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REPOA Brief

Development Minerals in Tanzania: Accounting for missing women in the low-value minerals

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Key Messages

- Despite the immense supply of key inputs to industries and construction, little is known of development minerals sub-sector's size and its contribution to the country's GDP.
- Gender equality issues seem to be confronting the development minerals sub-sector, as instances of discrimination against women have been spotted within the mining areas where women are predominantly engaged in low value segments of the value chain.
- Due to low barriers to entry, the sub-sector readily offers employment and livelihoods to many unskilled women who engage in stone crushing and supply of food services.
- There's pervasive use of labour intensive, rudimentary, low-tech, and often manual methods in the sector which causes regular physical injuries, body exhaustion and low productivity.
- Poor health and safety procedures dominate the subsector putting at risk its largely female workforce, who often work extended hours in the sun amd dust without recourse to health insurance.

Introduction

Minerals can be categorized according to the commodity market value they fetch and are often referred to as either "high-value minerals" or "low-value minerals" (Lebdioui, 2020). Low-value minerals are sometimes called development minerals or industrial or non-metallic minerals. These are naturally occurring minerals and rocks, which include sand, industrial sand, aggregate, limestone, dolomite, granite, serpentinite, quartzite, feldspar, phosphate, sulfur, and potash, as well as different types of semi-precious stones (NTIS, 2000). These minerals and materials are mined, processed, manufactured and used domestically in construction, manufacturing, and agriculture (Afeku & Debrah, 2020). Moreover, statistics show that for the period between 1995 to 2017, Tanzania exported stone, sand and aggregates worth $124 million with an annual average of $5 million, of which 75% of export went to neighbouring countries and 25% to the rest of the world (UN Comtrade, 2019[1]).

Development minerals are termed as 'low hanging fruits' for minerals-led development. Minerals under this category are mined for their physical and chemical properties and their usefulness in our daily lives for industrial purposes serving as vital raw materials for manufacturing (glass, tiles, cement),), industrial minerals and construction materials (such as clays, gypsum, industrial sand, limestone and marble).

On the other hand, they offer economic benefits such as direct and indirect employment, improved income and living conditions and extends a transformative path for the development of a nation (Lebdioui, 2018). The demand and market for development minerals are more pronounced in areas experiencing growth in urbanization, construction, and manufacturing, including cities and other urban centres and rapidly growing peri-urban areas.

1 https://comtrade.un.org/pb/downloads/2019/VolI2019.pdf

On aggregate, the development minerals value chain comprises of an elaborate number of actors at various levels and nodes, operating formally and informally.

Yet, despite the importance of the development of minerals in supplying industrial and construction materials and income generation to several Tanzanians, there are no official data showing the size (eg. employment) of this sub-sector, linkages, and its contribution to the country's GDP. It is, therefore, imperative to understand the network, links, flow and value-added amongst actors in this sub-sector's This policy brief highlights the working conditions of the informal artisanal miners of "aggregate", known in Kiswahili as "Kokoto" in Dar es Salaam and Coast Regions.
This policy brief presents findings from primary research of the sub-sector in two districts of Coast region (Chalinze and Kisarawe) and two districts of Dar es Salaam region (Kigamboni and Kinondoni). Specifically, the brief utilizes data from the life histories of four women in the case study areas (see Table 1)

Table 1: Demographic information of the respondents

Respondent	Sex	Age	Marital status	Number of children	Years of engagement in development minerals sector
Respondent 1	Female	66	Widowed	5	8
Respondent 2	Female	45	Separated	3	1
Respondent 3	Female	70	Widowed	6	27
Respondent 4	Female	30	Married	4	3

Findings

The findings show that all the interviewed women producing aggregate operated informally without having a contract with the mining pit owner. Men mostly excavate stones, while aggregate grinding work is usually done by both women and men. Four main issues regarding the working conditions of small informal aggregate producers are presented below, namely: key drivers for joining the sector; activities, materials and tools used; productivity, markets and growth; benefits and challenges.

