

**An analysis of the regional economic  
development functionality of selected SEZs  
in the Eastern Cape, South Africa**

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## DECLARATION

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I declare that:

**“An analysis of the regional economic development functionality of selected SEZs in the Eastern Cape, South Africa”**

has been composed by myself and that the work has not been submitted for any other degree or professional qualification at any higher education institution. I confirm that appropriate credit has been given within this thesis where reference has been made to the work of others.

*J. R. Neethling*

**10 December 2021**

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**SIGNATURE**

**DATE**

## DEDICATION

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First, I dedicate this project to God Almighty, my creator, my pillar of strength, source of knowledge, wisdom and understanding. He has been the foundation of my strength throughout the completion of my thesis. Without Him I am nothing.

*“So do not fear, for I am with you; do not be dismayed, for I am your God. I will strengthen you and help you; I will uphold you with my righteous right hand” – Isaiah 41:10*

Secondly, I dedicate this thesis to my closest family members. My late grandmother, Anna Taylor, I miss you – I wish heaven had visiting hours. Miss you so much and I am thankful for everything you have done for me since the day I was born. I do not know how I will ever be able to thank you. To my grandfather, thank you for everything you have done for me and all the love and support that you show me. You have been on this journey with me since the day that I started and you sacrificed so much for me, and I am thankful that God is watching over you and taking care of you every day.

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## ABSTRACT

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Special economic zones are selected geographical regions reserved for selected economic activities whereby these regions enjoy benefits such as limited corporate taxes, limited labour market regulations and relief from trade tariffs. These special economic zones do not only help the organisations or businesses situated within the geographical regions but also influences the local economy by creating more work opportunities, economic growth as well as Foreign Direct Investments (FDIs). The study of special economic zones and how it influences the regional economy is a critical aspect in modern economics because it may be seen as a growth pole for regional development in underdeveloped regions. If special economic zones are “well-planned” it will have a positive effect on the comparative and locational advantages, which will boost the local economy and can also be regarded as “engines for growth.” The total number of special economic zones grew significantly over the past 21 years with more than 4500 new established special economic zones established worldwide.

Countries in Africa have only 237 special economic zones, while the world total is more than 5300 SEZ, showing that the continent only has only 4.40% of the total established special economic zones in the world, which contributes to lower regional economic development. However, it is said that the continents share in proportion to the world trade is below 3%, which suggests that the continent only focuses on natural resources as the main commodity for the exportation of products. The establishment of special economic zones can come a long way to encourage economic growth and development with the attraction of investment for the African continent and more specifically South Africa.

In South Africa at the start of the new democracy in 1994 the government started to approach a new horizon in its industrialisation and manufacturing sector and the focus was drawn on an export driven tactic. The objective of the South African government was to apply policy, which reduced high unemployment rates and poverty, however, the main focus was to integrate into value regional and global value chains due to the past sanctions imposed on the country in terms of importation and exportation. The South African government imposed industrial development zones to curb the inequalities in the manufacturing and industrialisation sector and consequently to encourage export and overall trade activities within the country. The South African government followed the same approach as other developing countries such as Latin America and East Asia, which were successful in adopting inward looking policies

Favourably, South Africa had some major potential in the macroeconomic surrounding and comparative advantages in terms of market intensity and natural reserves, indicating that the potential for economic development was significant. The plan to implement the industrial development zones in South Africa started in 1996 with the GEAR (Growth, Employment and Redistribution), however, the establishment of the zones was not as successful as initially expected. In South Africa, there are a total of ten

established special economic zones while only six of these special economic zones are fully operational, which causes the existing special economic zones to be less competitive and insignificant in terms of local economic growth. While the special economic zones can contribute significantly towards economic growth and development, the question remained whether special economic zones in South Africa are functioning well enough to be sustainable in the long term and to contribute towards the local economies of South Africa.

Limited studies have directed their exploration on how functional and successful operational special economic zones influence regional economic development within a specific region or area and some of the problems include aspects such as “insufficient knowledge” and the capability to use the inventive of special economic zones in Africa, which are limitless and unclear. The gap in the research of special economic zones in developing countries is tremendous. The main goal of the study is to evaluate and analyse the level of regional economic development in areas of functional special economic zones in South Africa. Two of the most successful industrial development zones in South Africa, the East London IDZ and the COEGA IDZ situated in the Eastern Cape was selected as the region where the study will take place, mostly due to its success since it was first established.

The primary objective of this study is to evaluate the regional economic development functionality of selected special economic zones in the Eastern Cape of South Africa. This is a mixed-method study including both qualitative and quantitative data analysis. The qualitative part involved setting up and finding the success factors of special economic zones with the support of several case studies and sources and these success factors were divided into three broad categories namely microclimate, mesoclimate (region specific) and macroclimate. Moreover, the success factors of special economic zones identified were utilised in an interview schedule with various stakeholders from the industrial development zones in the Eastern Cape. The main categories within the interview schedule included basic information, physical features of the special economic zones, policy framework perceptions, policy framework constraints, incentives’ perceptions, enabling environment perceptions, economic leverage perceptions and the role of government. The standardised/structured interviews with close-ended questions were used in the qualitative approach of the study. A total of 12 people were interviewed within the East London industrial development zone and the COEGA industrial development zone.

The results obtained from the interviews showed that the stakeholders had an optimistic view with regard to the physical features of the industrial development zone and that the infrastructure is of high quality. Most of the respondents also agreed that the industrial development zone is situated in a strategic location, which makes it easier for trade and efficiency in logistics. Green energy and renewable energy are being implemented within the industrial development zone and the long-term strategic plan is to have a leading eco-industrial park on the African continent. With regard to the policy

framework perceptions, it was noticed that unemployment remains a huge concern within the local communities, however, the industrial development zones did create a substantial number of new jobs in the past few years. The shortage of skilled labour remains a huge concern, which hampers the firms' abilities to employ new workers especially within the manufacturing sector, however, the industrial development zones do have science and technology parks which are able to provide the necessary skills. The industrial development zones contribute significantly towards the local economy since they are able to attract sufficient local and foreign investments and the industrial development zones themselves use local material in their production processes.

The stakeholders feel that more investments are needed for the industrial development zones to have a certain level of success, hence, South Africa should sharpen its value propositions so that it is in line with international standards. The stakeholders also agree that the industrial development zones provide investor-friendly and pro-business policies that are crucial for any economic zone. In terms of the policy constraints, it is noted that the stakeholders feel that the firms operating within the industrial development zones should focus more on sourcing products and materials from the local business community.

With references to the respondents' perceptions, it was noted that the industrial development zones do provide effective incentives. However, the firms operating within these industrial development zones should make more use of the incentives provided to them in order for them to get the full benefits provided by the industrial development zones. In terms of the enabling environment perceptions, it was noted that the industrial development zones do interact with the local communities, however, more can be done in terms of creating efficient and effective synergies between government, people and the local businesses. The influence of government in terms of financial and business support are adequate and the various departments do play a key role in terms of skills development and the provision of services. Some stakeholders feel that the DTIC can do more in terms of the industrial development zone programme since they lead from a policy perspective regarding infrastructure development funds. Skills development from the national government is fragmented and the different spheres between the different national departments need to improve to have a more integrated approach in terms of collaborations.

The stakeholders had a positive feeling about the future of industrial development zones in South Africa, however, government should focus on aspects such as value proposition, the market, capital resources as well as human resources in order for the industrial development zones to be successful. The record of industrial development zones in South Africa shows that they do not perform as well as initially expected and if government do decide to establish new industrial development zones they will need capable management for the industrial development zones to operate effectively, however, the market should demand industrial development zones and there should be a need within the region to establish

an industrial development zone. It was noted that if the industrial development zones are dependent on money from government in terms of funding in the long term, the industrial development zones will fail because the government does not have capital to sustain industrial development zones in the short and long term.

Overall this study found that only a small number of special economic zones perform well, while the majority of the special economic zones in South Africa are not functioning well or they are not operative and this is due to the special economic zones' location (inland), the inability of government to drive the projects and plans for the zones and the lack of co-ordination between the various departments of government. For the industrial development zones in South Africa to function well it is important that these zones create labour intensive manufacturing jobs to create more employment, focusing more on skills development as a priority to achieve sustainable work opportunities, a more integrated approach between the different government departments, a focus on policy direction, the creation of capable value chains, fiscal independence and the focus on creating excellent value propositions.

**Keywords:** IDZ, SEZ, Eastern Cape, regional economic development, local economy

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## **LIST OF ABBREVIATIONS**

---

ADB	-	African Development Bank Group
AG	-	Auditor General
ASEAN	-	Association of Southeast Asian Nations
BC	-	Buffalo City
BL	-	Backward Linkages
CILQ	-	Cross Industry Location Quotient
COGTA	-	Department of Cooperative Governance and Traditional Affairs
COMCEC	-	Commercial Cooperation of the Organization of the Islamic Cooperation
CSO	-	Central Statistics Office
DPA	-	Direct Productive Activities
DTIC	-	Department of Trade, Industry and Competition
EPZ	-	Export Processing Zone
ESCAP	-	Economic and Social Commission for Asia and the Pacific
EU	-	European Union
FDI	-	Foreign Direct Investments
FEZ	-	Free Economic Zones
FL	-	Forward Linkages
FRBSF	-	Federal Reserve Bank of San Francisco
FTZ	-	Foreign Trade Zone
FTZ	-	Free Trade Zone
GDP	-	Gross Domestic Product
GNI	-	Gross National Income
GVA	-	Gross Value Added
GVC	-	Global Value Chains
HDI	-	Human Development Index

ICT	-	Information and Communication Technologies
IDZ	-	Industrial Development Zone
IM	-	Industry Mix
IOT	-	Input Output Table
IPAP	-	Industrial Policy Action Plan
LED	-	Local Economic Development
LQ	-	Location Quotient
MDB	-	Manufacturing Development Board
NDP	-	National Development Plan
NGO	-	Non-Governmental Organisation
NGP	-	New Growth Path
NGT	-	New Growth Theory
NIA	-	National Intelligence Agency
NIPF	-	National Industrial Policy Framework
NIRSA	-	Northern Ireland Research and Statistics Agency
NMB	-	Nelson Mandela Bay
NS	-	National Share
OECD	-	Organisation for Economic Co-operation and Development
PPP	-	Public Private Partnerships
RAP	-	Rapid Assessment Procedure
Regio FLQ	-	Regional Flegg Location Quotient
REIPP	-	Renewable Energy Independent Power Producer
RS	-	Regional Share
RSA	-	Republic of South Africa
SA	-	South Africa
SADC	-	Southern African Development Community

SAM	-	Social Accounting Matrix
SARS	-	South African Revenue Service
SETA	-	Sector Education and Training Authority
SEZ	-	Special Economic Zone
SLQ	-	Simple Location Quotient
SLR	-	Systematic Literature Review
SMMEs	-	Small, Medium and Micro Enterprises
SOC	-	Social Overhead Capital
SONA	-	State of Nation Address
SSA	-	Sub-Saharan Africa
UNCTAD	-	United Nations Conference on Trade and Development
UNIDO	-	United Nations Industrial Development Organization
USA	-	United States of America
VAT	-	Value Added Tax
WBUDU	-	World Bank Urban Development Unit

## CHAPTER 1

### INTRODUCTION AND BACKGROUND

---

#### 1.1 INTRODUCTION

SEZs are known as: “*geographical bound regions with specific economic advantages which includes duty-free areas related to trade, tax breaks and most importantly employment and competitiveness which may be seen as a driver of regional economic development*” - (UNCTAD, 2019:14 & Yeung *et al.*, 2009:231; World Bank Group, 2017:1).

Leading regions are driving economic growth and development on a global scale and in most cases, SEZs are at the core of the dynamic growth in leading regions (Aggarwal, 2019:31). The reason why SEZs are an interesting subject is because commercial activities and trade regulations are different from other parts of the country (UNCTAD, 2019:162). SEZs are geographically selected regions set apart for selected economic activities and enjoy benefits such as limited corporate taxes, limited labour market regulations and relief from trade tariffs (Republic of South Africa, 2020; UNCTAD, 2019:131).

SEZs do not only benefit the businesses and organisations situated within the geographical regions but also influence the local economy in terms of employment, economic growth as well as foreign direct investments (FDIs) (Farole, 2010:48; Nyakabawo, 2014:1). The Asian Development Bank (2015:95) points out that SEZs can drag a country on a road of faster regional economic development. Adam, Christopher, and Hartwell (2018:1322) indicated that SEZs have a major impact on employment opportunities while increasing the gross value-added (GVA), which is measured as the value of services and goods produced in a specific area. A functional SEZ depend on diverse factors such as zone range, infrastructure capacity and the area in which the SEZ are situated in (Zeng, 2015:2; UNCTAD, 2019: xiii). Creating an enabling environment for businesses to prosper is, therefore, critical in terms of establishing SEZs that may include aspects such as facilities, maintenance, zone promotion, policy co-ordination as well as tax incentives (Zeng, 2015:130; Meyer, 2014:29,35).

