

Developing the diamond cutting and polishing industry in Namibia

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ABSTRACT

Namibia has high levels of unemployment and poverty among its people despite being endowed with a high level of mineral resources that are perceived to be drivers of industrial development, economic growth, employment creation, and poverty reduction. Diamond is one of the valuable mineral resources in Namibia, and the country is one of the large diamond producing countries in the world. However, most of the value-added diamond products in the global value chain are produced abroad, despite implementing the diamond value addition policy in 2007 in Namibia. There is a knowledge gap around the level of progress in the development of the diamond cutting and polishing industry in the Namibian economy. The question is, "To what extent has the Namibian diamond cutting and polishing industry been successful, and how can this success be explained?" The study adopted a qualitative evaluative case study approach to determine the performance of the diamond industry in Namibia. The study was done using literature review and primary data collection through interviews with various stakeholders of the diamond industry in Namibia and the neighbouring Botswana and South Africa. A sample of 28 interviewees was drawn from diamond industry stakeholders in Namibia, Botswana, and South Africa using the non-probability purposive sampling method. The data collected was analysed qualitatively, and the findings revealed that the Namibian diamond industry has made some considerable gains, but more can be done through the removal of constraints. The challenges affecting the Namibian diamond industry are counter-production, tripartite security policy, and expensive labour costs of production. Following the identified challenges, it is recommended that Namibia must develop comprehensive legislation and policies that are directly focused on the growth of the diamond industry, with clear objectives and targets.

Keywords: Diamond cutting, Diamond manufacturing, Diamond polishing, Job creation, Value addition.

1. INTRODUCTION

In 2019, the mining industry contributed 9.3% to Namibia's GDP, and this increased to 14.4% in 2023, showing a significant growth of 5.1% (Barry, 2019; Chamber of Mines of Namibia, 2024). Of the 2019 mining industry contribution to GDP, diamonds contributed 3.9% and accounted for 65.9% of Namibia's total exports of goods (Barry, 2019). The diamond mining in Namibia has been the leading sub-sector of Namibia's mining industry, and it places Namibia in the top 10 global diamond producers in the world (Namibia Investment Promotion and Development Board (NIPDB), 2022). The diamond value chain ranges from diamond exploration and mining to diamond cutting and polishing, and finally to diamond jewellery production and retailing.

Although mining in general, including diamond mining in Namibia, shows a significant contribution to the Namibian economy, the benefits of minerals to Namibians have not yet been fully realised, as most minerals are being exported in raw form or semi processed with little or no mining value addition (Nambinga & Mubita, 2021). According to Nambinga and Mubita (2021), value addition of diamond cutting and polishing is done locally, but significant investment is required to boost the diamond cutting and polishing industry. Over the past

years, until the implementation of the diamond value addition policy in 2007, Namibia's diamonds were exported without any prior value addition locally. This concern led to the idea of introducing a policy to start up a diamond manufacturing industry in the economy.

The Namibian government, with the support of its partner, world-renowned diamond giant De Beers, facilitated the creation of a value addition programme intended to lead to the maximisation of benefits from the diamond value chain in the form of employment creation, skills development, and the establishment of a local diamond cutting and polishing industry in the country (Namibia Diamond Trading Company (Pty) Ltd, 2013, p. 1). The diamond value chain initiative is based on the Minerals Policy of Namibia, which provides for minerals beneficiation through local value addition of Namibian minerals (Republic of Namibia, 2012). Since the policy initiative for establishing the diamond manufacturing industry, there has been no policy evaluation to establish the extent of its implementation. There is, therefore, a knowledge gap around the level of progress in the establishment of a diamond cutting and polishing industry in the Namibian economy. The study establishes what Namibia needs to do in terms of policy initiatives to move the industry to a better equilibrium by creating a conducive and competitive business environment. There are perceptions by Namibian stakeholders (NDTC-listed NDTC companies authorised as bulk buyers of rough diamonds) that diamond value addition has performed poorly due to a lack of appropriate and supportive government policies that can lead to a favourable investment environment. The labour cost is perceived to be high in the country, whereas productivity is believed to be low. This study, therefore, evaluates the progress made for diamond value addition in terms of creating a diamond cutting and polishing industry in Namibia. It looks at the model used in supplying diamonds to the cutting and polishing companies, as well as policy measures taken to support an industry that is in a cost self-discovery stage.

