

Influence of Manufacturing Small and Medium-Size Enterprises (SMEs) on Sustainable Development of the Kumasi Metropolis

ALBERTA BAABA ANNAN, PROFESSOR JIANG XINYING, KOFI JUNIOR MARFO

School of Management, Jiangsu University, China

ABSTRACT: *The substantial role played by Small and Medium Enterprises (SMEs) became noticed worldwide in many nations due to their ability to stimulate economic development through reducing the high levels of poverty, unemployment, Gross Domestic Product (GDP) and among others. The paper assesses the state of manufacturing SMEs, key factors in the manufacturing space that affect the sustainability of manufacturing positively and negatively in Kumasi Metropolis. Developmental activities like manufacturing, construction and transportation drain the natural resources and produce large quantity of wastes that bring about environmental pollution, global warming and acid rains. The study was piloted in the city of Kumasi-Ghana with a sample size of 250 SMEs. Sampling techniques used were random sampling for the numerous SMEs in the metropolis and purposive sampling to select the respondents in the companies. The approach used for the study was quantitative and the technique applied was linear regression model for estimation. Survey and questionnaire were used to collect information from respondents. The findings of the study revealed that creation of employment, efficiency of domestic market and export earnings are factors that contribute positively to sustainable development. It also showed that environmental pollution (air, soil/land, water) are contributing factors that affect the sustainable development negatively in the Kumasi Metropolis.*

KEYWORDS: *SMEs, Manufacturing, Sustainability, Development, Economy*

Date of Submission: 07-11-2020

Date of Acceptance: 20-11-2020

I. INTRODUCTION

Globally, Small and Medium-sized Enterprises (SMEs) are the dynamic components that contribute to an economy's growth and development. According to (Cooperation & Development, 2000), SMEs account for over 95% of firms, 60% - 70% of employment and create a large share of new jobs as well as generate significant domestic and export earnings which in the long run plays a key role in transitioning developing countries and reducing poverty (Observer, 2000). As globalization evolves, enterprises in developing countries face major challenges in reinforcing their human and institutional capabilities to take advantage of trade and investment opportunities. In view this, the global development agenda features outstandingly in the final statements of important international meetings over the past few years since it became a main priority, including the Doha Declaration and the Monterrey Consensus (D. OECD, 2004).

Industrial manufacturing in developed countries like Germany make up over 80% of exports of the country. The industry has been consequently contributing fundamentally to Germany's positive current account for decades. Recently, Germany surpassed China and the USA as largest exporter of goods with a world trade share of 11.5% (Miehe et al., 2020). According to data from the U.S. International Trade Commission (Commission or USITC) questionnaire, exporting SME manufacturers in 2009 had more than twice the total revenue of their non-exporting counterparts. These exporters had revenue growth of 37% between 2005 and 2009. They discovered that in spite of encountering trade hindrances and other impediments, SMEs in the United States that export goods and services are more productive than those who are non-exporting (Commission, 2010). According to World Trade Organization (WTO) calculations, built on data from World Bank Enterprise Surveys, out of more than 15,500 manufacturing and services firms in 41 lowest developed countries, 88% were SMEs, including some 59% of small firms employing fewer than 20 people, and 29% of medium-sized firms with 20-99 employees. In general, their direct participation in international trade is low. WTO estimated that, based on data from World Bank Enterprise Surveys for over 25,000 SMEs in the manufacturing industry in developing economies, SMEs' direct exports represent on average just 7.6% of total manufacturing sales (Organization, 2016).

Tanzania's general industrial structure encompasses of manufacturing industries (53%), processing industries (43%), and assembling industries (4%). The manufacturing sector accounts for 25% of Tanzania's export value and it contributes 5.6% of the country's Gross Domestic Product (GDP) (Kafuku, 2019). The manufacturing sector in Kenya grew at 3.5% in 2015 and 3.2% in 2014, contributing 10.3% to GDP (KNBS,