The establishment of successful SEZs have both direct and indirect benefits whereby the direct benefits include aspects such as FDIs, employment opportunities and revenue from export promotion (UNCTAD, 2019:149 & Abdusharipovich, 2018:48). The indirect benefits of establishing SEZs include aspects such as skills development, regional economic advancements, export diversification and improving trade efficiency (Zeng, 2015:4-5).

The study of SEZs and how it influences the regional economy is a critical aspect in modern economics because it may be seen as a growth pole for regional development in under-developed regions (Adam *et al.*, 2018:1322). Therefore, it is critical for developing countries to establish a “well-planned” SEZ

that will have a positive impact on the comparative and locational advantages, which will boost the local economy and can also be regarded as engines for growth (Narula & Zhan, 2019:1). The total number of SEZs worldwide in a matter of 21 years grew by nearly 4600 in total (UNCTAD, 2019:129).

Countries in Africa have a mere 237 SEZs of the total 5383 SEZs worldwide, which gives a percentage of 4.40 of the total number of SEZs worldwide, which in turn results in lower regional economic development (Loots & Kabundi, 2012:129). On the contrary, the continent is growing economically and the majority of countries in Africa project growth of more than 4.0% which are both comprehensive and accelerate economic growth advancement (African Development Bank Group, 2019: iii). Scheepers (2012:12) outlines that Africa have a low degree of development overall, and that the continents share in proportion to world trade is below 3% suggesting that the primary focus is on natural resources and constricted exportation of products.

SEZs may be seen as a market tool to encourage economic growth and development with the procedure of commercial incentives in order to attract investments for the African continent and more specifically, South Africa (Republic of South Africa, 2019a; UNCTAD, 2019: 128). The establishment of functional SEZs will have a significant impact on static economic outcomes such as employment, exports and economic growth. As well as the dynamic economic outcomes such as technology transfer, economic integration and structural change along with socio-economic outcomes including quality of employment, wages and gender differentiated impacts (Zaldivar & Molina, 2017:3).

### **1.1.1 SEZs in South Africa**

After 1994, the end of apartheid, the South African government deviated from the traditional inbound manufacturing and industrialisation policy to a more external export growth approach in order to conform into the world economy (Chinguno, 2011:2). This was a policy approach by government in order to reduce the obstacles of high unemployment rates, poverty, inequality, inadequate skills development and weak integration into the regional and global value chains due to the sanctions imposed on the non-competitive manufacturing sector, which followed a monopolistic approach to the market (The World Bank, 2018:36; Van der Westhuizen & Swart, 2015:73).

The South African government adopted an original approach to curb the inequalities in the industrialisation and manufacturing sector by implementing ZESs and policy frameworks to encourage growth, development, employment as well as exportation (Chinguno, 2011:2, Republic of South Africa, 2018:7).

The idea of the South African government to implement the concept of SEZs and industrial development zones (IDZs) was to employ a policy implementation for manufacturing and industrialisation through the GEAR (Growth, Employment and Redistribution), which was initially implemented in 1996

(Chinguno, 2011:3). The objective of the special policy reform was to draw similar participation of other countries (especially Latin America and East Asia), which were highly successful in adopting inward looking industrialisation to a more outward approach (Farole 2010; Chinguno, 2011:3).

Favourably, South Africa have some major enhancements in the macroeconomic surroundings and comparative advantages in terms of market intensity and natural reserves, indicating that there is some major potential for economic development opportunities (Arvanitis, 2006:64; Mhaka & Jeke, 2018:3). It is therefore important to implement a regional economic development policy aimed at developing locations, targeted sectors, business or/and stakeholders which can be avenues for development and growth (Koma, 2014:121). With a view to diminish the economic obstacles that South Africa faces, special economic trade zones should be identified as areas to boost investments and trade while creating adequate jobs (Bosire, 2019:134; Farole, 2010:48).

All these factors have a direct and indirect benefit to improve the economic and trade outlook of South Africa. The NDP (National Development Plan: 2030) and the IPAP (Industrial Policy Action Plan: 2018/19–2020/21) focussed on industrialisation and growth within the manufacturing sector to provoke job creation. The Presidency (2012:96) states that IDZs and SEZ play a significant role in local economic development while promoting industrialisation.

From the point of government, it is obvious that industrialisation and SEZs play a critical role in creating job opportunities, improving export opportunities for companies, and enabling higher economic growth. Table 2 is a summary of the various SEZs in South Africa with specific emphasis on the geographical area of the SEZ, the purpose and goal of the SEZ, and the sector and operational activities in which the SEZs operate in.

**Table 1.1: Summary of SEZs in South Africa**

SEZ (Name)	Province and municipality	Purpose of SEZ	Main function of operational activities	Status
<b>Atlantis SEZ</b>	Western Cape, City of Cape Town	<ul style="list-style-type: none"> <li>• Job creation</li> <li>• Improving Renewable Energy Independent Power Producer Programme (REIPP)</li> </ul>	<ul style="list-style-type: none"> <li>• Renewable energy</li> <li>• Energy services</li> <li>• Waste</li> <li>• Western Cape Industrial Symbiosis Programme</li> </ul>	<ul style="list-style-type: none"> <li>• Active and operational: Opened (June 2018)</li> </ul>
<b>Nkomazi SEZ</b>	Mpumalanga, Ehlanzeni District Municipality	<ul style="list-style-type: none"> <li>• Improving regional economic development</li> <li>• Transfer technology and skills development</li> </ul>	<ul style="list-style-type: none"> <li>• Agro-processing</li> <li>• Logistic services</li> <li>• Automotive</li> </ul>	<ul style="list-style-type: none"> <li>• Not active</li> </ul>
<b>Coega IDZ</b>	Eastern Cape, Nelson Mandela Bay Metropolitan Municipality	<ul style="list-style-type: none"> <li>• Clustering for synergy and supply chain integration</li> <li>• Facilitation of access to government incentives</li> <li>• Customised Solutions for investors</li> </ul>	<ul style="list-style-type: none"> <li>• Agro-processing</li> <li>• Automotive</li> <li>• Aquaculture</li> <li>• Energy</li> <li>• Metals logistics</li> <li>• Business process service sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Active and operational: Established since 1999</li> </ul>
<b>Richards Bay IDZ</b>	Kwa-Zulu Natal, uMhlathuze Local Municipality	<ul style="list-style-type: none"> <li>• Attract local and foreign investors</li> <li>• Create employment and improve skills base</li> </ul>	<ul style="list-style-type: none"> <li>• Agro-processing</li> <li>• ICT and techno parks</li> <li>• Metals beneficiation</li> <li>• Marine Industry Development</li> </ul>	<ul style="list-style-type: none"> <li>• Active and operational</li> </ul>

<b>East London IDZ</b>	Eastern Cape Province, Buffalo City,	<ul style="list-style-type: none"> <li>• Develop, manage and maintain infrastructure</li> <li>• Secure investors and investments</li> </ul>	<ul style="list-style-type: none"> <li>• Automotive</li> <li>• Renewable energy</li> <li>• Aqua culture</li> <li>• Agro-processing</li> <li>• ICT &amp; electronics</li> </ul>	<ul style="list-style-type: none"> <li>• Active and operational: Opened July 2005</li> </ul>
<b>Saldanha Bay IDZ</b>	Western Cape, West Coast District Municipality, Saldanha Bay Local Municipality	<ul style="list-style-type: none"> <li>• Job creation and opportunities</li> <li>• Creating an enabling environment for sustainable economic growth</li> </ul>	<ul style="list-style-type: none"> <li>• Repairs and maintenance</li> <li>• Exploration and production</li> <li>• Marine/subsea engineering and fabrication</li> <li>• Logistics and property development</li> </ul>	<ul style="list-style-type: none"> <li>• Active and operational: Opened October 2013</li> </ul>
<b>Dube trade zone</b>	Kwa-Zulu Natal, Durban, eThekweni Metropolitan Municipality	<ul style="list-style-type: none"> <li>• To enable development by providing leading edge spatial planning</li> <li>• To attract and sustain investments</li> </ul>	<ul style="list-style-type: none"> <li>• Agriculture and agro-processing</li> <li>• Electronics manufacturing and assembly</li> <li>• Medical and pharmaceutical production</li> <li>• Clothing and textiles</li> <li>• Automotive component manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Active and operational</li> </ul>
<b>Maluti – A – Phofung SEZ</b>	Free State , Harrismith, Maluti-a-Phofung Local Municipality	<ul style="list-style-type: none"> <li>• Manufacturing opportunities and creating a regional and international trade environment</li> <li>• Attract foreign and direct investment</li> <li>• Stimulate the local economy</li> </ul>	<ul style="list-style-type: none"> <li>• Automotive sector</li> <li>• Agro-processing sector</li> <li>• Logistics sector</li> <li>• General processing sector</li> <li>• ICT sector</li> <li>• Pharmaceutical sector</li> </ul>	<ul style="list-style-type: none"> <li>• Not active</li> </ul>
<b>OR Tambo SEZ</b>	Gauteng, Johannesburg, City of Johannesburg Metropolitan Municipality	<ul style="list-style-type: none"> <li>• Empowering business enablement</li> <li>• Support growth and co-operative economy</li> <li>• Facilitation of trade and investment</li> </ul>	<ul style="list-style-type: none"> <li>• Capital equipment</li> <li>• Business processing outsourcing</li> <li>• Agro-processing</li> <li>• Renewables</li> <li>• Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Not active</li> </ul>
<b>Musina / Makhado SEZ</b>	Limpopo, Musina, Musina Local Municipality	<ul style="list-style-type: none"> <li>• Accelerate industrial diversification</li> <li>• Increase levels of trade and investment</li> <li>• Developing sustainable enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Logistics</li> <li>• Agribusiness</li> <li>• Tourism</li> <li>• Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Not active</li> </ul>

*Source:* Author's compilation based on information obtained from DTi

The most significant IDZ in South Africa is the Coega SEZ, which has a total operational investor worth of R10 billion worth of private investments, while creating more than 8200 jobs excluding the construction industry (COGTA, 2019). The Coega SEZ is the leading SEZ on the continent and has been adopted as a study by The World Bank for best practice examples of SEZ development across the world. According to the Minister of Trade and Industries (Rob Davies), SEZs have contributed to nearly R16.8 billion in both domestic and foreign investments, while creating nearly 16000 direct jobs to the local economies (COGTA, 2019).

The introduction of the new Special Economic Zones Act, 16 of 2014 (Republic of South Africa, 2012:2) saw a change in the overall objective for the functionality of SEZs which included aspects of designation, advancement, operation, and management of SEZs in South Africa. A critical aspect or purpose of SEZs is to promote regional economic development, which is an integral part of economic and social development (Republic of South Africa, 2014:9; Zeng, 2015:10). The implementation of the new act (Special Economic Zones Act, 16 of 2014) saw a significant increase in the number of designated zones, higher investor confidence and a significant increase in operational investments (COGTA, 2019).

In the 2019 State of Nation Address (SONA) the President of the Republic of South Africa said that spatial interference is needed to local industrial parks, SEZs and business centres (Republic of South Africa, 2019b:6). The intention of national government is therefore to improve manufacturing and industrial development through effective spatial policies and zone planning implementation. This research aims to explore the functionality of operational SEZs in South Africa and the impact that these SEZs have on the regional economic development.

## **1.2 PROBLEM STATEMENT**

SEZs or IDZs can be regarded as a critical instrument to promote industrialisation and systemic change in a region, only when it is executed correctly (Zeng, 2015:1). A continent such as Africa can be seen as a continent with some moderate integration with the world markets, however, the continent lack expertise on the establishment of functional SEZs (Farole & Moberg, 2014:4). In a developing country such as South Africa there are a total of 10 established SEZs while only 6 of these SEZs are fully operational, which causes the SEZs to be less competitive and insignificant in terms of local economic growth (Republic of South Africa, 2019c).

While SEZs can contribute significantly to regional economic development, the question is whether the SEZs in South Africa are functioning in such a way that it is able to help the local economy (Berstein, 2012:44). Without an adequate blueprint of how the policies should be adopted within SEZs it has a gloomy effect on the functioning of established SEZs. The majority of SEZs in Africa have failed due to the execution of definite SEZ zone programmes, which conforms to clear and functional SEZ policies and objectives (Farole & Moberg, 2014:3; UNCTAD, 2019:200).

Limited studies have directed their exploration on how functional and successfully operational SEZs influenced regional economic development within a specific region or area. Farole and Moberg (2014:3) say problems such as “insufficient knowledge” and the capability to utilise the incentives of SEZs in Africa are rather limitless and unclear (Farole & Moberg, 2014:3). The gap in the research of SEZs in developing countries is tremendous. The main goal of the study is to evaluate and analyse the level of regional economic development in areas of functional SEZs in South Africa and utilising the evaluation as a guideline policy for other non-functional and established new SEZs.