The "Value chain analysis of Namibian diamonds" by Palander in 2015 found that the value chain is a viable tool for mapping the creation and distribution of economic benefits at different stages of a particular mineral sector (Palander, 2015). Therefore, the main focus of this research study is to assess the value addition policy in terms of progress made in the development of a sustainable diamond cutting and polishing industry in Namibia, with comparisons being made with Botswana and South Africa. The findings will help policy makers to review the current policy and identify gaps in prescribed goals and the current situation for revision or consolidation of the current value addition policy.

2. RESEARCH OBJECTIVES

The overall objective of the research study is to evaluate and assess the extent of progress and success of the development of the diamond cutting and polishing industry in Namibia in terms of the value-added program, job creation, diamond-polishing skills developed, value addition from rough diamonds to polished diamonds, and related economic spin-offs. The overall objective of the research study is achieved by the following specific objectives:

- i) Investigate and evaluate the performance of the diamond value addition program and determine its level of success in terms of skills development, employment generation, and establishment of a sustainable and value-adding diamond manufacturing industry.
- ii) Evaluate government policies required to support the development of the diamond manufacturing industry.
- iii) Investigate and assess the constraints and challenges encountered in doing diamond value addition.

3.0. THEORETICAL FRAMEWORK

The mining industry is the key sector that drives economic growth and development (Choruma, 2016). Since diamonds in Namibia, Botswana, and South Africa are a strategic mineral, value-addition and setting up of downstream industries create jobs, alleviate poverty, strengthen knowledge economy (human capital development), promote export of higher-value goods, increase government revenue, and promote infrastructure development (Choruma, 2016). The goal of economic development is to create the wealth of a nation (Sui & Pheng, 2015). Economists have, however, realised that the goal for economic development cannot just be limited to economic growth but should also concentrate on the reduction of poverty, inequality, and unemployment. Therefore, the theoretical framework for the development of the diamond cutting and polishing industry in Namibia is focused on the economic development theories that include economic development as a self-discovery and domestic market economic theory of plant location.

3.1. Economic development as a self-discovery

The self-discovery perspective differs from the neoclassical view in a very important way. The neoclassical model assumes that the production functions of all extant goods are common knowledge. The self-discovery perspective, on the other hand, disagrees with this assumption, arguing that countries must learn what activities are most advantageous to specialise in. The perspective further argues that even much of the

technology cannot be easily codified into blueprints that allow easy application. Imported technology also requires learning and adaptations when it is transferred to new economic and institutional environments (Hausmann & Rodrik, 2003). The focus of economic development as a self-discovery model is on learning what one is good at producing, which is very important for the process of economic transformation into a modern economy and promotion of structural change (Hausmann & Rodrik, 2003).

According to this model, there is great social value in discovering what a country can produce at low cost because this knowledge can guide other entrepreneurs in their investments. The entrepreneurs who spearhead the self-discovery efforts do not enjoy the full benefit of returns on their investment due to information externality. Information externality leads to innovators reaping low returns on their search for profitable activities. The problem of emulation of discoveries by other entrepreneurs discourages innovators from continuing with the search for what a country is good at producing at low cost. Free entry makes the non-appropriate problem worse and becomes a disincentive for investors interested in discovering what a country is good at producing. This will consequently lead to an undersupply of entrepreneurship in learning what can be produced and will delay economic transformation (Hausmann & Rodrik, 2003).