2016). However mediocrely, manufacturing has been growing at a slower rate than the economy, which expanded by 5.6% in 2015 (Were, 2016). Pollution reaches its most serious proportions in the densely settled urban-industrial centers of the more developed countries (M. A. Khan & Ghouri, 2011). Industry plays an important role in the process of sustainable development of economies in the world. It enhances the economic welfare of citizens and supplies the material goods they consume. Industry is also a major consumer of natural resources and a major contributor to the overall pollution load (Xianghua, 2009). Based on OECD (Organization for Economic Cooperation and Development) estimates, it accounts for about one-third of global energy consumption of their member states, and for about 10% of the total water withdrawal. The relative contribution to the total pollution load is obviously higher for industry-related pollutants. The industrial sector generates both traditional pollutants (e.g., organic substances, sulfur dioxide, particulates and nutrients) and newly-recognized pollutants (e.g., specific toxic substances). The industrial sector includes a number of diverse activities, as a result, there is a wide range of different resource and environmental impacts created by industry (Xianghua, 2009). Polluting substances can damage the human organs such as the respiratory, hematopoietic, hepatic and renal organs when they come in contact with through a variety of acute and chronic mechanisms. Health problems associated with the environment is a key source of anxiety around the world (Mudu et al., 2014).

The continued sustainable development of Ghana and its localities such as Kumasi Metropolis have the capacity to better the lives of people. It is widely recognized that a key aspect of this development process is improvements and enhancement in Ghana's industrial organization, perhaps in close association with increased urbanization and or greater formal organization of business.

II. METHODOLOGY

2.1 Sampling Techniques

Among the sixteen regions in Ghana, the Kumasi Metropolis was selected to be the research area as a matter of the language though not the mother tongue of the researcher but could be understood the least, furthermore are the presence of manufacturing SMEs which met the prescriptions set for this research.

There exists several and different manufacturing companies and sectors in the Kumasi Metropolis which makes it challenging to gather the respectively needed data to make better conclusions and therefore this research decided to sample manufacturing SME's to be the focal point for a successful outcome. A total of two hundred and fifty (250) manufacturing SMEs were arrived at for the purpose of this research as this number considerably is enough to attain the expected results.

Random sampling was used as the sampling technique for selecting the establishments from the numerous SMEs in the metropolitan. Purposive sampling was also adopted to sample the individuals to be considered as respondents from whom information were solicited.

2.2 Data Collection Techniques and Tool

This study collected data from two main sources; primary and secondary data sources. It used the survey method for collecting data where questionnaires were used as the tool for getting primary information from the respondents. The data was collected personally by visiting the manufacturing firms producing food and drinks, furniture and furnishings and others. The questionnaire was structured in an objective manner, where the respondents had to select one response from the listed questions, which were arranged in a five-point Likert scale. A five-point Likert scale was used for measurement from "strongly agree" to "strongly disagree". The range of scale was selected for convenience of response alternatives, which allowed wide opinions of respondents to improve accuracy of data analysis. It also included close-ended questions, where the respondents had to give specific response; this restricted the respondents from giving more information than needed for the purpose of the research.

2.3 Data Analysis Techniques

For every study to be highly recognized and referred to as a support for concrete conclusion is dependent on the results derived from the information gathered after it is well analyzed and properly presented to give meaning and understanding of the whole research. The study used a linear regression model to estimate and quantitative method was used in the presentation of the findings. The tool used for the study was of Statistical Product and Service Solutions (SPSS v.25)(George & Mallery, 2016) to indicate the significance of relationships among constructs and examine the relationship between variables. The data after analysis was presented in diagrams including tables and figures with the reason being that interested people in this research can easily understand and tap the needed information from the research.

III. RESULTS

3.1 Socio-Demographic Characteristics of Respondents

Below shows the demographic characteristics and the descriptive features of the variables in the data set. The characteristics indicated on the table shows the general distribution of the data variables.

Table 1. Characteristics and Descriptive Features of Variables

VARIABLES	CHARACTERISTICS	FREQUENCY	PERCENT AGE
Education	High School	86	34.4
	Diploma	70	28.0
	Degree	63	25.2
	Masters	24	9.6
	PhD	7	2.8
Working Experience	1-3years	94	37.6
	4-6years	69	27.6
	7-9years	43	17.2
	10+	44	17.6
Company	Ghanaian Owned	239	95.6
	Foreign Owned	11	4.4
Position	CEO/Owner	75	30.0
	General/Operations	10	4.0
	Marketing Officer	20	8.0
	Production Manager	10	4.0
	Sales Manager	54	21.6
	Other	81	32.4
Firm Employees	1-9	161	64.4
	10-24	50	20.0
	25-49	18	7.2
	50-99	11	4.4
	100+	10	4.0