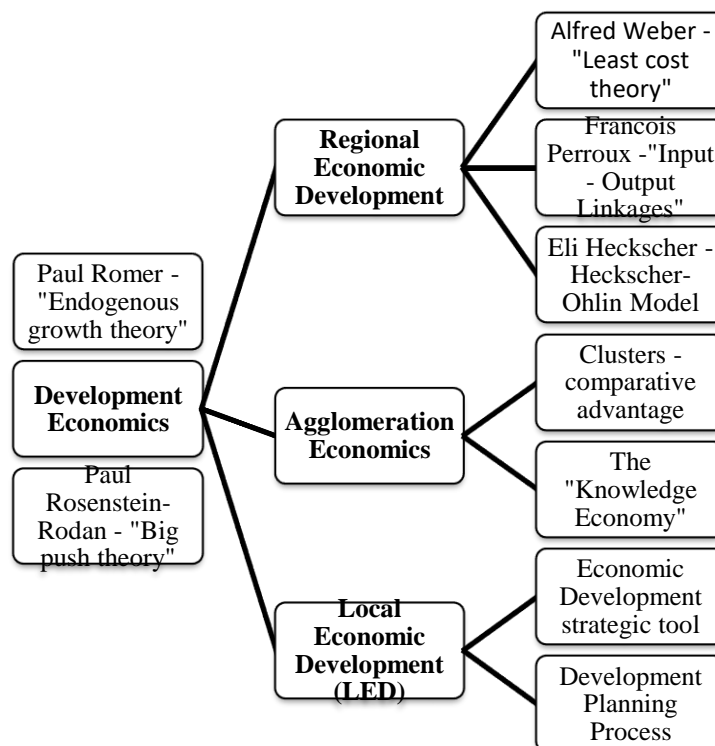
One of the most successful SEZs in Africa and more specifically in South Africa is the well-established Coega IDZs situated in the Eastern Cape in the Nelson Mandela Metropolitan Municipality. The decision to utilise this specific study region is mainly because of its significant success of the SEZ and the fact that The World Bank plan adopt a study on best practice principles of the SEZ.

The other area that was used in this study is the East London IDZs, which is established within the Buffalo City Metropolitan Municipality (2536km<sup>2</sup>) in the Eastern Cape. A comparative analysis of the two metropolitan municipalities can be used as a valid measuring stick in terms of regional economic

development evaluation. A regional economic development analysis was utilised in this study consisting of both primary and secondary data to evaluate the extent of regional economic development within the region.

### 1.3 THEORETICAL PERSPECTIVE AND FRAMEWORK

The theoretical perspective and framework are based on four broad themes which include development economics and its subdivisions including regional economic development, agglomeration economic and local economic development. Figure 1.1 is a graphical illustration of the theoretical themes with regard to this study. An examination of the earliest development thoughts and shortcomings of conventional economic development approaches was evaluated as well as regional economic development principles and theories. Development economic theories include hypothesis such as the Big Push theory of Paul Rosenstein-Rodan and the Romer theory of economic development developed by economist Paul Romer. The regional economic theory includes some of the earliest work of economists such as Alfred Weber and François Perroux, which included the least cost theory of industrial location and the growth pole theory as well as the central place model. The theory of agglomeration economics can be signified in regional economic development since agglomeration economics are advantages that people and organisations enjoy when the organisations are in close proximity to the industrial cities (Fang & Yu, 2017:129). Various approaches were employed in terms of agglomeration economics and efficiency, which hold comparative advantages approaches, knowledge spillover as well as public policy



**Figure 1.1: Graphical illustration of theoretical framework**

*Source:* Author's compilation

Local Economic Development will also be utilised in the study with specific reference to its importance as a strategic tool for the long-term planning process of the specific region. The theoretical statement can be defined as follow: Regional economic development in areas situated within SEZs are primarily influenced by other firms and organisations in a similar industry. The location patterns of specific industries will impact the sectoral changes it has on the economy. Clusters of organisations within an industry will have a significant impact on the development of a region.

#### **1.4. RESEARCH OBJECTIVES**

##### **1.4.1 Primary objective**

The primary objective was to analyse the functionality of selected SEZs in South Africa with specific reference to regional economic development.

##### **1.4.2 Theoretical objectives**

The following theoretical objectives have been identified:

- Defining and analysing concepts related to regional economic development and SEZs;
- Discuss various theories relating to regional economic development with reference to SEZs;
- Investigating the determinants/dimensions of successful functional SEZs via international case studies;
- Identifying various best practice principles and themes for the functionality of SEZs;
- Reviewing the literature involving international case studies based on successful SEZs.

##### **1.4.3 Empirical objectives**

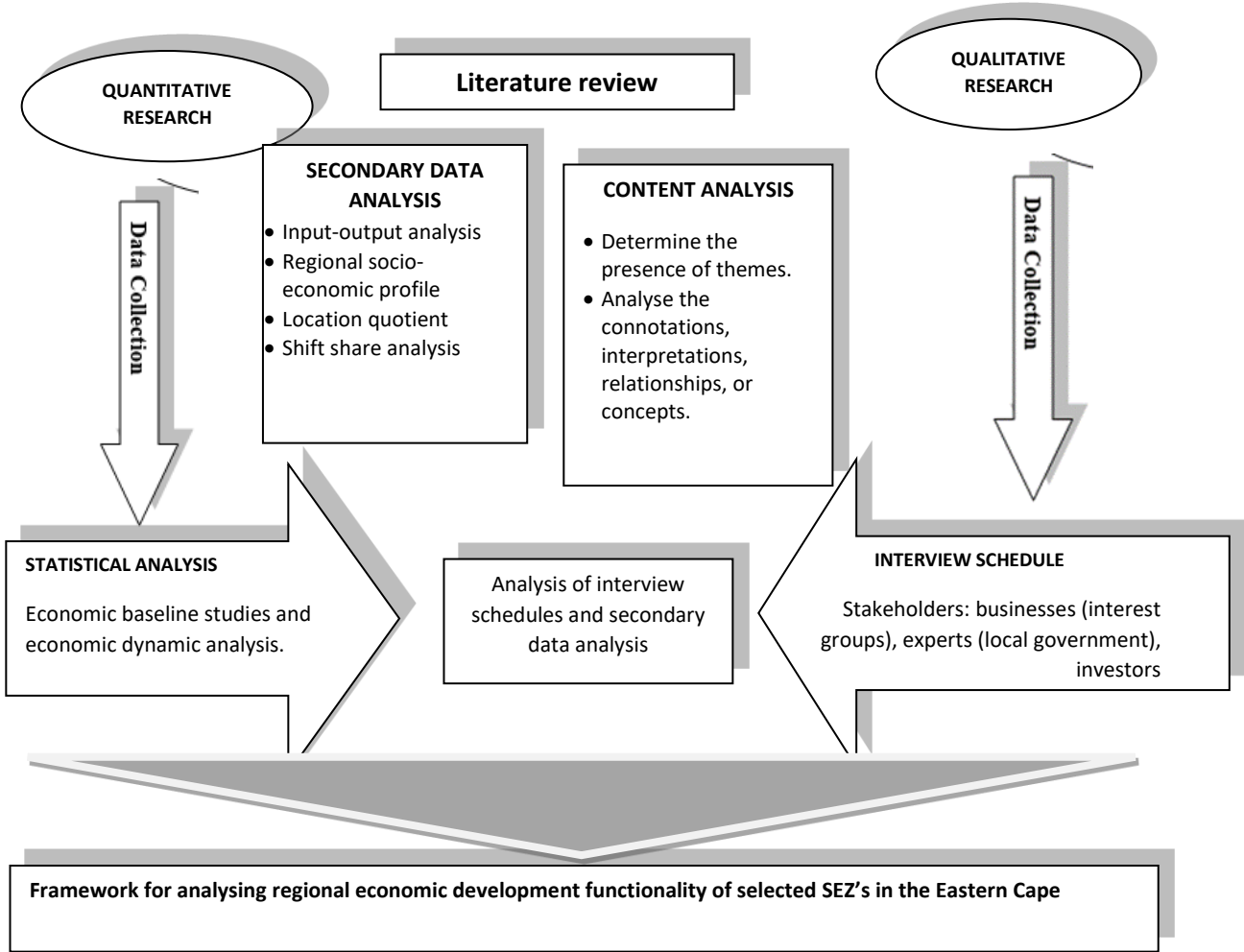
Per the primary objective, the following empirical objectives have been identified:

- To develop a descriptive profile on the regional economy of Buffalo City and Nelson Mandela Bay Metropolitan Municipality;
- To evaluate the stakeholders' perceptions based on the determinants of functional SEZs that have the most negative impact on commercial activities by means of an interview schedule;
- To evaluate the success factors of established SEZs based on best practice principles and themes for the functionality of SEZs;
- To evaluate the level of regional economic development within the municipal boundaries of the SEZs;
- To implement specific SEZ functionality measurement tools for new and established SEZs.

**1.5. RESEARCH DESIGN AND METHODOLOGY**

**1.5.1 Study design and context**

The primary objective of this study is to evaluate the regional economic development functionality of selected SEZs in the Eastern Cape of South Africa. Secondary data were firstly collected to get a descriptive profile of South African SEZs related to business and commercial information. The data were also used as a measurement of evaluating the level of regional economic development within the municipal boundaries of the SEZs followed by in-depth interviews with various stakeholders within these SEZs, which is a qualitative method towards the study. As seen in Figure 1.2 is the workflow diagram of the research methodology that was utilised in this study. The mixed-method strategy can be regarded as the equidistant between the most popular research methods namely qualitative and quantitative research (Johnson *et al.*, 2007:113). Mixed-method types of research can be regarded as an approach to gaining existing knowledge by theory and practice and tries to reflect on opinions, perceptions and standpoints (Johnson *et al.*, 2007:113).



**Figure 1.2: Workflow diagram of research methodology**

Source: Own compilation

### **1.5.2 Literature review**

Various resources were utilised in this study, including secondary sources to define the concept of SEZs such as internet sources, academic articles, published reports, working papers, government acts and reports, textbooks, government brief, newspaper articles and various other theses and dissertations focusing on the topic at hand. Alternative sources include a variation of relevant international and continental case studies that were endorsed to determine the literature outlay of the study. The literature review was used by means of adopting the systematic literature review and therefore evaluating existing literature on SEZs.

### **1.5.3 Empirical study**

Advancing to the empirical section of the thesis, the study will incorporate both a quantitative as well as a qualitative method of analysis that includes (a) primary data analysis by means of an interview based study as well as (b) secondary data analysis by evaluating the level of regional economic development within the municipal region as well as areas surrounding the SEZ. The integration of both quantitative and qualitative research methods, also known as mixed procedure research, is an appropriate method as it is able to produce prominent details that is difficult using a single research method in isolation as opposed to a mixed-method study (Almalki, 2016:288).

### **1.5.4 Primary data**

#### *1.5.4.1 Sample frame and size*

Since it is impractical for researchers to examine the complete population, a sampling frame are utilised to draw a sample frame from the entire population (Taherdoost, 2016:19). For this study, the sample frame includes stakeholders such as businesses (special interest groups and microenterprises), experts (business, professionals, and local government) and the investor's assessment (private and public investors, non-profit organisations and developers). The study is based on an analysis of SEZs in two of the biggest SEZs in South Africa, namely the Coega IDZ near Port Elizabeth and the East London IDZ.

Structured interviews were utilised in this study. In structured interviews, questions are planned and created in advance, whereby all candidates are asked the same question in the same order (Fox, 2006:5). In-depth interviews were employed in the study whereby the researcher interacted with several stakeholders within the IDZ (one-on-one interviews).

Respondents were contacted preceding the interview to explain the reason for the interview and what the interview entails. Due to health protocols and the Covid-19 pandemic, most of the respondents were interviewed telephonically or via satellite (Zoom, Teams, Skype etc). All the interviews were recorded on the specific device i.e., cell phone or computer (with the consent of the interviewee/respondent) and

the interviewer (researcher) analysed the transcripts by means of playing back the recordings and evaluating the answers given by the respondents. The participant is not the researcher's client and therefore the goal of the interview is to obtain relevant information regarding the study and not to have or attempt to form any clinical relationship with the participant.

The depicted recordings of the interviews were analysed using a content analysis method, once data saturation is reached the researcher then attended to the recordings whereby particular themes were identified. Depending on how long the respondent wishes to elaborate on each question, the interview took approximately 45–55 minutes. The various respondents were sourced by means of various types of methods including calling the IDZ directly, contacting the IDZ by means of their website and contacting the companies situated within the IDZs, while also utilising other social media platforms such as LinkedIn to find potential candidates to participate in the study.