Key drivers for joining the sector

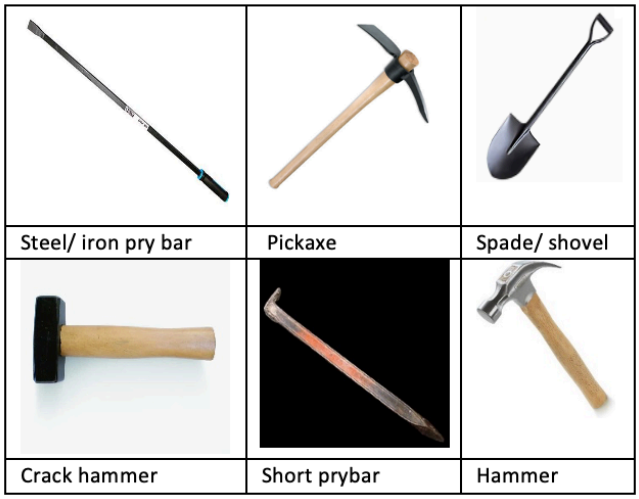
In the interrogation with participants of this study, it was revealed that the main reason for joining the aggregates industry was to make ends meet and in turn, improve their welfare. Others are the encountered hardships partly due to the loss of a spouse who had been the breadwinner, separation from the spouse, being left to fend for oneself, care for the children and unassured family incomes. This was supported by one of the respondents, who said:
When I got married, my husband was working in the Cement factory and was paid a monthly salary, which was enough to meet the family needs. It happened [joined the sub-sector] when he suffered from ill-health for more than one year, which left him bed-ridden/home-bound. He stayed at home for that long time without any regular income, whilst we had no assistance from either his office or relatives. Life took a downturn and became difficult.

The crushing activity was considered an imminent feasible alternative and easy to join as capital requirement for starting the business is very low. It was indicated that the main condition for joining the sector was one's strength and time allocated for work. On some occasions, pit owners provided working materials and tools in exchange for the produced aggregates.

Materials, activities, and tools

Stones were the main raw materials for aggregate dealers. In a particular instance, it was affirmed by one woman that she bought stones from pit owners and sold the produced aggregates to customers. The other three women reported that they had no money to purchase materials/stones; instead, the materials belonged to pit owners. Furthermore, the findings revealed that small-scale producers depended on basic traditional tools for crushing stones. The tools seemed expensive in terms of energy applied, resulting in physical injuries and body exhaustion. In some places, before crushing stones, the burning of stones was done by arranging them in a square form, followed by piling up firewood on top of the stones to reduce the size of the stones.

Figure 1: Some of the common tools used by the informal aggregators



In addition, the tools included large hammers that crash sizable stones into medium sizes. Thereafter, a small hammer was used for crushing medium-sized stones into small pieces or aggregates. Normally, the production of aggregates was categorized into a half (½), three quarter (¾) inches and small particles called terrazzo. Other mentioned tools such as a pick axe or "Sururu" is used for turning around stones and separation of cracked stones, while iron pry bar or "Mtarimbo" is for uplifting and moving stones from one point to another. Also, sieve is used for separating rubbles from other materials like dust. Finally, a spade is used in filling aggregates and terrazzo in the used cement bags. Generally, small informal producers express their dissatisfaction with the types of working tools. During the interview, an elderly woman alleged, "We have been using the same old tools since we began mining close to three decades ago and I see we are aging along with them."

Productivity and selling of aggregates

The findings indicated that production was generally low due to poor production tools and unfriendly weather. It was further reported that the crushing of stones was easier during the dry season but difficult in the rainy season, with the production going completely down. It was, however, insisted that production was mainly for subsistence or survival rather than for accumulation or growth.

Moreover, findings indicate that only one out of four respondents were buying stones from pit owners, producing aggregates and selling to customers. However, the remaining three worked under pit owners and paid certain rates per bag. Such that pit owners paid TZS 250 per bucket (20 liters) or TZS 500 (hardly TZS 700) per bag. One informal small trader said, "Our market is the pit owner. We don't sell to other customers since these stones belong to the pit owners. It is like we are working for him. We get paid cash daily as he normally counts the number of buckets produced, then he pays us what is due." On average, the small aggregate producers produce ten bags equivalent to 20 buckets per day per person.

Figure 2: Crushing site showing aggregates packed in the used cement bags

Accrued benefits from the sub-sector

All respondents admitted that through the crushing of stones, their lives had improved, and they could sustain their basic living costs and attend responsibilities of their families - such as buying school necessities for their children, accessing health care and buying food and attires. Given these affirmations, it is clear that the low earnings from crushing stones at least enable them to cover some of their fixed expenses and make ends meet. One woman confirmed it; "We use a lot of energy while the selling price is relatively low. It is TZS 250 per bucket of twenty kilograms. I can produce 30 buckets per day and get TZS 7,500. This is very little money, and it is just getting money for daily subsistence.