From the table above, it is obvious that the manufacturing SMEs have their employees to have attained some level of education with the least frequency representing 2.8% of the employees having PhD level of education and highest frequency representing 34.4% attaining High School level of education. The table also gives a feedback of most of the employees having a smaller number of working experiences between one to three years and a few over the least of them having more years of experience showing ten and more. The table also revealed that out of the two hundred and fifty SMEs in the Kumasi Metropolis two hundred and thirty-nine are owned by the natives whereas eleven are owned by foreigners.

Moreover, it can be seen from the table that among the positions in the various SMEs in the Kumasi Metropolis, owners constitute 30% which represents seventy-five among the two hundred and fifty. It further did show that other positions apart from the ones listed above were 32.4% indicating eighty-one of the SMEs. Considering the number of employees in the selected SMEs, the table depicts from one to nine employees to be one hundred and sixty-one firms which is 64.4% of the total two hundred and fifty companies in the Metropolis. Between fifty and ninety-nine employees and also over a hundred employees were 4.4% and 4.0% respectively.

Table 2. Industrial Sector Classification

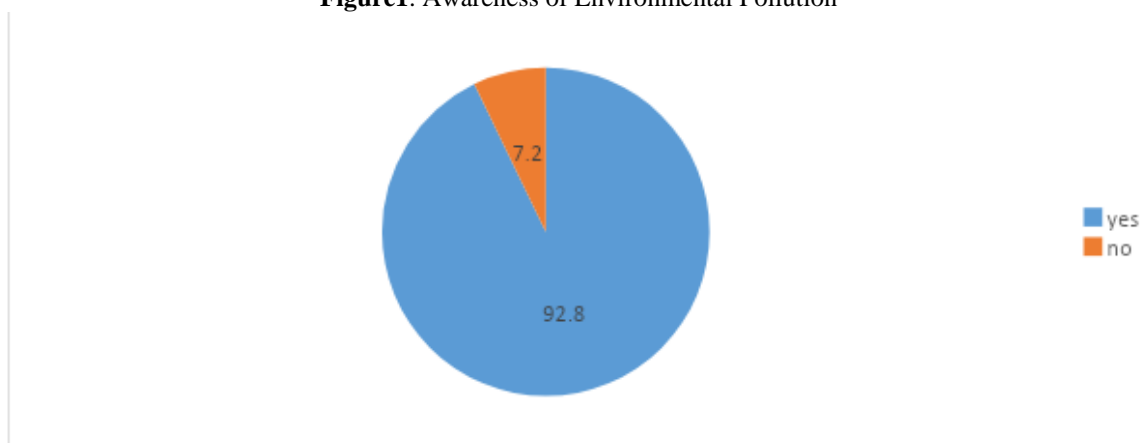
INDUSTRIAL SECTOR	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
Pharmaceutical/ Biotechnology	22	8.8	8.8	8.8
Engineering	3	1.2	1.2	10.0
Food and Drinks	22	8.8	8.8	18.8
Furniture, Furnishing, Wood	38	15.2	15.2	34.0
Construction	7	2.8	2.8	36.8
Giftware and Jewelry	20	8.0	8.0	44.8
Plastic and Rubber	11	4.4	4.4	49.2
Cosmetic, Perfumes, Toiletries	23	9.2	9.2	58.4

Influence of Manufacturing Small and Medium-Size Enterprises (SMEs) on Sustainable ..

Dying, Tanning, Pigments	30	12.0	12.0	70.4
Food Processing	17	6.8	6.8	77.2
Textiles, Ceramics, Pottery	14	5.6	5.6	82.8
Glass Making	15	6.0	6.0	88.8
Aluminum Smelting, Steel	5	2.0	2.0	90.8
Publishing, Printing	22	8.8	8.8	99.6
Machinery Components	1	.4	.4	100.0
Total	250	100.0	100.0	

The table above depicts the frequency and percentage distribution of the industrial sector in the Kumasi Metropolis. The greater percentage is furniture, furnishing, and wood representing 15.2%, followed by dying, tanning, and pigments representing 12%. The remaining 72.8% are into other sectors. This indicates that majority of the manufacturing SMEs in the Kumasi Metropolis are into wood related work.

