

Dynamics of Small-Scale Informal Industries: The Evolution of the Artisanal Stone Crushing Industry along Alick Nkhata Road in Kalingalinga Township, Lusaka, Zambia.

Bernard Chileshe and Mirriam Sampa Moonga

The University of Zambia

Abstract

Stone crushing has grown as a source of income for men, women and children in Zambia. The spike in unemployment and elevated levels of poverty have given rise to stone crushing as a profession. Artisanal stone crushing is a thriving economic activity especially in peri-urban areas of Lusaka, including Kalingalinga Township. This is because more than half of the people in these areas, especially women, live in poverty, earning less than \$1 per day. Although a lot has been written about the socio-economic and environmental effects of this industry, little has been written about the dynamic characteristic of the industry in the country. The study is a qualitative case study which used desk review and interviews to examine the dynamics of the small-scale stone crushing industry in Kalingalinga area of Lusaka, particularly in recent times when the area has seen a lot of structural changes. The article focuses on factors involved in expansion, decline and/or disappearance of the enterprises and the role that gender plays in the industry.

Key words: dynamics, artisanal, stone crushing, unemployment, poverty, small-scale industry

1.0 Introduction

In Lusaka, stone crushing activities were once prevalent in compounds such as Kalingalinga along Alick Nkhata road; Kanyama compound along Mumbwa road; Misisi and John Laing compounds along Kafue Road, and Bauleni compound along Leopards Hill Road (*Zambia Daily Mail*, 20/05/2021). The industry is no doubt, one of the most dangerous workplaces to choose for any enterprise. Yet, the stone crushing enterprise takes place a few meters from busy roads, and mostly done by women and children as a



survival business. In recent years, many crushing sites have been given to other economic activities, especially along Kafue Road and in Kalingalinga along Alick Nkhata Road. This development has displaced most of the traders who were involved in stone crushing activities around Lusaka city. This paper partly examines how stone crushing as an informal sector has evolved in recent years in Kalingalinga, along Alick Nkhata Road.

A study by Karlsson (2021) asserts that, in recent decades, research on small-scale business has moved from receiving sparse attention to becoming a recognised academic field. Small-scale industries (SSI) play a vital role in reducing the severity of the problems of poverty and unemployment in many developing countries (Biswasroy & Mishra, 1992; Chileshe & Moonga, 2017; Chileshe, 2020). The advantages inherent in these enterprises are that they do not require huge space, training, capital, and sophisticated technologies to be established and operated (Saleem, 2017). In Zambia, the complex mix of these small-scale informal enterprises include artisanal stone quarrying, also known as small-scale stone crushing or roadside stone crushing. In this article, stone crushing and stone quarrying will be used interchangeably.

There is no universally agreed definition of the term small-scale enterprises. Consequently, an enterprise that is considered small in one country may be viewed differently in another country (Kambani, 2003; Saleem, 2017). The nomenclature presented by Saleem describes a micro enterprise as one that has less than five people working in it while small enterprise is described to have anywhere between 6 and 30 number of workers. On the other hand, Liedhom and Parker (1989) stipulated the following nomenclature: micro less than 10 workers, small 10 to 50 workers, medium and large, more than fifty workers. Whichever nomenclature is considered, most artisanal stone crushing activities in Zambia would fall in the micro enterprise category because they have an exceedingly small labour force. Additionally, artisanal stone crushing takes place at subsistence level; those who are involved are not officially employed by any stone crushing company, but work independently, extracting and crushing stones on a very rudimentary level using their own resources, usually by hand, and using basic tools such as hoes, picks, shovels, and fire to break the rocks (Global Press Journal, 2012). As indicated earlier on, artisanal stone crushing is an important socio-economic activity



for many urban dwellers in Zambia, many of whom have few other options for supporting their families. According to Lipalile (2009, cited in Nyumbu, 2013), stone crushing around Kalingalinga compound has been attracting the development of small-scale quarries since the early 1990s. This provides employment to the urban poor who conduct artisanal mining and quarrying.

For this reason, the activity has burgeoned over the years. However, the industry is also known for various nefarious environmental and economic effects which have been aptly described and catalogued by earlier research undertakings. This paper, therefore, concentrates on examining the dynamics of the artisanal stone crushing sector in the city of Lusaka, particularly along Alick Nkhata Road, the main transport artery in Kalingalinga township. The township is about 9.5 kilometres east of Lusaka's Central Business District.

Dynamics or change is a fundamental feature of the economic process; economic undertakings must be flexible to survive and the economic system must promote flexibility to grow. According to Johnson (2001), economic growth is seen as a process moved by the entry, expansion, contraction and exit of firms. It can be argued that artisanal stone quarrying is an economic activity since it contributes to poverty assuagement and generation of income and wealth.

In their study, Liedholm and Parker (1989, p. 1) explained that “studies of small firm dynamics are important because they provide insights into the feasible and desirable patterns of growth in manufacturing output and employment.” In the context of artisanal stone crushing in the vicinity of the city of Lusaka, the important thing to note is whether these small-scale undertakings have experienced a dynamic growth or have been constrained by a matrix of factors, among them the areal expansion of the city, the emergence and growth of large-scale stone crushers (particularly Lebanese nationals), and initial barriers of lack of skills, equipment and capital (Stokke, 1994). Liedholm and Parker are of the view that studies of small-scale firms can also uncover ways that policies and programmes can facilitate, or at least not impede, the evolutionary process. This study is imperative in the absence of studies on the dynamics of artisanal stone crushing in Zambia.