The themes in the interview guide are based on the best of the various factors that enables the success of economic zones, these factors will then be coded by allocating them titles that are represented by the success factors in the previous segments of the study. For the qualitative interview analyses, there are no comparable criteria for valuation of sample size that occur (Malterud *et al.*, 2016:1). According to Vasileiou *et al.* (2018:7), it is suggested that qualitative studies necessitate a minimum of at least 12 sample sizes to attain data saturation.

#### 1.5.4.2 *Recruitment of research participants*

The recruitment procedure includes recognising potential participants in the research study and stipulating them with the material to determine their attention to consolidate an offered research study (Manohar *et al.*, 2018:2). Patel *et al.* (2003:229) suggest the recruitment method involves finding, pursuing and procuring potential participants by establishing their interest in the particular study. The primary researcher goes through a lengthy route before a study begins that outlines the prospects about enlistment. This process includes the development of a research decorum, establishing a potential participant information sheet, a consent form, as well as reviewing and authorising by the applicable ethics and scientific committee.

The potential research participants were given comprehensive information about what they are complying to. This informed their prospects, as suggested by Manohar *et al.*, (2018:2):

- The information obtained is classified, the information stays anonymous and only reflected in the statistical analysis.
- There was no compensation for responding nor is there any risk involved in taking part in the interview.

- To be informed if there is any conflict of interest or potential controversy related to the study, if a similar study has been done before, any financial beneficiaries and the self-interest of the investigator.

The study uses a non-probability sampling technique i.e., the technique in which the researcher chooses samples grounded on the judgement of the researcher rather than random selection (Omana, 2013:179). In-depth interviews were employed in the study whereby the researcher interacted with several stakeholders within the IDZ (one-on-one interviews). The research participants' contact details were obtained from the websites of the IDZ, which is publicly available and contact them and enquire whether they are willing to take part in the study.

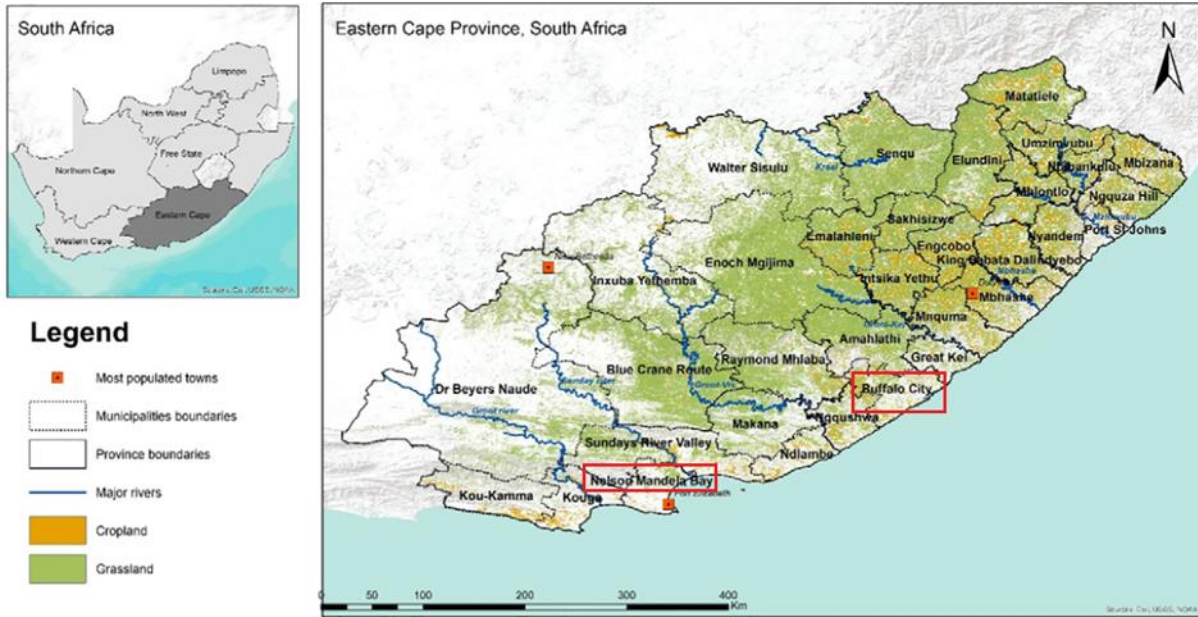
The interview schedule was sent to the stakeholders including the office bearers and management of the IDZ, which are publicly available. If their contact details are not available on the website, the researcher contacted them via LinkedIn by connecting with them and sending the potential participants a summary of the study that the researcher wanted to commence and waited for them to contact the researcher back.

The participants were therefore mailed or contacted telephonically, and it was entirely their own choice whether they wanted to be part of the study. If the respondents were willing to take part in the study. The researcher then contacted the participants and asked for a day and time that will be suitable for them and scheduled a virtual meeting (Zoom or Teams) to conduct the interview.

#### *1.5.4.3 Study region*

The study was conducted in the Eastern Cape at the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality. The specific region was chosen due to the following reasons: firstly, the Coega IDZ is the largest IDZ in Southern Africa and it is in the Eastern Cape at the Nelson Mandela Bay Metropolitan Municipality, which was also one of the first cities in South Africa to institute a fully integrated democratic local government (Municipalities of South Africa, 2019).

Secondly, due to the proximity of Port Elizabeth and East London, the intention was to do a primary research study with another SEZ, which is the East London IDZ which is also located in the Eastern Cape at the Buffalo City (Buffalo City, 2014:99). The Eastern Cape is a thoroughly under-developed region and the economic interest is well below its true potentiality (Buffalo City, 2014:99).



**Figure 1.3: Geographical map of Buffalo City and the Nelson Mandela Bay Metropolitan Municipality**

Source: Walz et al. (2020:3)

#### 1.5.4.4 Data collection and analysis

The first part of the data collection and analysis is to identify themes and elements of functional SEZs by means of a systematic literature review pertaining homogenous studies on SEZs. The research tool to be used is Atlas.ti, which select and assess previously recorded work performed on the subject.

### 1.5.5 Secondary data

#### 1.5.5.1 Sample frame, size, and period

The study also followed a quantitative methodology based on secondary time series data with regard to regional economic development. As part of the framework of data collection and analysis the secondary data pertaining this study it focussed specifically on economic baseline studies and dynamic analysis such as socio-economic trends and industry analysis.

#### 1.5.5.2 Data collection and statistical analysis

The first part of the secondary data collection included the economic baseline studies, which include econometric estimations and the input-output analysis. The data collection and analysis will focus specifically on a comparative analysis between the two metropolitan municipalities (Nelson Mandela Metropolitan Municipality and Buffalo City Metropolitan Municipality) and how they vary in terms of regional economic development. The performance of the regional economic development analyses will

help to get a comprehensible outcome of how well a region is performing and which indicators give a valuable solution for regional economic development.

For the secondary data analysis, most data are obtained from Quantec Easy Data, which includes the regional services data i.e. (standardised regional data). The first section is basic descriptive statistics obtained from Quantec Easy Data and no model specifications or econometric models were utilised.

The first set of data that were employed is development indicators and total output for the 9 provinces of South Africa, the data include the population size, the tress index, the Gini coefficient and HDI for 2021. The provincial output and gross value-added (GVA) for the Eastern Cape and South Africa for 22 sectors were also utilised. The GVA at current prices, the sectors share of provincial GVA and the sectors ranking in terms of total GVA were also utilised for the year 2021. The two metro's, Nelson Mandela Bay Metro and Buffalo City were also utilised in the study, whereby the GVA at current prices, the sectors share of the metros GVA as well as the sectors ranking in terms of total GVA were also utilised.

The next section was to analyse the location quotient for the Eastern Cape (compared to the national location quotient), for Buffalo City and the Nelson Mandela Bay Metropolitan Municipality (relative to provincial) for all 22 sectors in order to identify the level of specialisation in all sectors. The data used to evaluate the shift-share analysis for Nelson Mandela Bay Metropolitan Municipality and Buffalo City were also obtained from Quantec Easy Data. The shift-share analyses employed regional data, which include the total employment number data for 22 sectors in South Africa, the Eastern Cape, Buffalo City as well as the Nelson Mandela Metropolitan Municipality for the years 2014 and 2019, since the shift-share need a growth rate of five years in order to calculate the employment growth rates for each region.

The concluding section was the evaluation of the input-output tables for both the Nelson Mandela Bay Metropolitan Municipality as well as the Buffalo City Metropolitan Municipality that were acquired by the non-survey method of the input-output tables derived from the South African national input-output table. The methods of calculations are based on a single region non-survey method that are based on the calculation of the location quotient statistics obtained from Quantec Easy Data.

All the data to calculate the specific input-output tables for the two regions were obtained from Quantec Easy Data by means of the control totals for both the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality, which included variables such as the intermediate use/sales (including output at basic prices and total output), value-added (GDP at factor costs, GDP at basic prices and GDP at market prices) as well as final demand ((households, government, capital

formation and trade (imports and exports)). The control variables used allowed the national data to be derived to data on a local level (municipality).

The control variables were then utilised to acquire the input-output tables by means of the SLQ (Simple Location Quotient), CILQ (cross-industry location quotient) as well as the RegioFLQ (regional flegg location quotient) which ultimately estimated the regional input-output tables for both the Nelson Mandela Bay Metro as well as the Buffalo City Metropolitan Municipality.

## **1.6 ETHICAL CONSIDERATIONS**

The ethical standards were followed during the entirety of the research period. The major ethical issues that the researcher had to keep in mind includes aspects such as (a) informed consent, (b) beneficence (not to harm), (c) respect for confidentiality and anatomy and the respect for privacy (Fouka & Mantzorou, 2011:4-6). The researcher had to keep to technical and strict guidelines in order to avoid the plagiarism, even when the researcher utilises information from another writer, the researcher had to acknowledge each aspect of the study utilised. The nature of the study required ethical clearance from the North-West University's Ethics Committee due to the collection of primary data. The researcher obtained an ethical clearance form from the Faculty of Economic and Management Sciences Research Ethics Committee (EMS-REC) with a valid ethics application number NWU-00981-21-A4.

## **1.7 CONTRIBUTION OF THE STUDY**

Few studies have adopted an approach towards linking concepts of regional economic development and SEZs. The theoretical approach of discussing various economic development theories added relevance to the study of SEZs and its theoretical significance in regional economic development studies. The utilisation of a systematic literature review (SLR) investigated the various determinants and dimensions of functional SEZs via international case studies, which were employed as a basis for the interviews. Limited studies have adopted an approach towards analysing SEZs by means of functionality assessment within operational SEZs in South Africa. A country like South Africa that are in deep economic troubles, investigations should be utilised on economic sectors and zones that will help and conceptualise the functionality of these organisations. Limited academic studies have been adapted towards the importance of how SEZs influence regional economic development. The study served as a guideline for measuring regional economic development for any region by means of its unique economic development assessment tool.

As part of the empirical objectives of the study, the goal is to evaluate stakeholders' perceptions by means of an interview, determining dimensions of functional SEZs that has the most negative impact on commercial activities. The evaluation of success factors in established SEZs will aid the identification of best practice principles and comprehensive themes for functional SEZs. The study is

utilized as a blueprint on how policy guidelines should be shaped and formed for companies to gain the most significant information from the functioning of established SEZs.

The contribution will be more significant by means of an analysis of the regional economic development performance within the municipal boundaries of the SEZ. The specific econometric analysis may be tested in other areas of established and non-functional SEZ to determine the disinclined factors that influences the establishment of a functional SEZ. The study allowed for finding specific SEZ functionality measurement tools for any new and established SEZ in all corners of the globe.

Specific applied local economic development (LED) strategies and regional economic development indicators were implemented within the empirical study of the thesis as part of a pre-assessment analyses of the region. The empirical chapters illustrated the unique contribution of new regional economic development models, strategies and plans for specific areas situated within SEZs. The aim was also to implement specific SEZ functionality measurements tools for new and established SEZs and portray how well the SEZs are functioning.

## **1.8 CHAPTER CLASSIFICATION**

### **Chapter 1: Introduction and background to the study**

This chapter sets out the research project and the topic. Outlined in this chapter is the introduction, background, problem statement, primary objectives, theoretical objectives and empirical objectives. This chapter established the research design and methodology to be adapted within the empirical outline of the study. The unique contribution towards the subject matter is also presented in this chapter.

### **Chapter 2: Theoretical framework and concepts**

The second chapter focusses mainly on economic development theory and its subdivisions including regional economic development, agglomeration economics and LED. Specific theoretical concepts include comparative advantages, the “knowledge economy” location theories, principles of growth theories, co-operation in industries, shortcomings of conventional economic development approaches as well as LED planning and processes.