Figure1. Awareness of Environmental Pollution



From the chart above the results indicated almost all the representatives of the manufacturing SMEs are aware of polluting the environment either by air, land or water. A few representing 7.2% claimed not to be aware of the pollution caused by their companies in the Metropolis.

Table 3. Awareness of Environmental Pollution Kinds

	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
Air	112	44.8	44.8	44.8
Land	91	36.4	36.4	81.2
Water	47	18.8	18.8	100.0
Total	250	100.0	100.0	

The table above displays information regarding the respondents being aware of their activities polluting the environment which turned out that one hundred and twelve responded to that of air pollution, ninety-one were aware of land pollution and the remaining forty-seven were aware of pollution by water.

Table 4. Pollution by Company’s Activities

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	232	92.8	92.8	92.8
No	18	7.2	7.2	100.0
Total	250	100.0	100.0	

From table 4.4 the results showed that a greater percentage of the respondents from the manufacturing SMEs in the Kumasi Metropolis agreed to the fact that their companies’ productions specifically were polluting the environment.

Table 5. Means of Waste Disposal

	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
Air	112	44.8	44.8	44.8
Land	91	36.4	36.4	81.2
Water	47	18.8	18.8	100.0
Total	250	100.0	100.0	

In the table above, it could be seen that majority of the manufacturing SMEs disposed of their waste by air thus one hundred and twelve. Ninety-one disposed their waste by land whereas forty-seven did so by water.

Table 6. Environmental Pollution by Manufacturing SMEs

POLLUTION KINDS	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
Air	112	44.8	44.8	44.8
Land	91	36.4	36.4	81.2
Water	47	18.8	18.8	100.0
Total	250	100.0	100.0	

3.2 Conclusion of Results

Companies do a lot to meet the needs of their consumers either in a large or small scale. Production of products to meet the needs of customers bring about satisfaction and income to both consumers and companies which in the long run leads to development and sustainability of economies. However, these activities in the case of manufacturing SMEs also do have their negative aspects.

The results from the research did show that the employees from the manufacturing SMEs in the Kumasi Metropolis have had some level of education though majority have lower level of education with the minority having higher level of education. The data also revealed that most of the employees in these companies have a smaller number of working experiences from one to three years and they happen to be more than the other classifications. Although they are the majority, the other classifications also were of a reasonable number like forty-four working over ten years and sixty-nine working from four to six years.

The manufacturing SMEs in the metropolitan are mostly owned by the natives with just a hand full owned by foreigners representing two hundred and thirty-nine and eleven respectively. Most of these companies were actively managed or owned by the owners themselves or hired managers representing seventy-five out of the two hundred and fifty companies whereas fifty-four of them were in the position of sales managers. These two positions constituted the highest numbers when talk of positions held by employees in the SMEs in the Kumasi Metropolis.

Moreover, the respondents from these companies showed that they were aware of environmental pollution and that their companies though producing to meet the needs of consumers and earning profits and income did impact the environment negatively as well. They further did prove their awareness of environmental pollution by ways of disposing off their production waste either by air, land or water.

IV. DISCUSSION

Over the years economic development has been the core focus of governments to gaining goodwill and promoting their economies in the face of the international market and relations with other nations. Countries with highly ranked economies are highly respected which paves way for them to be well recognized in terms of international dealings like securing loans from the International Monetary Fund, World Bank and well developed countries (Vreeland, 2003). These dealings and support from such institutions and countries do come with agreements which sometimes are difficult to follow, yet countries especially developing ones have less options than to agree in order to better their economies and provide better living standards for their people (Stubbs, Kentikelenis, Stuckler, McKee, & King, 2017). Stabilizing economies also do involve investing in manufacturing small and medium scale enterprises as they do produce goods to meet the demands of people though at a limited number but in the end contribute to the development of economies as they pay tax which is mostly used to cater for projects like roads, quality water, infrastructure and among others (Beazer & Woo, 2016).