2.0 Research Objectives

The overall aim of this study was to establish how the artisanal stone crushing industry has evolved in Kalingalinga compound. Specifically, the study objectives of the study were to:

- a) investigate the factors involved in the evolution of artisanal stone crushing in Kalingalinga.
- b) evaluate the role that gender and age play in the industry.

3.0 Review of Literature

3.1 Factors involved in evolution of artisanal stone industry.

Among the most significant factors affecting the evolution of artisanal stone crushing activities are location, market, government policy and political will, adequacy of management, firm size, adequacy of financing and customer satisfaction.

(a) Location and public space

Artisanal stone crushing is habitually conducted as a family undertaking, in most cases mother and children (Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development IGF, 2018). For this reason, the activity is usually located near homesteads. Additionally, since the product is bulky in nature, the crushing operations are usually located near the intended markets in built up areas, frequently on the roadside. The vantage location may change as the city's economy evolves; as population and the urban area grow, there is a likelihood that these production sites for artisanal stone quarrying will change because of sheer pressure. Furthermore, stone quarrying by larger firms can thwart the development of small-scale quarrying activities and even displace them. In 2003, Kambani suggested an orderly relocation of illegal artisanal miners in Lusaka from their present locations to more suitable sites.

In tandem with the locational factor is the affinity of artisanal stone crushing to public space. According to Chen et al. (2018), one of the elements that the security and



productivity of the urban informal workers' livelihood activities depend on is access to public space. Chen et al. (2018) note that public space is a productive asset for the livelihoods of many urban informal workers. However, cities around the world, which have the mandate to regulate public space, do not typically recognize the need – much less the right – of urban informal workers to use public space to pursue their livelihoods. Usually, the informal workers are subjected to arrests and evacuation from public space. Therefore, artisanal stone crushers commonly face harassment by police and local authorities. The expansion of urban infrastructure (including the widening of roads within the city limits) may also lead to the implosion of working space for stone crushers as the case is now in Lusaka city.

Koster and Nuijten (2016) characterise residents of marginalised urban areas as inventive navigators who explore the changing physical, spatial and sociopolitical environment, avoiding threats and looking for opportunities, grounded in their everyday practices and life histories. The duo concludes that marginal urbanites should be acknowledged as co-producers of urban space and that the right to 'coproduce' the city lies at the heart of the call for the right to the city. Similarly, Chen et al. (2018) asserts that cities around the world should typically recognise the need and right of urban informal workers to use public space to pursue their livelihoods. However, like for many similar economic activities, such as street vending, artisanal stone crushing is accused of making the city dirty, congested, and uncomely. Many people view stone crushers as a public nuisance or source of shame for the communities where they operate. Lack of quality public spaces, among other things, reduces urban quality of life. Therefore, the manner of placement of various economic activities within the city perimeter is of immense importance.

Mortality of small-scale enterprises is also related to their distance from the urban centre. According to Sherman and Seidel (2019), the location of small-scale businesses plays an especially important role in terms of the success or failure of the business. There is evidence that stone quarrying activities nearer to the urban centre (where most construction activities take place and therefore customer accessibility is assured) have a lower mortality rate than activities located away. The Central Pollution Control Board of



India (2009) explains that as transportation of stone over long distances adds to cost of the crushed stone products, the crushers need to be necessarily located nearer to the demand centers.

(b) Market

Market demand for product or services also plays a dominant role in the sustainability of small-scale businesses, including artisanal stone crushing (International Labour Organization, 2002). Most of the products made by artisanal stone crushers cater primarily for the needs of low-income customers, mostly small-scale constructors and individuals who require construction materials for building a house. According to the Global Press Journal (September 10, 2012), people are now building their own houses in Zambia, mostly in uncontrolled parts of the country since the local authorities abandoned large-scale house construction projects during recent years. However, this may, typically, result in low or lack of demand for building aggregates by this market.

A study of small-scale industries in Hambantota District in Sri Lanka by Stokke (1994) revealed that market conditions were crucial in facilitating or limiting growth in local small-scale industries. According to Stokke, “a division exists between industries operating solely in local markets and industries selling some of their products in non-local markets” (p. 187). Similarly, Nicholls and Orsmond (2015) explain that small businesses are much more susceptible to cyclical fluctuations in demand for their output and, therefore, experience much greater swings in revenue growth than larger businesses. This, according to Nicholls and Orsmond, is indicative of the narrow geographic markets in which many small businesses operate and hence their sensitivity to local demand conditions. Stoke further asserts that small-scale producers can be pauperized by supplying cheap goods to diminishing local markets.

Most small-scale stone crushers use mineral materials such as granite, limestone and dolomite in the vicinity of Lusaka to provide construction materials. Their capacity to produce in bulk is faint and therefore cannot supply at a large scale. This diminished customer share makes artisanal stone crushers ill-equipped to compete with large-scale businesses. According to Bushe (2019), competition can wallop a business’s customer



base. For example, Zamastone Quarries, a French-owned company, boasts of providing both quantity and quality aggregates and crushed stones for the building industry, for both medium and large-scale projects. These are milestones that small-scale stone crushers are many kilometres away from achieving.