### **Chapter 3: SEZs basic concepts, definitions and success factors**

Chapter 3 focusses on the basic concepts, definitions and success factors of SEZs. The objective of this chapter is to define and outline special economic zones through a qualitative analysis including the different types of SEZs and the benefits of SEZs. The chapter also rationalised SEZs in terms of its role in regional economic development, the way in which it promotes free trade and contributes towards economic growth. The next section focusses extensively on the ownership of SEZs and whether it

should be privately owned, publicly owned or a mixture of both. The last section focuses on the policy considerations of SEZs including aspects such as (i) governance and regulatory framework, (ii) long-term strategic focus and (iii) the overall design of SEZ value concepts.

#### **Chapter 4: A review of international case studies and best practice principles of SEZ's**

Chapter 4 of the thesis focusses extensively on the international case studies and best practice principles of SEZs in the world. The objective of Chapter 4 is to investigate the various SEZs in the different parts of the globe, including both the developed and developing countries. This chapter give a brief overview of economic zones in different parts of the countries, the different types of zones operating within the country, the strategic locations of the SEZs, the number of SEZs and the success factors contributing towards economic zones within the country. The success factors identified in Chapter 3 are utilised as a framework for identifying the success factors within each country.

#### **Chapter 5: Research design and methodology**

Chapter 5 explores the research approach of the study, which includes both qualitative and quantitative research approached (mixed-method study). Chapter 5 also explains the methodology used in the study, i.e. qualitative data collection by means of structured interviews and quantitative research methods based on economic baseline studies (i.e., input-output tables analyses) as well as economic dynamic analysis (i.e., shift-share analysis that are derived from the location quotient). The data is acquired from Quantec Easy Data (RSA standardised regional data), however, the results were calculated separately on Excel. The Excel spreadsheet are used to calculate the industry mix share (to evaluate whether employment in the industry and region grew above the national average) and the competitive effect (which measures the share of employment in that specific industry of the region).

The final calculation for the shift-share analysis is the national effect, which calculates the total employment in the industry and region by the percentage growth in employment for that specific area. The shift-share analysis then showed in which industries did the overall competitiveness improve in the specific region compared to that of South Africa. The final calculations were to acquire the input-output tables by means of the SLQ, CILQ as well as the RegioFLQ, which ultimately estimated the regional input-output tables for both the Nelson Mandela Bay Metro as well as the Buffalo City Metropolitan Municipality. The regional input-output tables were utilised to calculate the technical coefficients, the effects of forward and backward linkages as well as the final demand multipliers (Type I) and (Type II).

## **Chapter 6: Results and findings**

The focus of the chapter included a predetermined analyses tool for regional economic development as explained in Chapter 5. This included the analysis of the Eastern Cape by means of its social and economic conditions while examining the industries that contribute largely to the GVA. Primary data by means of the results of the interview were analysed to identify the possible economic constraints of the region and more specifically the perceptions of how well the SEZs are functioning within the Eastern Cape.

The depicted recordings of the interviews were analysed using a content analysis method, once data saturation was reached the researcher then attended to the recordings whereby particular themes were identified and assessed. The objective of attaining the interviews was to evaluate the stakeholders' perceptions with regard to the functionality of the SEZs based on various themes such as the physical features of the SEZs, policy frameworks, incentives, the enabling environment, economic leverages as well as the role of government.

The secondary data were analysed by means of abstracting data from Quantec Easy Data to see if there are any significant differences in regional economic development between areas of highly specialised organisations and those which are more under-developed. The utilisation of a secondary data approach will assist with the dynamic analyses of the region i.e., the cluster analyses by means of input-output models, the environment, competitiveness and socio-economic trends.

## **Chapter 7: Conclusions and recommendations:**

The final chapter of the study comprises a summary of the study, which includes the major findings, discussion from the results, recommendations and future policy decision-making methods for government in terms of utilising specialised economic zones in an adequate manner. The conclusions will also help to identify areas of improvement within the province, while policymakers can use the information in terms of future policy direction for established SEZs.

## CHAPTER 2

### REGIONAL ECONOMIC DEVELOPMENT AND ECONOMIC DEVELOPMENT THEORIES

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#### 2.1 INTRODUCTION

The aim of Chapter 2 is to discuss various related theory with reference to SEZs and regional economic development as stated in the second theoretical objectives of Chapter 1. The overarching goal is to interpret development economics and the various theories relating to the concept. In the first section the concept of development economics is explained with theories such as the Big Push model, the endogenous growth theory and the new trade theory.

The second section explains the significant role of location theories with specific reference to the central place model and the structural change model. The third part of the chapter focusses specifically on regional economic theories such as the cumulative causation model, the input-output and multiplier analysis as well as the key role of LED while also covering agglomeration economics, the comparative advantage as well as the importance of public policy.

Development economics has received increased attention over the years because it emphasises the importance of economic, social and political development within under-developed regions (Bourguignon, 2015:643). For a country to achieve its level of economic growth, it first needs to consider and improve the quality of life through the creation of job opportunities, diversifying the industry and expanding or improving business conditions (OECD, 2019:139). Similarly, regional economic development is used to analyse and evaluate the level of economic development within certain regions or locations using the economic baseline and dynamic analysis in terms of econometric estimations, input-output analysis and cluster analyses (Asian Development Bank, 2015:2).

The earliest views on regional economic development included theories in the earliest nineteenth century from Ricardo (1817), which explained the classical theory of comparative advantage, however, most of the regional economic development theory was implemented in the mid-20<sup>th</sup> century. The most applicable theory includes the works of Walter Christaller on central place (1933), the structural change model from Arthur Lewis (1954), the growth pole model from François Perroux (1955), Gunnar Myrdal's circular cumulative causation model (1956), the endogenous growth model from Albert Hirshman (1958) and more recently the competitive advantage of nations from Michael Porter (1998).

It is noticeable that the earliest theory emphasised more on the overall competitiveness of nations in terms of trade, however, modern regional economic theory focussed more on regional development, job creations, improving structures and policies in under-developed regions and the significant importance

of space and location (Bogdański, 2012:26). Developing a region through intended economic development and industrialisation is a tool for promoting job creation and quality of life for people within a specific area.

Most of the world's land area is not occupied and regions are not well-developed to improve the quality of life of individuals living in under-developed regions. Most of the time it is not like policymakers have not been thinking of improving the regional economic development of a region, sometimes it is simply difficult to implement projects and strategies due to the circumstances and economic position of a region or country (Ferrini, 2012:4). The world economy is changing while trade and movement are even more globalised than ever before, however, some regions are still under-developed. The possibilities of improving a region's economic growth are endless, however, it requires adequate policymaking procedures and effective rule of law.

The objective of this chapter is to investigate the first two theoretical objectives of the study, which includes defining and analysing concepts related to regional economic development concerning SEZs as well as discussing various theory relating to regional economic development concerning SEZs.

The establishment of SEZs has significant effects on the economic development of a specific region through job creation, expanding the industry and creating the necessary forward and backward linkages in similar industries within the region. The basic underlying foundation of this chapter is to focus on economic development theories relating to regions and to provide a brief overview of the importance of economic development within specific regions.

## **2.2 ECONOMIC DEVELOPMENT THOUGHTS AND CONCEPTS**

Economic development is the continued study of how developing countries can increase their per capita initially and then constantly, by entirely utilising the intersectoral and interindustry network of externalities, economies of scale and complementarities (Naqvi, 1996:975). Economic development is not only utilised to examine standard of living or the economies of scale of a region, but it also enables policymakers to establish a plan for economic growth within a region or locality (Rodríguez-Pose & Wilkie, 2017:157).

According to Kniivilä (2007:295), industrial development plays a fundamental role in economic growth and development, especially in the case of countries like China, Taiwan and Indonesia where industrial development grew, which ensured high economic growth and led to poverty decline. The aim of this section of the chapter is to explain the nature of development economics and its pertinence towards economic theoretical thoughts and concepts relevant to the study.

### 2.2.1 Traditional economic development theories

The nature of development economics has many structures and forms. Todaro and Smith (2011:7) state that there are three broad themes of economics, which include conventional or traditional economics, political economics and development economics. There are three major types of economies and vary in their unique way, yet the principal and foundation remain the same. Traditional economics focusses more on the fundamental aspects of aspects such as viability, profit maximisation and market coherence (Ikerd, 1997; Todaro & Smith, 2011:7).

The political economics focusses more on the social issues and how political figures influence the outcomes of economic development, however, political economics may differ from one place to another (Stilwell, 2019:37). The focus of development economics studies is a broad and comprehensive theme and can be considered as one of the most salient components in modern economics (Barret, 2007:1). Rather than focusing on the allocation of resources, development economics is the study of broad themes such as political, economic and social characteristics (Todaro & Smith, 2011:7).

Development economics can, therefore, be classified as one of the underlying focus areas in terms of social sciences and the study of human behaviour in modern times (Barret, 2007:1). It is explained that the most salient aspects of development economics are the enhancements of our knowledge and how our living standards can be improved (Unger, 2019:9; Deaton, 2010:3).

Economic development should not be compared to economic growth since economic growth is structured around established economic growth theory and total output (Feldman *et al.*, 2016:6). The premise of economic development is, however, more concerned with the improvement of quality of life, modernisation of institutions, equality, entrepreneurship and the mitigation of risks (Todaro & Smith, 2011:12; Feldman *et al.*, 2016:6). The word development economics can therefore be compared to developing nations, whereby prime attentiveness is the encouragement of human capital and improvement of local communities (Sinding, 2009:3028).

According to Stern (1991:267), there are some primary propositions and procedures of analysis that have an impact on the measure of economic development such as the administrative capacity, economic compositions and the political substructure of the countries involved. One of the earliest economists Adam Smith (1723–1790) predicted that any economy, no matter the size or magnitude will go along stages of development (Bigsten, 2016:267).

According to Rostow (1971), any economy goes through some stages of economic development which includes aspects such as the traditional society, preconditions for take-off, take-off into self-sustaining growth, drive to maturity and lastly the stages of high mass consumption. Feldman (2016:5) articulates that the long-term plan of any economy depends on crucial aspects such as increasing production,

entrepreneurship as well as modernisation. Development economics, therefore, depends on the choices made by the government, institutions, businesses, community and individuals that make the accurate and intensive decisions on a microeconomic policy framework (Meyer, 2014:10)

### 2.2.1.1 *Big Push model*

After the end of the Second World War, which ended in 1945, most of the under-developed regions restored their governmental authority, which mostly included countries in Africa, Asia and parts of America (Kartika, 2014:4). Most of these under-developed regions experience constant socio-economic problems such as poverty, unemployment and the lack of infrastructure (Stewart, Holdstock & Jarquin, 2002:342). Regional economic development and more specifically special economic development strategies gained more attention for policymakers to find solid resolutions for persistent poverty (Kartika, 2014:4).

Theories such as the Big Push theory and an economist named Paul Rosenstein-Rodan identified the need for industrialisation in under-developed regions. The Big Push theory gained more disclosure for under-developed regions. The Big Push theory is known in development economics for its influential role to improve aspects of economic development within under-developed regions. The foundation of the Big Push model is based on the principle of intended government spending rather than depending on the free market where poverty may remain constant if there is no intervention (Guillaumont & Guillaumont, 2006:1).

Bateman and Taylor (2009:307) state that the Big Push is regarded as “*co-ordinated investments*” which is a tool to help fight poverty through overcoming inadequacy in incentives to attract the latest production proficiencies. The Big Push can therefore be described as co-ordination of modernisation covering all industries, however, it is not viable to modernise production in one sector alone (Kreckemeier & Wrona, 2017:1). For an under-developed region to grow it is important to consolidate substantial demand growth to diversify the size of the market whereby entrepreneurs will reap the benefits (Sachs & Warner, 1999:43).

The Big Push theory is therefore utilised to motivate domestic demand, which includes features such as FDIs, financial aid, high demand for natural resources and government expenditure (Sachs & Warner, 1999:43). The perfect example of a practical scenario includes the increase of oil reserves between 1978 and 2003, which increased by nearly 170% globally and the largest contributor was the Middle East (Stutz & Warf, 2012:131). There are elevated levels of resource quantities in the Middle East and therefore they are more open to trade opportunities, a higher influx of direct investments and more government expenditure (Sachs & Warner, 1999:48).

The basic principle of the “Big Push” theory is therefore concerned with the principle of “co-ordinated investments” in areas of market failure, which will lead to a unified public policy to initiate economic development (Todaro & Smith, 2011:164). From an organisational point of view, the Big Push theory is based on “pecuniary externalities” i.e., the actions of one organisation may have an impact on organisations in the same space or industry.

Practically when observing organisations in SEZs, most of these organisations are interlinked in terms of their specific industry in one way or another i.e., factors of production or policies to be implemented. For example, a wage increase in the manufacturing sector will have a significant positive impact on all types of firms operating in the manufacturing sector, which may help in some way to increase their returns of scale (Todaro & Smith, 2011:172). The “secondary effects” of increasing returns in production will lead to a rise in total demand, redistributing demand and reducing fixed costs (Murphy, Shleifer, and Vishny, 1989:1006). The “Big Push”, therefore, does not only emphasise economic growth, but it also focuses on economic development through a set of co-ordinated investments over some time.