Kumasi Metropolis being an industrious city in Ghana gives much understanding to the fact that the economy cannot boast of its progress without including the contributions by the metropolis. The manufacturing SMEs in this city in their numerous quantity do produce a lot of goods to satisfy their consumers (Soto-Acosta, Popa, & Palacios-Marqués, 2016). This as a result, leads to the generation of revenues by the government from the taxes consumers pay from purchasing commodities. The companies on the other hand tend to pay more taxes as they gain the capability to do larger productions bringing about higher incomes for them to expand their companies (de Jesus Pacheco et al., 2017). The higher income generations and expansion of these manufacturing SMEs give them the ability to employ more people which reduces unemployment rates. Expansion leads to creating more departments and the production of variety of commodities to meet the demands of consumers. Ready market becomes available making it much easier for companies to lay off their produce as quickly as possible to prevent overstock and contamination of production like foodstuff. Manufacturing SMEs are also able to effectively contribute to the development of economies due to their ability to employ much knowledgeable and educated people into their firms who are to come up with new ideas and ways to better perpetuate production to meet demands of consumers (Abd Aziz & Samad, 2016).

The various sectors of the manufacturing SMEs could be said to be of a great advantage to the development of economies especially at the local level and this is because different productions have the tendency of covering a wider satisfaction of needs. Needs do bring about revenues for development as companies gain more when the demand is high. People's insatiable nature benefit companies to do more production and different kinds thus, a pharmaceutical company will produce to meet the health needs of people, a food processing company may produce products like drinks, canned foods, snacks, beverages and among others. Industrial companies like automobile companies on the other hand may produce auto parts and machinery and so on. These sectors exist to ensure the satisfaction of consumers however as these needs are met so do companies obtain enough revenues to pay their taxes thereby contributing to the development of economies (Quaye & Mensah, 2019).

Manufacturing SMEs though are an important component to the development of local economies however their activities have consequences not positive. For an economic to develop it should be versatile in the production of commodities to satisfy customer needs but there also comes its complimentary effects- environmental pollution. Talking of environmental pollution may include air, water, and land pollution. When companies produce their goods the question of where does their waste go mostly ends up unanswered (Efobi et al., 2019). Most companies deposit their wastes from production or expired goods or overstock unlawfully and wrongfully. These actions have very bad consequences not only on the environment but also on people which could be airborne bringing about respiratory diseases, pollution of water bodies as chemicals are deposited into rivers consumed by other people and also neutralization of lands which become unusable for agriculture and in some cases infrastructure (Domeher, Musah, & Hassan, 2017).

Although these companies have learned employees with some having higher levels of education, they still go ahead to pollute the environment knowingly. Some employees- considerably top-level management are usually aware of how they dispose of their waste and furthermore know the negative impact it has on the environment and people but seem to weigh the benefit of satisfaction of consumer needs over the bad implications of destroying the environment. Bigger companies that contribute much to the development of the economy are mostly allowed for their pollution since governments benefit from their existence like employment, revenue, imports and exports (Nyanzu & Adarkwah, 2016).

V. CONCLUSION

From the research the main objective was to find out the contributions made by manufacturing SMEs in the sustainable development of Kumasi Metropolis. It further endeavored to identify the kind of manufacturing SMEs in the metropolitan and also if these manufacturing SMEs did pollute the environment. The classification of the selected manufacturing SMEs was based on the number of employees and fixed assets, thus, a company with the number of employees between six and twenty-nine with the total fixed assets less than one-hundred thousand dollars was considered a small-scale company. A company with employees between thirty and ninety-nine with a corresponding equivalent of assets less than one million dollars was considered a medium scale. The study found out that there are several manufacturing SMEs in the city of Kumasi with different sectors among which the SMEs classified. It was realized that there are the sectors of pharmaceutical, engineering, food and drinks, construction, giftware and jewelry, plastic and rubber, cosmetics, perfumes and toiletries, dying, tanning, pigments, food processing and many others.