(c) Government policy and political will

UN-Habitat (2010: 195) defines political will as “the interests and intentions of local and national government decision-makers with respect to a particular issue; the degree of motivation and interest that they have to make changes in a particular aspect of their administration.” Government policies, affecting both the demand and supply factors, would also have a crucial influence on the dynamics in the artisanal stone crushing industry. Government policies play a key role in facilitating, or at least not impeding, the expansion of dynamically efficient micro- and small-scale enterprises in developing countries (Liedholm & Parker, 1989; Chileshe & Moonga, 2019). Policies can strengthen the ability of productive micro- and small-scale enterprises. The policy mix adopted must reflect the economic and social characteristics of the country. This is important because the policy array most appropriate for stimulating small enterprise growth in Zambia may differ from the policy priorities relevant in other countries. In addition, the policy must reflect the country’s ability to administer these policies effectively. Laws are only good if they can be enforced. For example, for Zambia, Kambani (2003) reported that institutions responsible for managing the environment were unable to effectively carry out regulatory and monitoring mandates due to inadequate resources, although existing legislation then appeared to be adequate in many respects. There should be no gap between policy, legislation, and implementation (Chileshe, 2018). Kambani (2003) describes artisanal stone crushing as the illegal activity, which means it is not supported by any law or government statute.

Artisanal stone crushers require expansion of infrastructure and equipment. They also require having access to loans or the economic empowerment activities that government has been providing to various groups of people. In the case of Nigeria, Iweka, Babajide & Olokoyo (2016) reported that lack of access to finance and unfavorable



macroeconomic environment remained the major challenges faced by micro- and small-scale businesses. Therefore, policies, institutions and regulations that provide a conducive environment for micro- and small-scale enterprises can make a substantial contribution to their growth (International Labour Organization, 2002). Regrettably, many policies selectively support large firms in mature industry (Johnson, 2001). These policies do not provide impetus for the growth of small-scale industries. For Zambia to make a smooth economic growth, specific enabling conditions will be required. Newell and Roberts (2016) in Moonga and Chileshe (2019), states that these conditions consist of an intricate array of enabling measures including national regulations, policies, subsidies, and incentives, as well as international market and legal infrastructure, trade and technical assistance.

Lack of adequate support from government, unfavourable macroeconomics variables and lack of good economic policy from government can all pose as challenge to small-scale quarrying industry in the country. Just like for other small-scale enterprises, the support systems established by governments are instrumental in nurturing the growth and continuity of small-scale quarrying activities. For example, in support for such, Zambia is pursuing an ambitious programme of economic development to improve the quality of life of its citizens and stands to benefit from changing its development trajectory to economic growth (Moonga and Chileshe, 2019). For South Africa, Bushe (2019) notes that it is widely acknowledged that SMEs are a panacea for economic growth. However, he wonders as to whether the government of South Africa has deeply committed to the development of SMEs remains a question unanswered. The results of government-support programmes may not be encouraging (as was the case in Pakistan in the 1960s) due to inadequate funding, insufficient coordination among development agencies, and the fragmented nature of the programmes (International Labour Organization, 2002).

Brown and Mackie (2018) are of the view that municipal authorities [and, invariably, national governments] are key to the operation of artisanal stone crushers. Bakhtiari et al. (2020) state that many countries have explicit policy objectives towards creating a supportive business environment for SMEs with the objectives of increased firm performance and employment creation. In Zambia, the government has established a

Ministry of Small and Medium Enterprises Development whose aim is to enhance SME development. However, concerning small-scale stone crushers, the politics of both municipalities and central government have varied from being highly repressive to sometimes supportive and accommodating. Additionally, as argued by Karlsson, policy makers may be willing to stimulate the growth of micro- and small-scale enterprises, but there may be a general uncertainty as to which factors to address and how. According to Karlsson, the main constraints that small-scale enterprises face are on management, liquidity, financing and access to skilled labour. Denton (2020) identified the factors responsible for the failure of small businesses in Liberia as poor business planning, lack of entrepreneurial skills, lack of customer relations, management incompetence and inadequate financing. Therefore, authorities can help small-scale stone crushers by first acknowledging their industry as a legitimate profession and then genuinely addressing their various concerns. At the moment, the dominant process experienced by micro- and small-scale stone crushers can more accurately be described as preservation than dynamic growth (Stokke, 1994). However, Al-Shaikh (1998) explains that every government is expected to support small businesses by offering tax exemptions, providing safe environment for the establishment and operations of businesses, and to amend business regulations to support the growth of small businesses. According to him, this will help in the prevention of small business failures and help to grow the country's economy at a faster rate.

Currently, artisanal stone crushers are confronted with two types of problems. Firstly, they are not aware that there are facilities like CDF (Community Development Funds) which they can draw from (or they do not know the procedure of accessing the funds), and, secondly they are not covered by any deliberate government policy to improve how they do business, or to remove them out of poverty. This problem has not changed; it is a longstanding problem because the stone crushers indicated that diverse groups of people have been to see them, have promised to help, but nothing has been done to help them.

(d) Firm size

Another important dimension in the dynamics of micro- and small-scale stone crushing enterprises is their mortality. According to Karlsson (2021), the growth of small-scale enterprises is constrained by internal and external barriers. Economic theory suggests that growth barriers are intimately associated with firm size, where the nature of these barriers is likely to change as firms grow. Consistent with this theory, mortality rates of industries are negatively related to firm size. Evidence from the study of various industries shows that the highest mortality rates are to be found in the microenterprise category (Frischman, 1988).