3.2. The domestic market economic theory of plant location

The domestic market economic theory suggests that the domestic or local market plays an important role in promoting the local beneficiation of raw materials as dictated by both the production cost advantages existing at a particular site, the locational interdependence of firms, the existence of a consumer market at a specific location that attracts production facilities, and the ability to compete in capacity due to technological competitiveness (Robinson & Van Below, 1990). The application of this theory is in the Indian jewellery market, which promoted the economic growth of the Indian gems and jewellery industry based on the size of the domestic market. The Indian jewellery market is one of the largest in the world, with a market size of \$13 billion; hence, India is the largest diamond-cutting and polishing centre in the world and the third largest consumer of polished diamonds after the USA and Japan (Khurana, 2017). The global competitiveness of India as a jewellery industry hub is based on its strength in diamond processing, skilled labour and low cost in the area of gemstone processing (Khurana, 2017). The term 'competitive capacity' refers to diamond production capability and the ability to compete due to the availability of technical know-how and local physical infrastructure (Robinson & Van Below, 1990). This study focused on how the aspects of domestic market economic theory can be applied to effective diamond development in the diamond cutting and polishing industry in Namibia in terms of diamond production capability and competitiveness due to the availability of technical know-how and local physical infrastructure.

3.3. The conceptual framework

The conceptual framework recognises the coordination role played by both the public sector and the private sector through public sector industrial policy interventions as policy directives for private sector coordination dealing with the setting of standards by leading firms in the GVCs, such as De Beers and some of the parent firms of the locally operating cutting and polishing firms. Both public and private sector coordination efforts are intended to culminate in an upgraded capacity of the diamond industry in terms of the type of polished diamonds produced for market differentiation purposes and the skills created for polishing processes. The coordination is reflected in the conceptual model below.