#### 2.2.1.2 *Endogenous growth theory and new economic geography*

The endogenous growth theory, also known as the new growth theory (NGT) provides the foundation for endogenous growth, which is mostly determined by the structure of the production process rather than focusing on outside forces (Todaro & Smith, 2011:151). Fine (2000:260) holds the opinion that the endogenous growth theory is more applicable for analysis in microeconomics in terms of industry-specific analysis, however, it is also significant for macroeconomic environment analyses.

The theory is subject to the principle that internal factors, rather than external factors will have a significant outcome in total economic output, the theory, therefore, focuses on human capital, alteration, and internal growth (Spear & Young, 2016:21). The endogenous growth theory, therefore, contradicts the traditional neoclassical theory since it covers the influence of technological advancements in the production process (Howitt, 2004:3). The theory is important in understanding the importance of the development of factors of production and economic development in the long term (Fedderke, 2005:2).

The endogenous growth theory can be explained through its influential role of technology as a factor of production, which in turn positively influences total output in the economy (Todaro & Smith, 2011:782). German Economist, Albert O. Hirschman, claimed that exogenous growth is not necessarily based on factors of production or economic quantities, but it is based on the inequalities of income, dislocations and socio-economic problems that spur economic development (Hirschman, 1984:24).

Hirschman (1984) expressed that the problem of economic development is not specifically based on external influences, but it focuses specifically on the progress in under-developed regions employing

resource distribution and utilisation (Khan, 2014:24). Fine (2000:263) explains that the endogenous growth theory specifically focuses more on policy formulation, but it also combines political and social issues.

The Romer endogenous growth model is one of the simplest models to explain the importance of the endogenous growth approach (Todaro & Smith, 2011:152). The principle of the endogenous growth theory is because alterations in technology in the production process are due to the attempts by entrepreneurs who react promptly towards economic incentives (Jones, 2019:859).

Several factors such as research support, tax incentives and even training that influences their attempt to grow may have a positive or negative impact on the long-term expectations of the economy (Jones, 2019:859). Ideas and knowledge, therefore, plays a key role in the endogenous growth model and are non-rival in competitiveness due to its ability to not be depleted by usage (Schilirò, 2019:5). Even though the technology is exceptionally difficult to estimate in quantities, it still plays a significant role in the modern economy and is seen mostly as a by-product in the production process (Jones, 2019:868).

The new economic geography theory is also based on the principle of agglomeration economics, which means that any increases in the workers' or organisations' remuneration will have a significant impact on the regional economic growth (Combes & Gobillon, 2015:249). Therefore, economic geography focuses specifically on how organisations administer themselves over an area depending on their profits (Turok & McGranahan, 2013:470).

Krugman (1998:8) states that the “new economic geography” is the centralising impact, especially through market size effects and thick labour markets, that encourage geographical attentiveness and agglomeration against the diverging forces such as stationary factors, such as for example, factor costs, immobile factors and land rents. According to Krugman (1991a), it is particularly important to integrate two aspects in regional economic development, which include (a) trade and (b) location theories. This aspect in the new economic geography is important because interregional trade is just as important as global trade and secondly, international trade is much more integrated than before *i.e.*, European Union and SADC (Krugman, 1991)

Martin and Sunley (1996:260) explain that regional economic development theory has always been apprehensive with the problem of interregional trade and this is because of regions' potential to create employment and export goods and services. Interregional trade is focussed on the geographical concentration of firms and the establishment of economies of scale as well as the models of comparative advantage (Martin & Sunley, 1996:260).

The new economic geography models suggest that economies close to one another will grow faster than those who are spatially disconnected (Brühlhart, 2009). The basis of the new economic geography

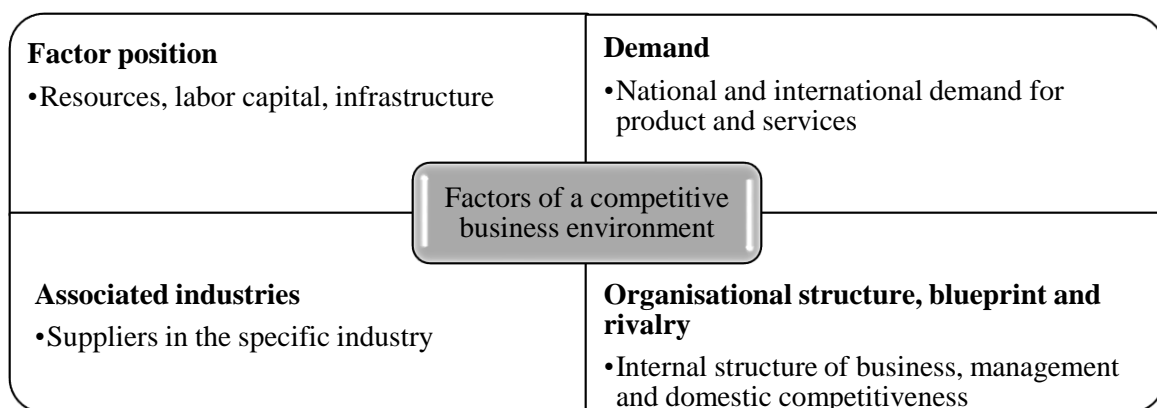
implies that areas that are near one another will enjoy the benefits such as increasing economies of scale and larger scale exporting, which all have a significant impact on regional economic development.

### 2.2.1.3 Porter's cluster theory

Clusters can be defined as an arrangement of related organisations and industries located close to one another and draw high-yielding advantages from their close connections (Mattoon & Wang, 2014:52; Porter, 2000:16). Clusters are especially important in understanding regional economic development strategies (Cotright, 2006:1; Suleman, 1998). The reason clusters are so significant in economic development is the fact that clusters are closely related to competitiveness, economic performances, and cluster mapping (Ketels & Memedovic, 2008: 379-380).

Cotright (2006:1) further explains that stakeholders use clusters as an economic development strategy to improve the region's competitive problems and strengths. The reason clusters are so significant in economic development is the fact that various role-players and stakeholders within a specific region can use their strengths by grasping the competitive issues and robustness of their regions clusters and use is to rely on their strengths (Cotright, 2006:1). Michael Porter an American academic known for his contribution to competitiveness and economic and social theory promoted the cluster theory as a regional and LED tool.

The competitive structure of a country is primarily based on the local environment, which includes but is not limited to the availability of resources and cost-related features (Choe & Roberts, 2011:57). Initially named a "competitive diamond" of various elements that determine the competitive advantage of a country with the international market such as the threats of substitutes and new entrants and the bargaining power of suppliers and buyers, illustrated in Figure 2.1 (Porter, 1998).



**Figure 2.1: Diamond model of a competitive business environment**

Source: Choe and Roberts (2011:57); Porter (1998)

Even though factor costs, demand, suppliers in the industry and organisational structure play a significant role in a competitive business environment, two other predominant factors are influencing the competitive structure in a country, namely chance and authority (Choe & Roberts, 2011:58). An excellent example of chance is Tesla's (electric vehicle company) marketing strategy aimed at taking absolute authority in the manufacturing and production of their batteries. Gaining funds to implement the strategy, the organisation takes a discrete approach by creating a sense of perfect demand in the transition to motor vehicles with sustainable energy (Wright, 2019).

The government may either encourage or hinder the process of creating competitive advantages by either introducing favourable public policies or not creating an enabling environment for businesses to gain a competitive edge (Meyer, 2014:29). The Porter cluster theory can be used to examine the interconnection between firms, prepare a plan of action for industrial clusters and LED based on their unique competitive edge (Choe & Roberts, 2011:58).

Porter (2014:8) further explains that economies should adopt a new approach in economic development by focusing more on competitiveness, relying more on strengths, initiating strategies and focus more on data rather than political influences (Porter, 2014:8). Competitiveness within clusters does not always depend on the number of jobs created, a frail currency or modest wages, it is highly influenced by the long-term productivity and cost-effectiveness of the organisation (Porter, 2014:9).

For a country to achieve a high level of competitiveness, infrastructure expansion, export promotion and the establishment of special economic zones are required (SEZs) (Dhingra, Sinha & Singh, 2008:4). SEZs can be utilised as a strategy for competitiveness within a country through magnifying sustainability rather than diminishing the overall standards and utilising other cost advantages (UNCTAD, 2020:128).

The Porter theory of clusters and competition is important in modern economics and SEZs because these economic zones depend largely on their competitiveness and long-term strategies to promote regional economic development. In his book "The competitive advantages of Nations" Porter stated that industrial clusters are very important for export revenue and the creation of strategic competitive advantages (Porter, 1998; Wickham, 2005:4).

The question to be asked is whether the South African government is performing sufficiently because industrial clusters are insignificant and a vast majority of clusters and SEZs have failed due to limited knowledge in special economic zones (Republic of South Africa, 2014:6).

#### 2.2.1.4 *New trade theory*

Trade theories are mostly based on confining presumptions that restrict their effectiveness (Stutz & Warf, 2012:351). Trade theories often focus less on transportation costs and scale economies (Stutz & Warf, 2012:351). Todaro and Smith (2011:575) state that traditional trade theories focussed more on comparative advantages and relative factor endowments, which is still applicable, however, international trade is much more complex. Other deficiencies of the trade theories include the presumption of homogenous goods and services, the immediate engagement in international trade, perfect competition and free from government intervention (Stutz & Warf, 2012:351)

New Trade Theory is much different from traditional trade theories as it focuses specifically on international industries with a large level of outputs and a monopolistic approach to the market (Cui & Liu, 2018). The theory, therefore, emphasises on the contribution of government mediation and sizeable earnings from trade deregulation (Sen, 2010:10). Deraniyagala and Fine (2001:4) assert that the new trade theory incorporates four aspects that is consistent in neoclassical economies, which include the NGT, limitations in the markets, planned efforts, the diplomatic debate and the current industrial economics.

The first aspect of the NGT includes the assumption that increasing returns will lead to higher activity in international trade (Antweiler & Trefler, 2002:94). Secondly, the new trade theory draws much attention towards current industrial economics, which demonstrates the calculated actions of organisations, authority and all other applicable delegates (Deraniyagala & Fine, 2001:5).

The new trade theory also focuses specifically on other microeconomic aspects such as returns to scale and improved returns, meaning that speciality is needed to gain a competitive edge in global trade (Davis, 2007:4). It is further suggested that the new trade theory not only focus on the price of goods and services but the quality and branding of differentiated products in the market and the principle of “first-mover advantage” (Neary, 2009:220).

Multinational firms are key to international trade; however, it depends on how well-developed a country is (Markusen & Venables, 1998:201). The new trade theory centralises their attentiveness on the rivalry between national firms rather than multinational firms and multinational firm’s dominant international trade (Markusen & Venables, 1998:201). Markusen and Venables (1998:202) further suggest that funding for trade should focus on small and underdeveloped nations such as FDI in the multinational firms. The new trade theory fits perfectly within the principle of development economics suggesting that investment in organisations in under-developed regions will have a significant impact on various aspects such as employment and income (Cattaneo & Dodd, 2007:8). SEZs depend to a large extent on the investments of multinational enterprises and the establishment of new businesses, organisations or

industries (Narula & Zhan, 2019:2). The establishment of multinational firms in SEZs will have a significant impact on economic growth and development of regions, which in turn will enable increasing returns for large organisations and a focus on differentiating products rather than homogenous goods and services (UNCTAD, 2019:154).

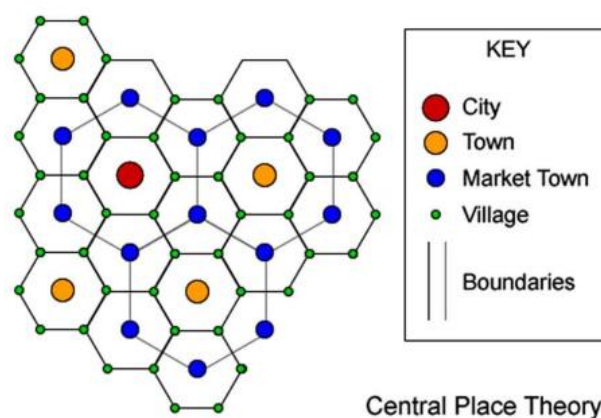
## 2.2.2 Location theories

### 2.2.2.1 Central place model

The German geographer named Walter Christaller (1893–1969) created the geographical theory with features of economic propositions, known as the central place model. The central place model is based on a handful of presumptions, which include: that the market trade is unified and part of a comprehensive region, market activities are parallel, organisations are located close to one another, land is characterless with identical transport provision in all regions, income inequality does not exist and purchasing authority are symmetrically distributed in all regions, the market is perfectly competitive and there are a wide diversity of suppliers of the same product ranges (Smith, 1974:168).