(e) Adequacy of management

Management inadequacy or incompetence can also lead to failure of small-scale enterprises (Schaefer, 2019; Denton, 2020). Stone crushing is primarily operated by less educated individuals (Central Pollution Control Board, 2009). Most of them, therefore, do not have the requisite experience, skill or expertise to manage the business (Lotich, 2019). As a result of this, many small businesses have collapsed because their owners do not have the skills to see the future and manage the business properly (Bushe, 2019).

(f) Adequacy of financing

According to Denton (2020), financing is the lifeline of every business whether in the beginning stage, developing stage or in a mature stage. Small-scale stone crushers may not have enough knowledge about how to raise capital. Most owners of small-scale stone crushing enterprises use their own savings or family resources to start the business (Attard, 2019) and depend on the revenue generated by the business to sustain their family and themselves (Petersen & Seidel, 2019). Kuriloff et al. (1993) noted that businesses required other personal resources apart from personal savings. However, small-scale stone crushers usually lack both collateral and the ability to access and repay bank loans. Therefore, small-scale enterprises may be forced to borrow from friends, family members, or other informal financing methods. Bukvic and Bartlett (2003) show that, in Slovenia, more than two thirds of small businesses finance over half of the start-up capital with their own savings. Further to this, unlike large companies, which are better

placed to absorb cyclical fluctuations in demand, small businesses are more vulnerable to swings in revenue growth; they suffer more during economic downturns when business revenue decreases (Bakhtiari et al., 2020).

Financial illiteracy resulting in the failure of minority small businesses is a significant problem. According to the Statistic Brain Research Institution (2015), as many as 286,000 of the estimated 2,481,000 small businesses that fail annually close due to some form of financial illiteracy. Financial illiteracy was understood to be the inability to appropriately manage monetary resources to create a successful business outcome (Jackson, 2021). Most participants had attained primary education (56.25%) or no education (37.5), none with college (Nyumbu, 2013).

(g) Customer satisfaction

According to Gegeckaitė (2011), customer satisfaction is one of the key goals in business enterprises because it is the main key to a successful business, recognition, loyalty and retention of customers. Hamzah and Shamsudin (2020) opines that business challenges in the 21st century is that customers must be strategic business partners. To be successful, businesses must investigate the needs and wants of their customers. Small-scale enterprises, like any other business, have a responsibility to satisfy their customers. This hinges mostly on both the quality and quantity of product they are offering. For example, Akibate (2022) asserts that individual rock quarry miners need to produce between 1 and 2 tons of product to receive a reasonable payment for their goods. However, with the current tools that they use, this process may take anywhere between 2 to 3 months. Producing such lesser amounts of stone cannot satisfy the expanding market for quarry stone.

(h) Access to skilled labour

According to Karlsson (2021), one of the main constraints that small-scale enterprises face is lack of access to skilled labour. Schaefer (2022) is of the view that small businesses need to be skilled at taking charge when a creative or intelligent solution is needed if they are to thrive. OECD (2019) explain that SMEs have greater difficulty in



hiring and retaining skilled workers than larger firms because they lack the capacity and networks needed to identify talent and offer less attractive working conditions.

3.2 Role of gender and age in the industry.

In Zambia, artisanal stone crushing is usually conducted as a family undertaking, in most cases by mother and children. Several studies have chronicled the many challenges that these women face (Chileshe and Moonga, 2017; Chileshe, 2020). At the expense of sounding rhetorical, it can be restated that stone crushing is an exhausting and dangerous work; yet it is the primary livelihood for many women, who continue to engage in the activity even when pregnant and nursing young children. In 1999, an International Labour Organisation (ILO) survey had reported that more than half a million children aged between five and 17 years had worked in stone crushing when accompanying their parents or guardians to work (The New Humanitarian, 24 April 2006). Further, Wamunyima reports that some children start hewing rocks from as early as four years. Lloyd-Evans and Potter (2009) explain that external forces have affected women's ability to meet their basic needs and the gender division of labour in the urban economy is such that women are frequently engaged in low-paid, exploitative, and arduous work, while also maintaining their households and communities. The duo suggests the need to offset this imbalance by empowering women within urban development programmes. In the case of Zambia, Kambani (2003) asserted that some initiatives targeted at women by the Association of Zambian Women in Mining to help them move to suitable sites where they could be provided with gender friendly tools and other forms of assistance was already underway. It would be helpful to find out the extent to which this initiative had gone to help women in Lusaka. In the case of Kenya, Kirui (2017) argues that the ever-rising cost of living was pushing women to challenge gender roles and community taboos, as they struggled every day to make a living.

Liedholm and Parker (2003) state that an evolution of urban space not only affects the composition of employment, but also results in a general shift away from the types of activities dominated by women. The dislocation of artisanal quarrying sites may, for

example, discourage women from continuing with the activity as the working sites become distant. This may then force them to take up completely different economic activities.

4. Methodology

4.1 Study area

The study was conducted in Kalingalinga township, one of the high-density residential areas in the city of Lusaka. The township is located about 9.5 kilometres east of the Central Business District of the city. The area is served by two main trunk roads, namely Kamloops and Alick Nkhata. It is along Alick Nkhata Road that artisanal stone crushing has existed for many years.

4.2 Research methods

The study is purely qualitative and used two methods to collect data. These methods were desk study and interviews.

4.2.1 Desk study

Using desk review, the study collected secondary data from material published in reports and similar documents that are available on websites. Using existing data which was already summarized helped to increase the overall effectiveness of the investigation and made the study much more cost-effective than relying solely on primary research. The method helped to collect background information on artisanal stone crushing in different areas, both within and outside Zambia.