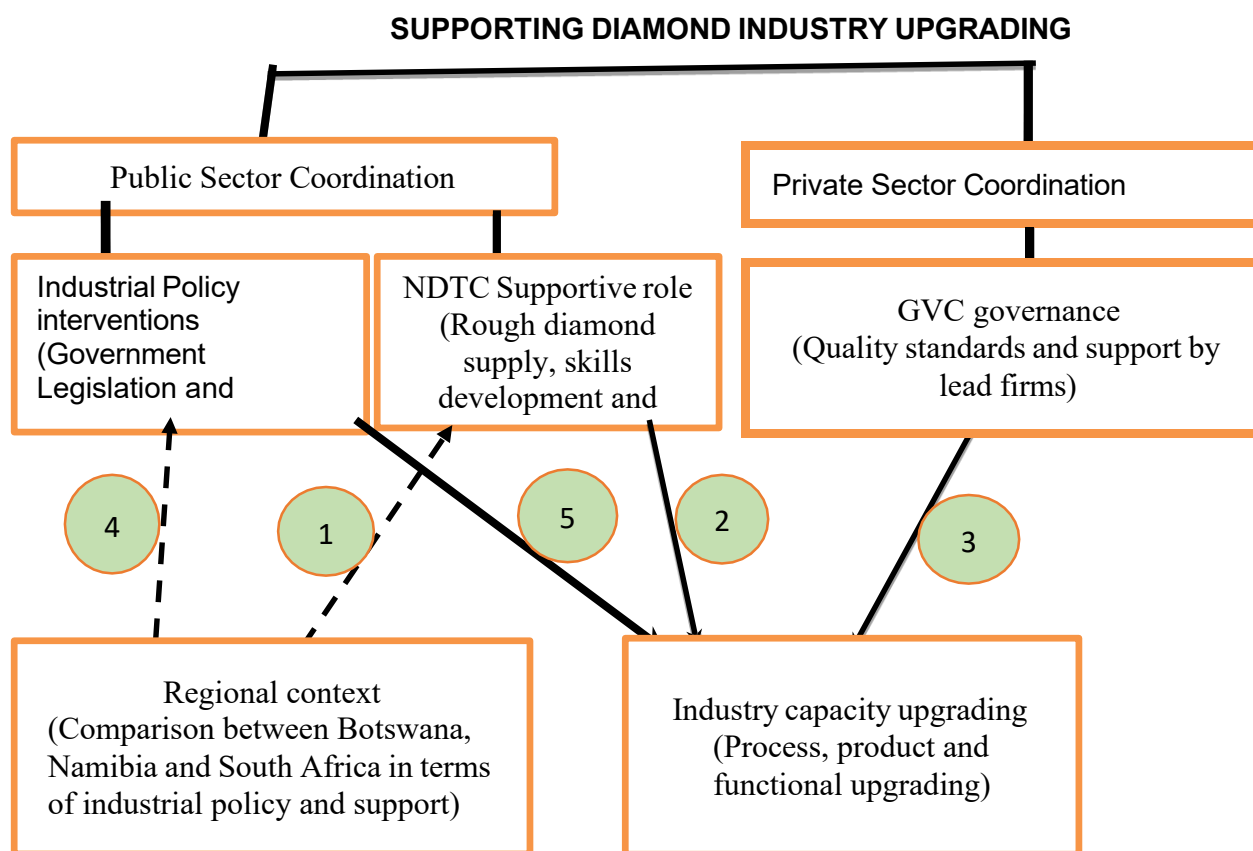


Figure 2.1: The conceptual model

The above conceptual framework focuses on the coordination role played by both the public and the private sectors in the facilitation of the development of the diamond cutting and polishing industry in Namibia through the relationships generated from the identified variables that include industry policy interventions, public sector supportive roles, GVC governance, and industry capacity upgrading. Government intervention through industrial policy can address failures of the free market, and this helps the efforts of self-discovery by protecting the innovators and discoverers from the negative effects of information externality.

3.4. The diamond industry in Namibia

The diamond industry set up in Namibia represents the diamond value chain that includes diamond mining, diamond sorting, valuing, and distribution; diamond manufacturing (cutting and polishing); and jewellery manufacturing (Boer & Sherbourne, 2004). The diamond industry in Namibia is dominated by Namdeb, which is a 50/50 joint venture between De Beers and the Namibian government. Namdeb is the oldest diamond mining company in Namibia, and it is in charge of mining operations on land in the Oranjemund area. De Beers Marine, which is also jointly owned between the government and De Beers, is responsible for marine diamond mining (Sherbourne, 2010). The creation of a diamond manufacturing industry is premised on long-term sustainability, and such an industry should be able to thrive even beyond the diamond mining or production (De Beers, 2014). The success of the diamond manufacturing industry depends very much on a sufficient supply of rough diamonds to the industry, and with this comes a lot of other issues, such as support by the government in terms of policies and legal framework (Mbayi, 2011). Namibia has 11 sightholders (listed and authorised companies for bulk buying of rough diamonds) supplied with rough diamonds by NDTC for cutting and polishing and jewellery manufacturing, of which five of the eleven sightholders are also retailers of diamond jewellery. De Beers, in all areas of the diamond industry, sets the rough diamond prices at which Sightholders buy rough diamonds from NDTC, which affects the overall profit they would get when selling polished diamonds. De Beers selects its Sightholders based on the Supplier of Choice (SoC) strategy, using the criteria of financial ability, market position, distribution ability, marketing ability, and manufacturing ability (De Beers, 2014). The SoC encourages Sightholders to drive consumer demand by creating high-value-added

brands and increasing marketing and advertising. De Beers leads the governance of the diamond value chain (Mbayi, 2011). The local Sightholders in Namibia operate within the policy guidance of the overseas mother companies in terms of the type of polished diamonds to manufacture and are also provided with financial support and technology to use in their operations (Namibia Diamond Trading Company (Pty) Ltd., 2013). The marketing of the polished diamonds and the branding thereof are done by the parent firms, of which the GVC governance can be characterised as relational, where the parties have to engage in frequent interactions and knowledge sharing between them. These linkages are based on trust, reputation, social and spatial proximity, family and ethnic ties, and others (Kaplinsky, 2013).