These companies are known to be small and medium sized however they are run by employees who have acquired some level of education. Most of these employees were found to be at the lower level management but have some education either at the high school level or the diploma level. Other employees had the first degree and master's degree level of education with the least among the employees of these companies acquiring doctorate. This explains the fact that the companies had enough knowledge on their actions which pollutes the environment being land, air or water and that there are diseases and negativities that are associated with them. The manufacturing SMEs are also aware of the kind of pollution they may engage in because of the method and location of disposal they choose. The research further saw that these manufacturing SMEs had their employees to have worked in the companies not less than a year. Majority of these employees were in the range of one to three years of experience and the least ten years and above representing ninety-four and forty-four respectively. This could be concluded that the long time these employees have been in the companies have increased their knowledge in their productions and the consequences they have on the development of Kumasi Metropolis or its regression.

The research also did realize that most of the manufacturing SMEs in the Kumasi Metropolis were owned by the natives of the city. This doesn't deny the fact that there are foreign owned companies in the city but are very few. The foreign companies are very few but they still are considered to contribute to Kumasi's development since they are not exempted from regulations and policies the Ghanaian companies operate around. The companies in the city are mostly run by the owners or chief executive officers. Some of these companies were left in the care of sales managers who render account on the daily operations of the companies to their superiors.

From the information gathered, it came to light that the companies polluted the environment in their efforts to meet the demands of their consumers. The companies disposed of their waste either by land, water or air and were aware of the consequences of their actions. The employees either at the top or lower level did express their opinions on the negative impacts their productions had on the environment and yet had to allow it. Their education history also gave more meaning to the fact that they knew about the harm they might be causing to the environment.

Finally, it could therefore be concluded that the manufacturing SMEs in the Kumasi Metropolis have been doing a great job by impacting on the city positively. Their existence has contributed to the city's employment rate, generating of incomes to pay taxes to governments, producing goods for exports in the larger extent, GDP and supporting other projects in the metropolitan. Nonetheless, the endeavors of the SMEs to meeting customers' demands and contributing to Kumasi's sustainability had an adverse effect on the environment leading to severe implications on the health of people. Government will have to allocate budget to the restoration of destroyed lands which could have been used for other beneficial projects. However, it is understandable that though pollution in any form should be dealt with, little did it have an impact on the development of the Kumasi Metropolis as long as its sustainability is concerned.

VI. RECOMMENDATIONS

- a) Manufacturing SMEs must include managing processes with sustainable inputs such as rework and inventory to boost manufacturing sustainability and to use relatively labor-intensive technologies to employ more people. They should also use improved production methods to propel production.
- b) There are issues that impede SMEs from expanding, this incorporates high cost of raw materials and high initial cost of investment. To help manufacturing SMEs pay for the high initial cost of investment, the local government can put in place conducive policy measures to help them get loans at a reduced interest rate from financial institutions. Also, the government can advise sellers of raw materials to subsidize the prices and let local farmers plant more food stuffs for food processing companies. Again, instead of importing, manufacturing SMEs can focus on buying local raw materials. This will reduce the cost of the materials they buy but for the materials that cannot be purchased locally, the government can reduce the duty or clearance fee they pay. These

will help manufacturing SMEs to expand and fuel production which will also reduce unemployment since the companies will hire more. Economic activities like export market and domestic consumption will grow as well.

c) Small enterprises are usually not wary of environmental externalities as compared to large enterprises and of the laws that oversees their activities. Manufacturing SMEs should merge advance technologies in reducing waste. This investment in environmental improvement could make their operations more sustainable and reduce the harmful effect on the environment and the people around. Manufacturing SMEs have to be more careful of where and how they dispose of waste.

d) Another problem manufacturing SMEs face is shortage of skilled labor. Government should allocate funds to SMEs to help them hire more skilled labour and make more investments. A given amount of money will create more jobs if it is spread over a large number of SMEs. This provision of funds can also help in paying low-income earners in SMEs and in the long run reduce poverty.

e) The government should educate the manufacturing SMEs on the economic benefits derived by the country as this will encourage some companies to produce more products for export and by so doing the government should also subsidize the cost of production inputs of these particular products for the companies.