4.2.2 Interviews

Secondly, primary data was collected using an unstructured questionnaire, which was administered to artisanal stone crushers operating along Alick Nkhata Road. The questionnaire was administered to five stone crushing groups which provided information on the evolution of stone crushing in Kalingalinga township. The data obtained was analysed and presented using predetermined themes which were aligned to the objectives of the study.

5. Findings and Discussion

The findings of this study are presented following the research objectives along with themes generated from the data responding to specific objectives.

5.1 Factors involved in the evolution of artisanal stone crushing in Kalingalinga.

(a) Location and public space

Concerning location in relation to the places of residence of the stone crushers, the study found stone crushers continued to live near the sites where they worked from. Four of the respondents indicated that they lived within the area; only one respondent indicated that she lived in Mutendere East, about 4 km away from the stone crushing site. This may be a confirmation that artisanal stone crushing is usually located near homesteads.

As for the source of the rocks that are crushed, this is what one respondent said: “I obtained the selling place sometime back when I was extracting rocks in the pits around the area” (Respondent C). This statement implies that the stone crushed by artisanal stone crushers in the area used to be obtained locally. However, this may not be the case anymore. The participants indicated that stones must be transported over long distances from other areas because the local raw material is either depleted or the land has been taken over by large-scale developers. The respondents claimed that the transportation of the rocks over long distances added to the cost of the crushed stone products. The rocks are bought depending on the size of the delivery truck but the price ranges between K1,500.00 and K2,000 (76.65 to 102.20 US dollars at the current rate). Respondent C stated that “Stones were sourced locally some years back but now they have to be brought in from afar.” similarly, respondent A stated that “rocks now must be brought in from Chalala [a township to the south of the CBD] and beyond. Local pits have been closed and the area bought by companies.”

Another development has been that large stone-quarrying firms have taken over most of the activities of the artisanal stone crushers and even displace them. Respondent D revealed that “Companies run by [foreign nationals mentioned] are producing quarry dust, and we have lost business to them. We also need help to procure machines for crushing stones.” the respondent further stated that “There have been rumours that when



the land [where we are selling stones from] is sold; we may be asked to vacate because the new owners of the land may want to build a shopping mall or something else. We are, therefore, worried about what the future holds for us here. As we wait, we hope to find alternatives.

Literature has shown that, usually, informal workers such as artisanal stone crushers are subjected to arrests and evacuation from public space. They commonly face harassment by police and local authorities. However, the stone crushers along Alick Nkhata Road indicated that they have never been chased by anyone, including law enforcement officers. “So far, we have never experienced being chased” reported Respondent E.

The expansion of infrastructure (Kalingalinga has experienced widening of roads and building of new shops, particularly along Alick Nkhata) also led to the implosion of working space for stone crushers. Respondent B stated that “Sometime back, the land along the road was shared among the stone crushers; it was not given by the council. The place is no longer a good site because it is near a busy road, and there is a drainage which makes it difficult for trucks [loading and offloading stones] to park.”

(b) Market

Literature shows that most of the products made by artisanal stone crushers cater primarily for the needs of low-income customers, mostly small-scale constructors and individuals who require construction materials for building a house (Stokke, 1994). This may, typically, result in low or lack of demand by this market. According to Stokke, “a division exists between industries operating solely in local markets and industries selling some of their products in non-local markets.”

Stoke further asserts that small-scale producers can be pauperized by supplying cheap goods to diminishing local markets. This is exactly the scenario in Kalingalinga where artisanal stone crushers reported that their businesses have suffered decline because of large-scale stone crushers are producing the preferred type of stone, commonly called quarry dust. As alluded to earlier, respondents acknowledged that big companies run by foreign nationals were producing quarry dust, and the artisanal workers



had lost business to them. According to the respondents, the quarry dust produced by foreign companies has the advantage that it does not require addition of river sand to make concrete. With this loss of market, the artisanal stone crushers have devised selling their merchandise in bags, a departure from heaping the stones, for the purpose of wooing those customers who want to buy stones in smaller quantities, such as for decoration works, rather than for making concrete for building purposes.

The study also found that the market for artisanal stone crushers is still found among individuals and small-scale contractors who may not be doing big construction projects. Respondent D stated that “customers are rare to find; sometimes a month goes without selling anything. It is difficult.” Respondent C also indicated that “It takes three to four months without selling [any stones].” in a similar vein, respondent A also revealed that “way back, we used to sell a lot. Now, those with machines have grabbed most of our work from us. Most of the people who are building buy from them, especially those who make paving bricks. For us, the main customers are those who make decorations.”

(c) Government policy and political will

Artisanal stone crushers require expansion of infrastructure and equipment. They also require having access to loans or the economic empowerment activities that government has been providing to various groups of people. However, as asserted by Kambani (2003), in the eyes of government, artisanal stone crushing is an illegal activity. This means the activity is not supported by any law or government statute. The artisanal stone crushers are, therefore, on their own. This makes it difficult for them to access finance or economic empowerment. The artisanal stone crushers along Alick Nkhata are aware of their status. For example, respondent B explained that the artisanal stone crushers were aware of the existence of an empowerment fund through CDF (Constituency Development Fund) but could do extraordinarily little about it due to their illegal status. The respondent said: “CDF, we are aware, but we don’t know if we can access it. But if we know, we can find out where the ward councilor is.”