4.0. RESEARCH DESIGN AND METHODOLOGY

The approach adopted for the study is the qualitative research approach, which aims at understanding some aspect of social life through interpreting phenomena in terms of the meanings people bring to them, and its methods generate words, rather than numbers, as data for analysis (Brikci, 2007, p. 10). The research design associated with the qualitative approach is the case study design, which combines the theory-driven evaluative research strategy. The case study has a distinct advantage when a “how” and “why” question is being asked and over which the investigator has little or no control (Yin, 2009).

4.1. Population and sampling

The population of the study comprised 14 diamond stakeholder institutions that include 8 in Namibia, 4 in South Africa and 2 in Botswana. The stakeholder institutions in the diamond industry in Namibia were mainly diamond mining companies, diamond and jewellery manufacturers, jewellery retailers and associated institutions (the Ministry of Mines and Energy, the Ministry of Trade and Industry and the NDTC). In the case of South Africa and Botswana, the diamond stakeholders included in the population were diamond manufacturers, South African Small-Scale Beneficiation members, De Beers Global Sightholder Sales (DBGSS) and Botswana Diamond Manufacturers. Purposive sampling was used to select information-rich and knowledgeable key role players occupying key positions of authority for interview from various stakeholder institution segments of the diamond industry value chain in Namibia, Botswana and South Africa. The type of sampling was useful in the context of evaluation research and policy analysis, and it involved subjective identification of major stakeholder institutions and information-rich representatives occupying key positions of authority in the institutions who are involved in designing, giving, receiving, or administering the programme or service being evaluated and who might otherwise be affected by it (Palys, 2008). The sample of 28 participants was selected consisting of 1 Namdeb CEO, 1 Debswana CEO, 3 NDTC managers, 12 Namibian Sightholder managers, 3 Namibian Jewellery manufacturers, 2 employees from Namibian diamond manufacturing companies, 1 Ministry of Mines & Energy Diamond Commissioner, 1 Ministry of Trade and Industry Deputy Director, 1 De Beers Head of Beneficiation for Botswana, Namibia and South Africa, 1 South African Diamond Manufacturer, 1 Diamond manufacturer & Head diamond hub in Botswana and 1 Senior Manager for Diamond Sales in South Africa.

4.2. Data collection and data analysis

The data collected included both primary and secondary data. Primary data was collected using interviews from 28 participants, while secondary data included data on government legislation and policies, and other relevant document sources. Thematic qualitative data analysis was employed to analyse the data collected following the five (5) step framework of data analysis by Creswell and Creswell (2022). This started with the transcription of recorded interviews, followed by checking data and familiarisation with the interview responses, coding of main concepts that address research questions, organising codes in a logical order and identification of themes from codes before interpretation of themes. The themes were identified from patterns of analysed coded data related to research questions. The triangulation method was used to overcome validity problems, whereby multiple sources of data were collected to find out if they converge to support a particular hypothesis.

5. FINDINGS AND DISCUSSIONS

5.1 Role of the legal framework for promoting industrial policy interventions

The Export Processing Zone (EPZ) policy is the dominant government policy for promoting industry in Namibia. The EPZ strategy is an effort aligned to the self-discovery model as it promotes the process of economic transformation and structural change (Hausmann & Rodrik, 2003) by creating an environment for local manufacturing of diamond products, which in turn promotes local growth of both downstream and upstream industries. Despite that, production has been reported by manufacturers of diamonds to be affected by counter-facilitation or counter-production delays due to bureaucracy and production time loss. However, the tripartite security (government) policy as a legal instrument for promoting industrial policy for cost self-discovery interventions was found to be counter-productive and counter-industrialisation due to restrictive components of the Diamond Act on rough diamond trade. Furthermore, Namibian Sightholders complained of

high restrictive import VAT at about 16.5% and poor service of the Customs Department on VAT refunds for those Sightholders that paid tax before the Export processing Zone (EPZ) status, which is counter-productive.