Also, it was learnt that unlike in the past, the market for their product has a little bit improved. It was reported that there has been an increase in demand of the development minerals due to the increased construction projects in Tanzania, both at individual and national levels.

Challenges

All respondents confess that the activity of making aggregates has significantly affected their health, including chest and eye complications. Crushing stones using a hammer everyday forces producers to inhale a lot of fine dust, and in turn endangers their health in the long run. There was no protective gear used, such as face masks, hard hand gloves, hard hats, and safety jogger boots, and to the inability of getting all these were attributed to financial constraints. Others experienced muscle and body aches from time to time due to hard work and extra energy in the crushing activity and long hours of working.

"We sometimes sleep out in this pit as we don't go back home every day. We can stay here for four days, then go home for one or two days and come back. We work day and night, and when the rain pours at night, we seek refuge from the neighbour's homes to sleep on the balconies. This work is demanding and challenging, but we don't have other options. I cannot recommend a person to engage."

It was reported that sometimes when they feel body pains, they never go for a medical check-up since they do not have sufficient money or health insurance. They would rather treat themselves with painkillers to keep on working until they reach a breaking point where they feel completely exhausted owing to working under the sun for many hours. They further experienced too much dust, which sometimes affected their vision.

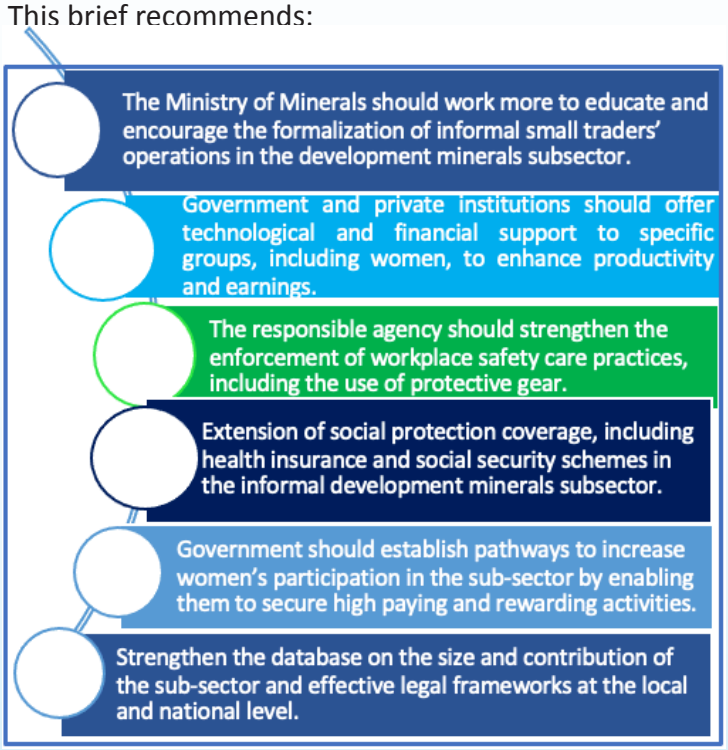
There are reported cases of people being killed in aggregate-making due to accidents. For example, one man from Bunda town council lost his life after being buried in rubble while digging aggregates at the Manyamanyama aggregate quarry on April 26, 2022 . Second, four people were covered by land fall and three died at Golani Pugu aggregate mining, Ilala council, Dar es Salaam[3] . Third, the rubble killed three people at the Engorora rubble mine, Kisongo, Arusha.[4]

Conclusions and recommendations

Like any other informal sector segment, people engaged in the crushing of stones are vulnerable due to their poor earnings, and limited health and social protection coverage.

Most join the sector due to lack of better and more affordable options. Meanwhile, they have to care for their family members and themselves. Due to a lack of capital for start-up and reasonable equipment, they end up producing for pit owners using poor tools and harsh and hazardous working conditions, enduring low productivity and low earnings that lock them in the circle of poverty.

This brief recommends:



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2 Mazingira FM Radio 91.7 MHz.
3 Global TV April 7, 2017
4 Ippmedia.com on 4th May 2021

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