Lack of adequate support from government can pose as a challenge to artisanal stone crushers. Brown and Mackie (2018) are of the view that municipal authorities [and,



invariably, national governments] are key to the operation of artisanal stone crushers. However, as explained above, artisanal stone crushers get extraordinarily little or no attention from authorities. Respondent A reported that “I would like to get help but people [from government and other institutions] have come, promised and gone away. One group even took us to Kamwala [a big marketplace within the city] and they promised to help (give us *malo* – space - and monetary help) but they did nothing. I now have even stopped allowing people to interview me anymore.” According to her, the ward counsellor will not listen to her as an individual.

(d) Firm size

Frischman (1988) and Karlsson (2021) assert that the dynamics of micro- and small-scale stone crushing enterprises is their mortality intimately related to their size. The results of the current study show that the artisanal stone crushing industry along Alick Nkhata Road in Kalingalinga is moribund and diminishing and may sooner than later become dead simply because of their size. The industry which used to thrive a few years ago has shrunk substantially both in terms of the number of stone crushers and in terms of the quantities of stone sold. Also, the absence of children means there is no-one to take over from the current generation of stone crushers. Statements like ‘we used to be many, we used to sell more, I took over from my mother, but my children have not joined me in this activity’ are indicative of a declining activity. Respondent A explained that “We do this work *only* because there is nothing else to do. We have no startup capital to start *anything else*. Our colleagues who have left the job are suffering at home. At least for us, we get a little.” This shows that if there were alternatives, even the remnant of the stone crushers would have left. Respondent E also spelt out that the expansion of the road (with deep drainage lines on the sides) has not only deprived stone crushers of working space, but it has also become increasingly difficult for trucks to deliver stones and to take away crushed ones. Parking on the road to deliver or take away stones also attracts the wrath of the law.

(e) Adequacy of management

Several artisanal stone crushers lack the requisite experience, skill, or expertise to manage their businesses (Lotich, 2019). As a result of this, several businesses have



collapsed because their owners do not have the skills to see the future and manage the business properly (Bushe, 2019). This assertion by the two scholars was confirmed when respondents indicated that their businesses were simply for making ends meet, not to flourish. “I am not happy with the work and feel sad; it’s a lot of trouble, but i have children and grandchildren to take care of.” This appear to imply that the stone crusher was not willing to manage her business beyond subsistence.

(f) Adequate financing

One of the reasons why small-scale industries fail is because of financial illiteracy (Statistic Brain Research Institution, 2015). Small businesses are more vulnerable to swings in revenue growth; they suffer more during economic downturns when business revenue decreases (Bakhtiari et al., 2020). A common business money mistake for failed businesses is having insufficient operating funds (Schaefer, 2022). Respondent A explained that “We have no startup capital ...” As indicated earlier, even though the small-scale stone crushers were aware about the grants that the government was offering to small scale businesses through CDF, the respondents indicated that they had not done anything about it. “We will need to go and see the ward councilor. We once went as a group sometime back, but nothing came out of that effort. But it is worth trying again.”

Concerning financial literacy, the artisanal stone crushers interviewed in Kalingalinga all had very humble education (all of them reported that they had stopped school at primary school level, an indication that they had extraordinarily little or no knowledge of financial literacy). Respondent A indicated that she had gone up to grade 2; respondent B had gone up to grade 6, while respondent C had gone up to grade 7. The other two respondents stated that they had not been to school at all.

(g) Customer satisfaction

One of the reasons for the mortality of artisanal stone crushing business in Kalingalinga is that the small-scale stone crushers do not have the quality and quantity of stone to satisfy their customers. Many construction projects now demand for ‘quarry dust’ rather than quarry stone. The advantage of quarry dust is that, to make a concrete mixture, one only requires the quarry dust and cement. Previously, making a concrete mixture required



cement, river sand, and crushed stones. It is, therefore, more economical to use quarry dust than to use crushed stone. The artisanal stone crushers do not have the ability and equipment to make quarry dust. Respondent E reported that “Quarry dust from stone crushing companies is increasingly being used. Our stones are more difficult to mix [with cement and sand]. So, people are going for machine-made quarry dust.”

(h) Access to skilled labour

Schaefer (2022) is of the view that small businesses need to be skilled at taking charge when a creative or intelligent solution is needed if they are to thrive. OECD (2019) explain that SMEs have greater difficulty in hiring and retaining skilled workers than larger firms because they lack the capacity and networks needed to identify talent and offer less attractive working conditions. Respondents working along Alick Nkhata Road acknowledge that they lack skill, and because of that reason, they cannot compete with large-scale stone crushers who have both the skill and the machinery. Respondent B stated that “We would like government to help us buy necessary machinery and equip us with skills.”

5.2 Role of gender and age in the industry.

Previous studies have documented that a substantial portion of artisanal stone quarrying in Lusaka is usually undertaken by women and children. The current study shows that most stone crushers in Kalingalinga continue to be women. The major difference, therefore, is that there are fewer children involved in the activity. This was revealed by respondent E, who, when asked about the absence of the children, said “Children are no longer being used to crush stones.” This development has been attributed to the availability of free education in schools which has enabled more children to be at school instead of working along the streets for money. According to the *Zambia Daily Mail* (December 4, 2022), the free education policy has enabled many children who in most cases did not have the capacity to access education to go to school. And respondent C said, “my children are now able to go to school, unlike for me who ended school in grade 6.”