5.2 Value-addition promotion

The diamond value-addition is a policy initiative based on the 2007 Minerals Policy of Namibia that provides for minerals beneficiation through local value addition of Namibian minerals (Republic of Namibia, 2012). Since 2007 up to 2019, the local sales of aggregated and unaggregated rough diamonds by NDTC grew to almost 15% by 2010 but then sank back to about 8% by 2015 before increasing to over 20% in 2019 (IPPR, 2021). This indicates the positive support of the local diamond cutting and polishing industry in Namibia. For the diamond industry, the success of the diamond manufacturing industry depends very much on a sufficient supply of rough diamonds to the industry and with this comes a lot of other issues, such as industry support by the government in terms of policies and legal framework (Mbayi, 2011). Increasing local sales of rough diamonds by NDTC to local cutting and polishing companies is related to domestic market economic theory, which explains the production cost advantages at a particular site, locational interdependence of firms, the existence of a consumer market at a specific location that attracts production facilities, and the ability to compete in capacity due to technological competitiveness (Robinson & Van Below, 1990). The growth of value-addition through the local diamond cutting and polishing industry in Namibia was realised through skills transfer as local Namibians gained diamond cutting and polishing skills from the expatriates employed in the local diamond industry. Apart from skills transfer, the growth of the local diamond industry has resulted in industry growth, employment creation, and technological upgrading, which are all positive outcomes of the development of the diamond cutting and polishing industry in Namibia. Despite some observable benefits, drawbacks do exist, as value-addition in the diamond industry has been seen to be expensive, as costs of production such as labor, electricity, and transport are very high, and local manufacturing is regarded as not very competitive in comparison to the Asian markets (Palander, 2015). A close value-chain analysis of the diamond industry in Namibia shows that value-addition in the Namibian diamond industry is limited to cutting and polishing, and much of the polished diamonds are exported, with only 0.4% of the output transferred as inputs to Namibian jewellery manufacturers (Palander, 2015).

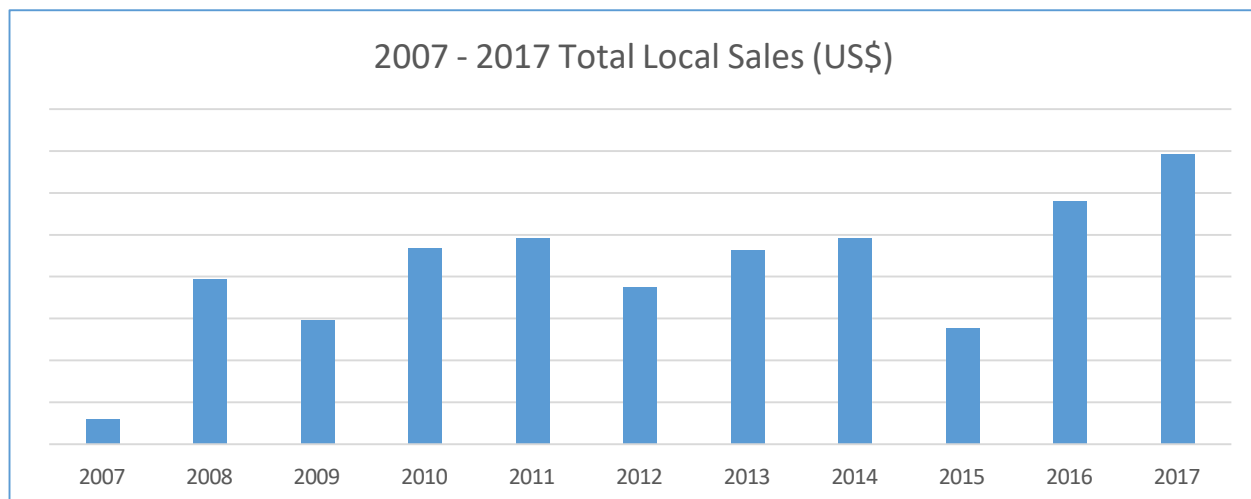


Figure 5.1:

Total Local Sales 2007 - 2017 (NDTC Sales Department, 2018)

As indicated in the figure above, NDTC has been increasing the sales of rough diamonds over the years since its inception in 2007 with the view of supporting the growth of the diamond cutting and polishing industry. The supply amounts included in the above table include both aggregated and unaggregated diamonds, meant to support the local diamond industry.

The important regional comparisons are the beneficiation outcomes that are analysed and discussed in terms of employment, skills transfer, and expatriate to local employees' ratios, local citizen ownership of diamond companies, and other downstream benefits. While in Namibia, there are 11 Sightholders; Botswana has 16 Sightholders, and South Africa has 7 Sightholders. The number of Sightholders may translate to the level of benefits likely to be accrued in terms of employment benefits, which might or might not be the case. Generally, Botswana has the highest number of employees in the diamond beneficiation programme of about 3,800, followed by Namibia at around 844 and lastly South Africa at around 500. Botswana had overtaken South Africa in diamond beneficiation, despite South Africa having vast diamond resources and having started to mine diamonds far earlier than Botswana and Namibia (Omarjee, 2016).

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The Namibian diamond value addition programme through cutting and polishing has shown some performance in terms of employment creation, technological and skills transfer by lead companies into Namibia, and capacity upgrading. Despite some successes identified, real growth of the diamond industry is limited because real value-addition remains a challenge in the Namibian diamond industry, as it is limited to cutting and polishing, and much of the diamonds are still exported in polished form, not as manufactured jewellery. As for government policies required to support the development of the diamond manufacturing industry, the existing Protectionism Export Levy Policy, 2011, promotes local manufacturing by discouraging the export of raw commodities, and the EPZ policy promotes value addition through investment attraction policy to local manufacturing and is supportive and is meant to promote the growth of local diamond manufacturing as explained by the self-discovery model and the domestic market economic theory. However, the competitiveness of the local diamond manufacturing through cutting and polishing is only competitive in terms of access to rough diamonds and the favorable EPZ policy, but the actual competitiveness is insignificant due to some constraints associated with counter-production of the tripartite security (government) policy that has restrictive components. Furthermore, there are high locational costs and high labour costs in Namibia in comparison to large diamond processing hubs, particularly in Asia, and lower local market prices of polished diamonds on the Namibian market as compared to foreign markets. The overall conclusion is that the development of the diamond cutting and polishing industry in Namibia has progressed and succeeded to a certain extent in terms of job creation, diamond polishing skills developed, value addition from rough to polished diamonds, and local shareholding, but with very insignificant jewellery manufacturing due to constraints and challenges encountered in doing diamond value addition that include some counter-production policies, high locational costs, high labour costs and a small domestic market for manufactured jewellery.

6.2 Recommendations

Considering the findings and conclusions arrived at in this study, it is recommended that industry policy makers and the strategic stakeholders, such as the Ministry of Mines and Energy, the Ministry of Industrialisation, Namdeb, Debmarine, NDTC, and other government-related agencies involved in the Namibian diamond industry, must develop comprehensive, favourable and supportive legislations and policies with limited or no counter-production obstacles for direct focus on diamond industrialisation to include jewellery manufacturing for fully-fledged diamond manufacturing. The counter-production tripartite security (government) policy and its restrictive components and the highly restrictive import VAT at about 16.5% need to be revised, making them more favourable for promoting local investment and growth of local diamond manufacturing. Targeted training programmes for specific skills development in the local diamond industry can be developed whereby the diamond cutting and polishing companies can collaborate with the Namibia Training Authority (NTA) to reduce local challenges of high labour costs, lack of unique skills and craftsmanship. Further research of this nature needs to be carried out that is more focused on barriers to meaningful value addition in the diamond industry in Namibia to develop and identify new strategies for reducing barriers to value addition. A comparative study on diamond manufacturing locational factors can be carried out to assess what makes Asian countries, especially India, more favourable to diamond manufacturing than rough diamond-producing countries in Southern Africa and elsewhere in the world.

