make it in through unpaved roads. The implication of this is that few respondents were covered than was expected. Any future research should take this constraint into consideration.

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ANNEX

Annex 1: List of companies that support small-scale mining activities in Erongo region

- Rossing Uranium Mine
- Rossing Foundation
- Navachab Gold Mine
- Ariva
- Basil Reed
- Major drilling
- Erongo Regional Small-scale Miners Association
- Offshore Development Company
- Rio Tinto
- Geological survey
- Erongo RC
- MME
- BGR
- GSN
- European Union
- RUL
- Germany Embassy
- Spanish Embassy
- Erongo Regional Council

Annex 2: List of stakeholders

1.	Mr T. Gonteb:	Erongo Regional Council
2.	Mrs P. Ondigo:	Rossing Mine
3.	Mrs R. Hoabes:	Erongo Regional Council
4.	Mr A.S. Hiskia:	Omaruru Small Miners co-operative
5.	Mr M. Limbo:	Karibib Town Council
6.	Mr C. Timbo:	Erongo Regional Small Miners Association
7.	Dr R. Ellmies:	Ministry of Mines and Energy
8.	Mr K.K. Mhopyeni:	Ministry of Mines and Energy
9.	Mr L. Mulele:	Ministry of Mines and Energy