It is also interesting to note that there has been a lot of attrition among the women stone crushers working along Alick Nkhata Road since government embarked on an ambitious road expansion project in the city. Most of these lost their working sites due to the expanded roads, and because pieces of land adjacent to the roads which were previously empty were bought by companies. The respondents reported that those stone crushers who had left the area had not moved to other areas to try the same trade; rather, most of them have either decided to stay at home or to do something else. Apart from leaving the roadside because of contracting space, some of the stone crushers could have left due to lack of advancement, extreme stress, and a lack of interest. The respondents indicated that if alternatives were made available to them, they would certainly take them. Respondent A stated that she would “like to keep chickens at home. Vegetable selling is problematic because vegetables easily get wasted/are perishable.” Respondent C’s views were that she would “like to receive help in terms of money to start business elsewhere. School is another option. Training is also acceptable because as an uneducated person, which is one thing I can do. Business which involves travelling, selling merchandise is also good, e.g., selling gaga (maize bran).” Initiatives targeted at women by the Association of Zambian Women in Mining to help them move to suitable sites where they could be provided with gender friendly tools and other forms of assistance have not yet reached the female artisanal stone crushers working along Alick Nkhata Road in Kalingalinga.

6. Conclusion

Artisanal stone crushing was a strong economic activity among low-income residents of Lusaka, particularly women and children. It contributed a lot to the livelihood of many poor households in the city. However, this once viable economic activity has undergone decline due to a lot of factors. As the city expands its infrastructure, working space for the stone crushers has shrunk. This has resulted into a lot of these worker to leave the industry for other ventures. In addition, the emergence of commercial stone crushers on the scene, who can produce the right materials required by the clientele, has relegated the artisanal stone crushers to providing only crushed stones which these big companies cannot provide. Market

is not easy to find as these traders can go for months without any sale. With such shrinking space, it is time for the artisanal stone crusher to look for alternatives, such as vegetable growing, rearing chickens, or selling in established markets.

References

- Akibate, V.W. (2022). *Delving into the rich field of Artisanal Small-Scale Mining and Development Minerals*. <https://www.undp.org/zambia/stories/delving-rich-field-artisanal-small-scale-mining-and-development-minerals> [Retrieved 15th august, 2023].
- Al-Shaikh, F. N. (1998). *Factors for small business failure in developing countries*. *Journal of Competitiveness Studies*, 6(1), 75-86, <https://www.questia.com/library/journal/1P3-38371342/factors-for-small-business-failure-in-developing-countries>
- Attard, J. (2019). *Sources of Small Business Financing*. *Business Know-How*. <https://www.businessknowhow.com/money/financingsource.htm>
- Bakhtiari, S., Breunig, R., Magnani, L. Zhang, J. (2020). *Financial constraints and small and medium enterprises: A review*. Discussion Paper Series IZA DP No. 12936. IZA Institute of Economics, Bonn, Germany.
- Biswasroy, P.K. & Mishra, D.P. (1992). *The Dynamics of Small-Scale Industries: An Overview*. *Small Enterprise Development and Management Extension*. <https://doi.org/10.1177/0970846419920203>
- Bukvic, V. & Bartlett, W. (2003). *Financial barriers to SME growth in Slovenia*, *Economic and Business Review for Central and South-Eastern Europe*, 5(3), 161–181.
- Bushe, B. (2019). *The causes and impact of business failure among small to micro and medium enterprises in South Africa*. *Africa's Public Service Delivery and Performance Review* 7(1), a210. <https://doi.org/10.4102/apsdpr.v7i1.210>
- Central Pollution Control Board (2009). *Comprehensive industry document on stone crushers*. Series: COINDS/78/2007-08, Delhi, India.

- Chen, M. with Harvey, J., Kihato, C.W. & Skinner, C. (2018). *Inclusive Public Spaces for Informal Livelihoods: A Discussion Paper for Urban Planners and Policy Makers*. Prepared by WIEGO for the Cities Alliance Joint Work Programme for Equitable Economic Growth in Cities. Manchester, UK: WIEGO.
- Chileshe, B. (2020). *Contested space: Controversies surrounding informal street vending in Zambia*. Preprint available at DOI: 10.13140/RG.2.2.30171.11048
- Chileshe, B. (2018). *Enhancing health campaigns through Environmental Education: A case of the 'Keep Zambia Clean and Healthy' programme*. Unpublished PhD Thesis submitted to the University of Zambia, Lusaka.
- Chileshe, B. & Moonga, M. S. (2019). Achieving green behaviour in Zambia: Political rhetoric, hypocrisy and duplicity versus political will. *Multidisciplinary Journal of Language and Social Sciences Education*. 2(2), 1-26.
- Chileshe, B. & Moonga, M. S. (2017). Alternatives for dumpsite scavenging: The case of waste pickers at Lusaka's Chunga Landfill. *International Journal of Humanities Social Sciences and Education*. 4(6), 40-51.
- Denton, A. (2020). Why do most small businesses in Liberia fail. *Open Journal of Business and Management*, 8(4), 1771-1815. DOI: 10.4236/ojbm.2020.84110
- Frischman, A. (1988). *Small scale industries in urban Kano – 1980: A reinterview of establishments originally interviewed in 1972/73*. A study sponsored by the Ministry of Rural and Community Development, Kano State, Nigeria.
- Gegeckaitė L. (2011). Factors of customer satisfaction on services. *Global Academic Society Journal: Social Science Insight*, 4(12), 4-13.
- Hamzah, A.A. & Shamsudin, M.F. (2020). Why customer satisfaction is important to business? *Journal of Undergraduate Social Science and Technology*, 1(1). Retrieved from <http://abrn.asia/ojs/index.php/JUSST/article/view/58>
- Holmes, S. & Gupta, D. (2015). *Opening Aladdin's Cave: Unpacking the factors impacting on small businesses*. Reserve Bank of Australia Conference – 2015. Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF). (2018). *Women in Artisanal and Small-Scale Mining: Challenges and opportunities for greater participation*. Winnipeg: IISD.