REFERENCES

- Barry, J. J. (2019). The Mineral Industry of Namibia. *U.S. Geological Survey*, 13(3). 1 – 7. Retrieved on July 1, 2024, from <https://pubs.usgs.gov/myb/vol3/2019/myb3-2019-namibia.pdf>
- Boer, M., & Sherbourne, R. (2004). *Managing Diamond Dependency: Should Namibia Risk More To Gain More?* Windhoek: Institute for Public Policy Research.
- Brikci, N. (2007). *A Guide to Using Qualitative Research Methodology*. London: London School of Hygiene and Tropical Medicine.
- Chamber of Mines of Namibia. (2024). *2023 Annual Review*. Windhoek, Chamber of Mines Of Namibia. Retrieved on July 1, 2024, from <https://chamberofmines.org.na/wp-content/uploads/2024/04/2023-Chamber-of-Mines-Annual-Review.-Final-Web.pdf>
- Choruma, A. (2016, April 7). Beneficiation of strategic mineral resources is key to economic growth. *Financial Gazette*.
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. (5th Ed.). London, United Kingdom: Sage Publications Inc.
- De Beers. (2014). *The diamond insight report*. London: De Beers.
- Hausmann, R., & Rodrik, D. (2003). Economic development as a self-discovery. *Journal of Development Economics*, 72(2), 603-633.
- Institute for Public Policy Research (IPPR). (2021). *Namibia Quarterly Economic Review (QER Q3 2020), July-September 2020*. Windhoek: IPPR.
- Kaplinsky, R. (2013). *Global Value Chains, where they came from, where they are going, and Why this is important*, IKD Working Paper No. 68. The Open University, United Kingdom.
- Khurana, G. (2017). *Indian jewellery market*. New Delhi: India Law Offices.
- Mbayi, L. (2011). *Linkages in Botswana's Diamond Cutting and Polishing Industry*. Cape Town: Making the most of commodities programme (MMCP).
- Nambinga, V. & Mubita, L. (2021). *The Impact of the Mining sector on the Namibia economy "Assessing socio-economic and environmental effects"*. Windhoek: National Planning Commission/ Office of the President.
- Namibia Investment Promotion and Development Board (NIPDB). (2022). *Namibia Metals and Mining Sector Profile*. Windhoek: NIPDB. Retrieved on July 1, 2024 from https://nipdb.com/wp-content/uploads/2022/12/Namibia-Sector-Profile-Metals-_Mining-sector.pdf.
- NDTC Sales Department. (2018). *Quarterly Sales Report*. Namibia Diamond Trading Company. Windhoek: NDTC.
- Omarjee, L. (2016, July 13). *Beneficiation is the future of SA's diamond industry*. Retrieved November 17, 2017, from fin24.com: <https://www.fin24.com/Economy/beneficiation-the-future-of-sas-diamond-industry-20160713>.
- Palander, D. (2015). *An economic value chain analysis of Namibian diamonds. A Master of Science (MSc) Thesis submitted to the Department of Economics, Aalto University. School of Business, Finland*. Aalto University.
- Republic of Namibia. (2012). *Namibia's Industrial Policy*. Windhoek: Ministry of Trade and Industry.
- Robinson, I. C., & Van Belowt, M. A. (1990). The role of the domestic market in promoting The beneficiation of raw materials in South Africa. *Journal of the South African Institute of Mining and Metallurgy*, 90(4), 91-98.
- Sherbourne, R. (2010). *Guide to the Namibian Economy 2010*. (2nd Ed.). Windhoek: Institute for Public Policy Research.