REFERENCES

- [1]. Abd Aziz, N. N., & Samad, S. (2016). Innovation and competitive advantage: Moderating effects of firm age in foods manufacturing SMEs in Malaysia. *Procedia Economics and Finance*, 35(2016), 256-266.
- [2]. Beazer, Q. H., & Woo, B. (2016). IMF conditionality, government partisanship, and the progress of economic reforms. *American Journal of Political Science*, 60(2), 304-321.
- [3]. Commission, U. S. I. T. (2010). Small and medium sized enterprises: Characteristics and Performance. November, 2010, Publication 4189.
- [4]. Cooperation, O. f. E., & Development. (2000). Small and medium- sized enterprises: Local strength, global reach. *OECD Policy Review*(June), 1-8.
- [5]. de Jesus Pacheco, D. A., Carla, S., Jung, C. F., Ribeiro, J. L. D., Navas, H. V. G., & Cruz-Machado, V. A. (2017). Eco-innovation determinants in manufacturing SMEs: Systematic review and research directions. *Journal of Cleaner Production*, 142, 2277-2287.
- [6]. Domeher, D., Musah, G., & Hassan, N. (2017). Inter-sectoral differences in the SME financing gap: Evidence from selected sectors in Ghana. *Journal of African Business*, 18(2), 194-220.
- [7]. Efobi, U., Belmondo, T., Orkoh, E., Atata, S. N., Akinyemi, O., & Beecroft, I. (2019). Environmental pollution policy of small businesses in Nigeria and Ghana: Extent and impact. *Environmental Science and Pollution Research*, 26(3), 2882-2897.
- [8]. George, D., & Mallery, P. (2016). *IBM SPSS statistics 23 step by step: A simple guide and reference*: Routledge.
- [9]. Kafuku, J. M. (2019). Factors for effective implementation of lean manufacturing practice in selected industries in Tanzania. *Procedia Manufacturing*, 33, 351-358.
- [10]. Khan, M. A., & Ghouri, A. M. (2011). Environmental pollution: its effects on life and its remedies. *Researcher World: Journal of Arts, Science & Commerce*, 2(2), 276-285.
- [11]. Mieke, R., Bauernhansl, T., Beckett, M., Brecher, C., Demmer, A., Drossel, W.-G., . . . Hinxlage, J. (2020). The biological transformation of industrial manufacturing—Technologies, status and scenarios for a sustainable future of the German manufacturing industry. *Journal of Manufacturing Systems*, 54, 50-61.
- [12]. Mudu, P., Terracini, B., & Martuzzi, M. (2014). Human health in areas with industrial contamination: WHO Regional Office for Europe.
- [13]. Nyanzu, F., & Adarkwah, J. (2016). Effect of Power Supply on the performance of Small and Medium Size Enterprises: A comparative analysis between SMEs in Tema and the Northern part of Ghana.
- [14]. Observer, O. (2000). Small and medium-sized enterprises: local strength, global reach. *Policy Brief*.
- [15]. OECD, D. (2004). Promoting SMEs for development: OECD DAC Network on Poverty reduction.
- [16]. Organization, W. T. (2016). World trade report 2016: levelling the trading field for SMEs: Geneva: WTO Publishing.
- [17]. Quaye, D., & Mensah, I. (2019). Marketing innovation and sustainable competitive advantage of manufacturing SMEs in Ghana. *Management Decision*.
- [18]. Soto-Acosta, P., Popa, S., & Palacios-Marqués, D. (2016). E-business, organizational innovation and firm performance in manufacturing SMEs: an empirical study in Spain. *Technological and Economic Development of Economy*, 22(6), 885-904.
- [19]. Stubbs, T., Kentikelenis, A., Stuckler, D., McKee, M., & King, L. (2017). The impact of IMF conditionality on government health expenditure: A cross-national analysis of 16 West African nations. *Social Science & Medicine*, 174, 220-227.
- [20]. Vreeland, J. R. (2003). Why do governments and the IMF enter into agreements? Statistically selected cases. *International Political Science Review*, 24(3), 321-343.
- [21]. Were, A. (2016). Manufacturing in Kenya: Features, challenges and opportunities. *International Journal of Science, Management and Engineering*, 4(6), 15-26.
- [22]. Xianghua, W. (2009). INDUSTRIAL POLLUTION. Point Sources of Pollution: Local Effects and their Control-Volume II, 147.

ALBERTA BAABA ANNAN. "Influence of Manufacturing Small and Medium-Size Enterprises (SMEs) on Sustainable Development of the Kumasi Metropolis." *International Journal of Business and Management Invention (IJBMI)*, vol. 09(11), 2020, pp. 26-33. Journal DOI-10.35629/8028