- International Labour Organization, (2002). *Creating a conducive policy environment for micro, small and medium-sized enterprises in Pakistan*. Seed Working Paper No. 29. Geneva, International Labour Office.
- Iweka, H., Babajide, A. & Olokoyo, F.O. (2016). *Dynamics of small business in an emerging market: Challenges and opportunities*. 3rd International Conference on African Development Issues. Covenant University Press.
- Jackson, J.L. (2021). *Financial illiteracy and minority small business failure*. PhD dissertation submitted to the Walden University.
- Johansson, D. (2001). *The dynamics of firm and industry growth. The Swedish Computing and Communications Industry*. A doctoral dissertation submitted to the Royal Institute of Technology, Kungliga Tekniska Hogskolan, Stockholm.
- Kambani, S.M. (2003). Small-scale mining and cleaner production issues in Zambia. *Journal of Cleaner Production* 11, 141–146. www.cleanerproduction.net
- Karlsson, J. (2021). Firm size and growth barriers: A data-driven approach. *Small Business Economics*, 57, 1319–1338 (2021). <https://doi.org/10.1007/s11187-020-00350-y>
- Kirui, D. (Oct. 16, 2017). *Daily Grind: Women Stone Crushers Feed Demand for Construction in Kenya*. The New Humanitarian. <https://deeply.thenewhumanitarian.org/womensadvancement/articles/2017/10/16/daily-grind-women-stone-crushers-feed-demand-for-construction-in-kenya> [20/05/2021].
- Koster, M. & Monique, N. M. (2016). Coproducing urban space: Rethinking the formal/informal dichotomy. *Singapore Journal of Tropical Geography*. <https://doi.org/10.1111/sjtq.12160>
- Kuriloff, A.H., Hemphill, J.M. & Douglas, C. (1993). *Starting and managing the small business*, 3rd edition, New York: McGraw-Hill.
- Liedholm, C. & Parker, (1989). *Small scale manufacturing growth in Africa: Initial evidence*. Working Paper No. 33. MSU International Development Papers, Michigan State University.
- Lloyd-Evans, S. & Potter, R.B. (2009). Third World Cities in Rob Kitchin & Nigel Thrift,

- International Encyclopedia of Human Geography*, Elsevier. Pages 247-255.
<https://doi.org/10.1016/B978-008044910-4.01081-6>
- Lotich, P. (2019). *10 Primary Functions of Managing a Small Business*. Thriving Small Business. <https://thethrivingsmallbusiness.com/small-business-management/>
- Moonga, M.S. & Chileshe, B. (2019). Zambia's transition to a green economy. *Multidisciplinary Journal of Language and Social Sciences Education*, 2(1), 96-122.
- Nyumbu (2013). *Poverty and environment: A case study of stone crushing as a sustainable livelihood in Lusaka*. Masters' dissertation, University of South Africa.
- Petersen, L., & Seidel, M. (2019). *Financial Problems That Small Business Enterprises Face*. Chron. <https://smallbusiness.chron.com/financial-problems-small-business-enterprises-face-3528.html>
- Nicholls, S. & Orsmond, D. (2015). The Economic Trends, Challenges and Behaviour of Small Businesses in Australia. *Reserve Bank of Australia Conference – 2015*.
- OECD (2019). *OECD SME and Entrepreneurship Outlook 2019*. The Organisation for Economic Cooperation and Development (OECD).
<https://doi.org/10.1787/34907e9c-en>
- Saleem, M. A. (2017). The impact of socio-economic factors on small business success. *Geografia-Malaysian Journal of Society and Space*, 8(1), 24–29.
- Schaefer, P. (2019). Why small businesses fail: Top 7 reasons for startup failure. Business Know-How. <https://www.businessknowhow.com/startup/business-failure.htm>
- Sherman, F., & Seidel, M. (2019). *Why Is the Location of a Business Important?* Chron. <https://smallbusiness.chron.com/location-business-important-43239.html>
- Statistic Brain Research Institution. (2015). *Startup business failure rate by industry*. Statistic Brain Research Institute. <http://www.statisticbrain.com/startup-failure-by-industry/>



Stokke, K. (1994). Dynamic Growth or Pauperization? Small-Scale Industries in Hambantota District, Sri Lanka. *Geografiska Annaler. Series B, Human Geography*. Vol. 76, No. 3 (1994), pp. 187-209. Published By: Taylor & Francis, Ltd. <https://doi.org/10.2307/490641>

The New Humanitarian (24 April, 2006). *Children forced to a life of stone crushing*. <https://www.thenewhumanitarian.org/news/2006/04/24/children-forced-life-stone-crushing> [Retrieved 15th August, 2023].

UN-Habitat. (2010). *Collection of municipal solid waste: Key issues for decision-makers in developing countries*. Nairobi, Kenya: United Nations Human Settlements Programme (UN-Habitat).

Wamunyima, W. (2006). *Poverty Drives Women to Stone Crushing*. <https://Genderlinks.Org.Za/Programme-Web-Menu/Poverty-Drives-Women-To-Stone-Crushing-2006-07-06/> [Retrieved 20th May, 2021].