Smith (1974:169) further explains that the context of the conditions relating to the central place model seems to be implausible and far-fetched, however, the theory can explain the actual circumstances of geography and economics. The fundamental objective of the central place theory is that services and products vary in their level of economic scales comparative to the size of the market area (Hsu, Holmes & Morgan, 2014:2).

An economic base multiplier is derived from the central place multiplier whereby the multipliers tend to be more substantial in high order places but also depend highly on the sectoral composition of the region (Higgins & Savoie, 2017:143). Goods and services that are easily accessible such as groceries are found in numerous places across various markets, however, large cities tend to have a wider variety of goods and services available (Hsu *et al.*, 2014:2).



**Figure 2.2: Central place theory**

*Source: Hsu et al. (2014:2)*

The central place theory outlines how cities use hierarchical city structures whereby different cities present distinct market regions over an evenly distributed population, as illustrated in Figure 2.2 (Hsu, 2012:903). The practicality of the central place model in the study can be regarded as a very pragmatic theory relevant to SEZs, mainly since most industries and firms are dependent on central place systems rather than network systems (Meijers, 2007:248). Meijers (2007:247) further interprets that the central place model is more relevant in the industrial economies than those who are service driven. Central place theory puts prominence on the vertical interconnection between distinct varieties of hierarchically ordered central places (Meijers, 2007:247).

The vertical interconnection means that the lower category places such as villages and market towns are relying on higher categories of central places such as towns and cities. In the same way, location theory is important because cities contribute the largest percentage of employment, income and supplies to other lower category places such as market towns and villages. Hsu *et al.* (2014:22) states that the central place model is very feasible due to the various economic activities within cities, which differ very largely from population distributions in residential areas. The theory's significance in existing theory is the variation between the business sector (nodality) and the segment of business activities consumed by the population in suburbs (Preston, 2011:26).

#### 2.2.2.2 *Growth pole model*

A growth pole can be regarded as a theoretical model for a specific region whereby the intention is to expand firms, industries and sectors within a metropolis and promote regional economic development in a specific zone or region (Wojnicka-Sycz, 2013:18). A growth pole or node, can be considered as (a) a distribution point for economic development, (b) a predominant destination for economic activities, (c) the starting point for economic activity, which expands to other areas, (d) they are and situated in cities or metropolitan regions where economic growth expands rapidly leading to a better quality of life (Gavrila-Payen & Bele, 2017:210).

Growth poles are specific industries or an arrangement of firms selling homogenous goods and services within a specific industry or locality. Growth poles were first introduced in 1949 by the French economist François Perroux. Perroux implied that growth escalates through various means with different levels of magnitude, which implies that growth does not exist on an immediate basis, it can only be measured by the growth of poles (Higgins & Savoie, 2017:6).

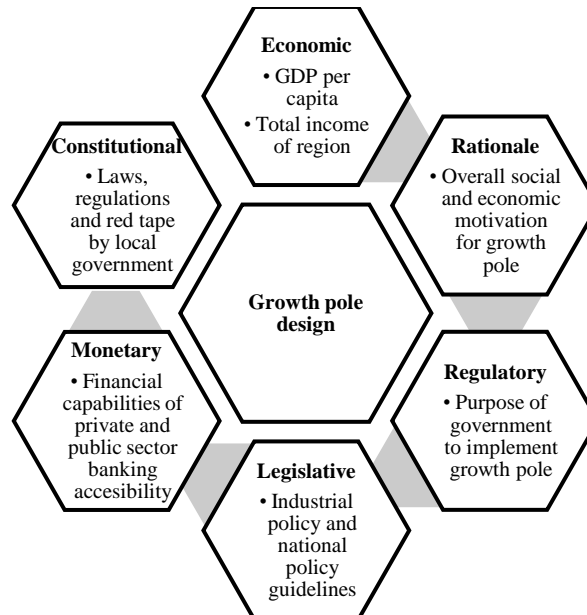
The basis of growth poles is defined as specific locations with abstract economic spaces that have three specific elements including the economic plan, a homogeneous aggregate and a field force or influencers (Darwent, 1969:5). Komarovskiy and Bondaruk (2013:33) explain that the present

execution of spatial economic theory and the idea of growth poles are more applicable to describe SEZs, industrial parks and export processing zones.

The idea of growth poles is based on characteristics such as the institutional capacity and project resource provisions (Komarovskiy & Bondaruk, 2013:33). The various elements of the growth pole development process can be illustrated in Figure 2.3, which includes aspects such as the economy, the motivation, regulation, laws, monetary elements as well the constitutional aspects. The “growth pole design” is therefore based on numerous factors and each aspect should not be treated individually but more comprehensively.

Even though “growth poles” play an integral role in regional economic development, the diffusion model and the model of unified (local) endogenous economic development is equally important (Christofakis & Papadaskalopoulos, 2011:6). Much like the “NGT”, the diffusion model is based on the proposition that “new technology” will improve economic development only if adopted by the masses (diffusion) (Mukoyama, 2003:2).

Like the “diffusion” model of economic advancement, the endogenous economic development approach focuses largely on the productivity effects of businesses and regional role-players (LED triangle i.e., businesses, community, and people) (Vázquez-Barquero & Alfonso-Gil, 2015:98).



**Figure 2.3: Elements of the growth pole development process**

*Source:* Author’s compilation; Komarovskiy and Bondaruk, (2013:34)

The regional endogenous economic development approach focuses specifically on the capacity of the region to adopt new production techniques that are used globally and, in a way, to try and address

problems in globalisation by producing more effectively locally (Vázquez-Barquero & Alfonso-Gil, 2015:98).

The growth pole theory is very significant in modern economies because it allows under-developed regions to gain innovative branches for the development of “growth poles” (Avram & Braga, 2017:9). This theory is very applicable in special economic zones since “growth poles” are closely related to special economic zones, especially since “SEZs” are cluster related areas.

### 2.2.2.3 *Structural change models*

Structural theory focuses on the implementation by which under-developed countries transfigure their traditional economic composition to a more contemporary and urbanised industrial diversified economy (Todaro & Smith, 2011:115). Both first and third world countries (industrialised or partially industrialised) transpires to bring about persistent changes in the structure of the input and output in the economy, which is projected by technological innovation and gaining a competitive advantage (Marjanović, 2015:64).

The structural change model implies that over some time a country moves from a certain type of stagnant position (agricultural sector) to more progressive dynamics (manufacturing sector) over a period that guides the evolution of the economic outlook (Hyunjeong, 2007:1).

The basic theory of the structural change model was introduced by Nobel laureate W. Arthur Lewis in the mid-1950s, however, later revised by John Fei and Gustav Rains (Todaro & Smith, 2011:115). Ranis (2004:4) explained the Lewis two-sector model as the basis of two industries i.e., agriculture and manufacturing whereby excess labour in the agricultural sector is relocated to the industrial sector and ultimately stimulates industrialisation and economic development.

Figure 2.4 shows two sectors namely the (a) modern or industrial sector and (b) the traditional or agricultural sector. Figure 2.4(b) illustrates the traditional sector with total productivity illustrated as TP. As marginal productivity increases as each additional worker is added, the average productivity, which means that any additional workers in the agricultural sector will not contribute more to the total output, which in turn creates a surplus of labour.

Lewis argued that the rural area was allocating output equally among its workers, which is based on the principle of average product  $AP_{(LA)}$  to allocate output. The urban area (industrial area) was using the marginal product  $D_{1,2,3}(K_{M1,2,3})$ , which increased exponentially and because of the reinvestments of profits, the modern sector grew exponentially leading to significant labour surplus and higher real wages than in the agricultural sector. The theory, therefore, presumes that an urban wage  $W$  will be higher

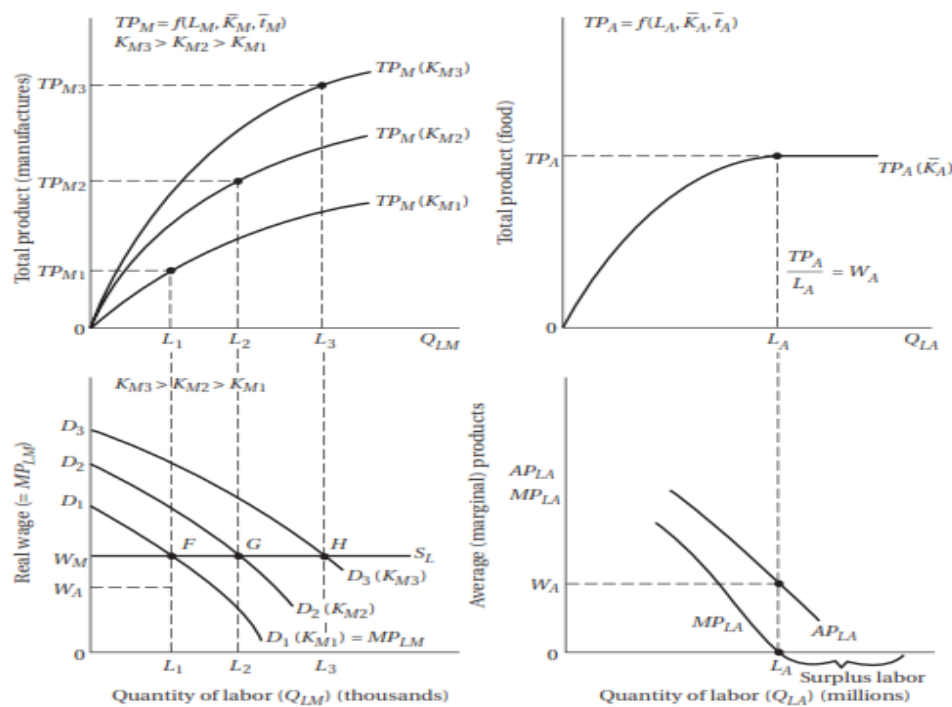
than that of the agricultural areas, meaning that the “modern sector” employers can hire more labourers from the agricultural sector.

The structural change theory is applicable to modern development economics as it is substantially used to outline the adjustments of various economic variables, such as trade, manufacturing, employment, demand and supply of industries, concerning the economic development of a particular region (Marjanović, 2015:64). The theory is based on the structural transfiguration of agriculture and urbanisation (Marjanović, 2015:64).

The procedures include the corresponding interlinkage between changes in remuneration and the adjustments in demand and supply by which they affect the industry and the macroeconomy (Marjanović, 2015:64). Rodrik (2013:3) explains that structural change is mostly used in development economics literature, which indicates that an improvement in policy has major spillover effects. The investment in knowledge (human capital) and refinement in the constitutional administration will assist to enhance the inclusive productivity in industrial development (Rodrik, 2013:3).

**(a) Modern (Industrial Sector)**

**(b) Traditional (Agricultural sector)**



**Figure 2.4: The Lewis two-sector model of the modern growth sector**

Source: Todaro and Smith (2011:116)

Free trade as a method of improving exports is also a good policy to promote contemporary economic interest. There is a major contradiction between these two policies, for example, it will be easier to introduce free trade and improve industrialisation than to improve investments in knowledge and human

capital as it will delay the process (Rodrik, 2013:3). Policy plays an important role in the process of structural change theory and authorities should choose the most appropriate policy that is in line with its strategic objectives (Araujo & Teixeira, 2011:346).

The structural change theory is important in regional economic development and SEZs as it describes the transfiguration of traditional economies to a modern approach, employing a change in demand and supply in the markets. The structural change theory also describes why certain regions such as developing countries tend to focus more on agriculture than on the contemporary approach of industrialisation. South Africa as a country is also going through a stage of structural change through focusing more on industrialisation and the improvement of human capital than the traditional approaches of economic development.

### **2.2.3 Shortcomings of conventional economic development approaches**

#### *2.2.3.1 Unbalanced economic development*

The theory of unbalanced growth is a development economic theory based on the principle of investment in prudent industries which in turn creates external economic effects or also known as “linkages effects” (Akamatsu, 1961:209). Developing countries have substandard economic growth, which ultimately leads to other socio-economic problems such as unemployment and poverty.

The main objective of the unbalanced economic development theory is specific investment in sectors of a region that have a competitive edge, encouraging continued magnification in other sectors through “linkage effects” (Holz, 2011:220). The investments being referred to include social overhead capital (SOC) and direct productive activities (DPA) (Frank, 1960:434).

SOC refers to specific investments by the government on various projects such as infrastructure, while DPA which include undertakings of initial investments (Shadmanov, 2015:10). The DPA include the explanation of the so-called “forward and backward” linkages which includes the input and output analyses. Direct investments in a specific industry will cause spillover effects and continued investments in other sectors.

“Linkage effects” play a significant role in economic development strategies as it aids policymakers to make strategic decisions on the direct, indirect and induced effects that certain sectors have on a specific region or area. Frank (1960:434) states that industries should omit the usual capital investments in a specific region and focus more on the combination of backward and forward linkages that causes mutual disequilibria and strengthen disequilibria and, as a result, causes economic development.

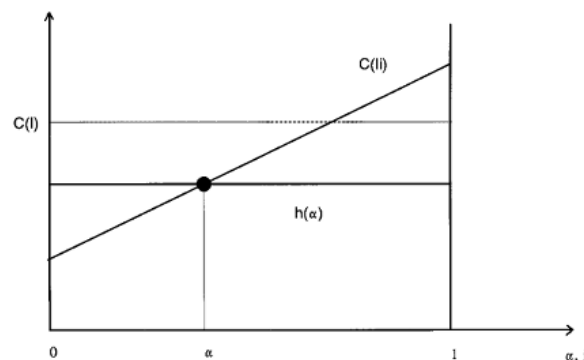
The variance in the disequilibria will have a significant impact on the design of new linkages, which in turn will diminish the space between two industries that allows it to push or pull the undeveloped sector

more towards the balanced one (Frank, 1960:434). The political condition of a region is the most important factor to increase regional economic development and investments in infrastructure to initiate demand through government plans (Baer, 1972:108)

Although unbalanced economic development is a sought-after theory in modern economics, especially in developing countries. Litwack and Qian (1998:117) explain the implementation of SEZs in an unbalanced economy may have a direct impact on developing countries in two ways (1) the political constraints in terms of investments in SEZs and (2) the insufficiency of authorities to restrict expropriation.

SEZs is the perfect example of an unbalanced investment blueprint in two diverse ways. The first set includes lowering tax fees to improve the relocation for organisations doing business with the SEZs, however, the diminishing tax schedule will eradicate the strategic interaction and leads to a new equilibrium.

Figure 2.5 illustrates that lower restructuring costs will help to reduce the inadequate equilibrium trap under steady investments with cynical alternatives. All the organisations cannot be under Type I, i.e., where  $I$  is less than one, unbalanced investment strategy, since total investment resources are limited in this type of investment.

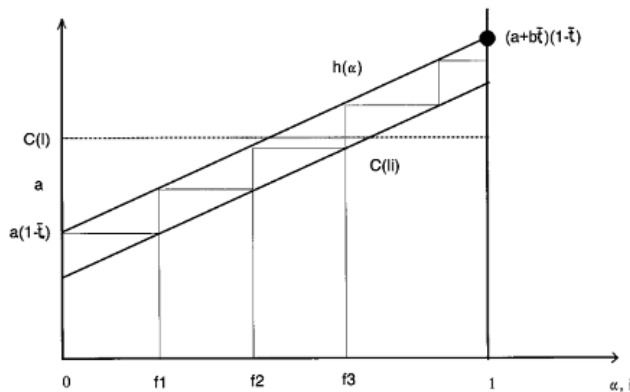


**Figure 2.5: Unbalanced Investments ( $I_i \neq I$ ):  $\theta < 1$  type1**

*Source:* Litwack and Qian (1998:130)

The second unbalanced investment strategy entails the exact opposite of the Type I strategy, which involves the enlargement of the tax plan. Litwack and Qian (1998:131) state that an enlargement of the tax plan will have a positive indirect effect on all sectors of the economy. Authorities utilise the positive effects of higher taxes, however, organisations with substantial investments and lower operating costs will assist the firm in minimising social compulsion, which assists other organisations with inferior investments to gaining undeserving gains (Litwack & Qian, 1998:131).

Because of the considerable number of investments, reforming is authoritative for the first set of firms, as illustrated in Figure 2.6 at  $f_1$  and because of this restructuring, the next group of firms ( $f_2$ ) will enjoy the same fiscal inventiveness as the first fraction. The operation continues logically and guides to an equilibrium where  $a$  is positive ( $a > 0$ ), however since  $C(I)$  is rounded, the equilibrium whereby all organisations are rearranged is still not as good as the first sets of firms due to inferior investments (Litwack & Qian, 1998:131).



**Figure 2.6: Unbalanced Investments ( $I_i \neq I$ )  $t = 0$  Type II**

Source: Litwack and Qian (1998:130)

Both types of strategies are attainable, however, the Type I (lower taxes) tend to influence the Type II (higher tax rates) if collection rates are lower and not that notable in total earnings or initial investments tend to be lower. The Type II plan (higher taxes) only works better if there are substantial amounts of investments that are comparative and social enforcement reduces quickly, employing tax revenue.

### 2.3 REGIONAL ECONOMIC DEVELOPMENT AND AGGLOMERATION ECONOMICS

Malecki (1997) defines regional economic development as “a mixture of quantitative and qualitative characteristics of a region’s economy in which the qualitative traits of a region’s economy are the most profound. The qualitative elements include aspects such as the structural changes, types of employment created, the potential for innovative economic activities and the function to enlarge remunerations which remains within the region. Regional economic development can be explained as a product (measuring wealth, standard of living, employment and investments) whereby by an increase of these variables are attributed to high economic growth and development (Stimson & Stough, 2008:3).

Regional economic development can also be explained as a process (evaluating infrastructure development, the labour force, human capital development and industry support) in which regional development practitioners, scientists and planners are involved (Stimson & Stough, 2008:3). Regional economic development, therefore, focuses on the analysis of a region’s economic capabilities by means

of policies, analysis strategy and planning by means of analysing its income, employment, investments and infrastructure (McGahey, 2008:5).

### **2.3.1 Regional economic development theories and principles**

The following section focuses on regional economic development theories in terms of its practicality in terms of modern economic outcomes for regions. It focuses specifically on theories such as the cumulative causation model, the input-output model and multiplier analysis as well as the LED model. These theories provide an effective assessment of regional economic development theories and its practicality in society.

#### *2.3.1.1 Cumulative causation model*

The cumulative causation model is used to express certain dynamic and static economies of scale or also known as increasing yields. This model is based on the principle that manufacturing plays an integral role to initiate changes in dynamics within the macroeconomy (Araujo, 2013:131). This theory is widely used to express the dynamics of forward and backward linkages, which describe why certain areas with higher gross domestic output led to higher production rates, which renders demand-side economics rather than supply-side economics (Araujo, 2013:131).

Authors such as Setterfield (2001) and Skott and Auberbach (1995) emphasise the importance of cumulative causation and increasing returns through the division of labour and specialisation. Structural change is one aspect that influences the cumulative causation, which was initially studied by Pasinetti (1981) and focussed specifically on the impact of technological advancements and the demand-side economy. Swedish economist, Gunnar Myrdal, contributed significantly to the theory of cumulative causation whereby he deviated from traditional economic thoughts and focussed specifically on the economic process of endogenous development theory rather than exogenous effects (Myrdal, 1957; Fujita, 2007:276).

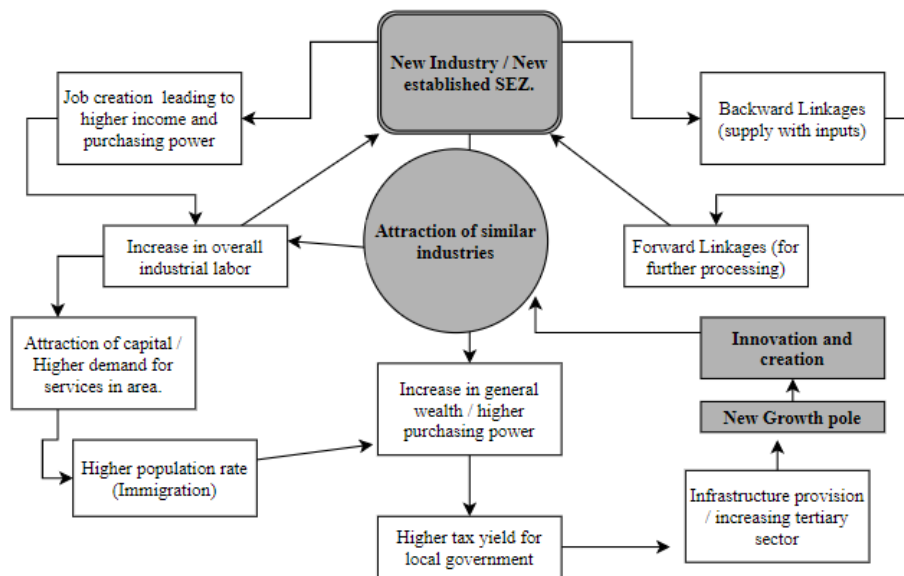
The cumulative causation model of Myrdal focussed specifically on development economics, thus focusing more on social issues rather than production and economic policies (Fujita, 2007:281). O'Hara (2008:379) explained that the cumulative causation model is based on accumulative intensity between numerous factors resulting from the first changes, which means that the spillover effects will have a much larger effect than the initial effects. Myrdal focussed extensively on developing countries with extremely low income and capital expenditures, which leads to low investments in human capital (knowledge and health) and consequently lower output as well as insignificant economic growth (Todaro & Smith, 2011:58).

It is important to note that the cumulative causation can either be negative (poverty trap) or positive (numerous benefits of establishing a new SEZ). Figure 2.7 shows the positive effects that will spillover

into new industries or SEZs through creating forward and backward linkages that leads to higher investments in both infrastructures as well investments in the tertiary sector, which enables human capital growth.

The practicality of the cumulative causation model is illustrated in Figure 2.7 whereby a new industry or establishment of an SEZ will lead to benefits such as job creation and significant purchasing power, while at the same time creating forward and backward linkages in other industries. Overall industrial labour will increase significantly while attracting more capital, which leads to a higher population rate.

Higher population rates and an increase in purchasing power will have a significant effect on the tax income of a region while improving the infrastructure provision and growth in the tertiary sector. As a result of the new industry or SEZ within the region, it enables a new growth pole within a region and leads to more innovation within the specific sector, which in turn attracts similar industries.



**Figure 2.7: The development of industrial region**

Source: Author's compilation; Weinand, (1972:95)

### 2.3.1.2 Input-output model and multiplier analysis

Input-output is one of the most efficient methods to analyse various economic multipliers (Hughes, 2003:25). Multipliers are used to examine the negative or positive effects of an economic event such as the effects of the establishment of a new steel manufacturer in an industrial area. Input-output models are also a reliable tool to evaluate the benefaction of a specific sector within the region (Hughes, 2003: 25).

There is a wide diversity of multipliers which indicates the force of backward linkages or the magnitude to which action by an industry creates supplementary procurement from other industries and resource contributors (Hughes, 2003:25). Impact analyses are used in the same manner as the multipliers, however, the primary adjustments in output will be larger as it is spread across various sectors and industries. Slabbert (2004:46) states that the input-output model is used to pin-point the financial flows (revenue and expenditure) and the association between the different sectors of economic affairs.

The underlying goal of the input-output analyses is to evaluate the effect that production has on both inputs and outputs of the specified commodities in a specific sector as well as the demand and services supplied by authorities or households (Slabbert, 2004:46). Miller and Lahr (2001:2) explain that the coefficient matrix can be illustrated in Equation 2.1, which is an illustration of the economic interdependence among various industries of an economy at a particular moment.

$$A = Z(\ddot{x})^{-1} \dots\dots\dots (2.1)$$

For a “n” sector economy, Z can be identified as (n × n) matrix of endo- and intersectoral flow of services and goods while  $\ddot{x}$  is an n-component vector of sectoral GDP (Miller & Lahr, 2001:2). Subsequently, the Leontief inverse, which can be illustrated as  $x = (I - A)^{-1}y$ , which is the instrument used to apply the input-output model and “y” is an n-component of the final demands in the industry.

The input-output model can also be used to explain the backward linkages, which can be described as the column totals of the Leontief inverse from the demand-determined I-O model (Mehmet, 2008:12). Forward linkages are the row totals of the Ghosh-inverse, which is supply-determined rather than demand-driven. Identifying the key sectors in a region is a strategic tool to evaluate the level of economic development utilising the forward and backward linkages (Mehmet, 2008:14). These linkages are calculated as follow:

$$NBL = nBLj/\varepsilon BLj \dots\dots\dots (2.2)$$

$$NFL = nFLi/\varepsilon FLj \dots\dots\dots (2.3)$$

Where BL is the vector of normalised values of backward linkages, FL the vector of normalised values of forward linkages and N the number of sectors in IOT.

The forward and backward linkage indices for all the different industries is grouped into four categories. If the specific indicators are above the average, it is regarded as crucial sectors. It is indicated as significant indicators when the backward linkages are higher than the average, however, if the forward linkages are more significant than the average, the sector is regarded as significant forward linkages (Mehmet, 2008:14).

The input-output analysis is also used as a tool to evaluate various inquiries such as, for example, production analyses, cost of composition, employment indicators, impact analyses and comparative regional analyses.

#### 2.3.1.4 *The local economic development model*

There are quite a few denotations and explanations for LED, however, The World Bank Urban Development Unit (WBUDU) (2003:4) provides a popularised meaning to local economic development:

*“Local Economic Development is the activity by which community, people, organisations, and NGOs work co-operatively to shape recommended conditions for economic development, growth, and employment. The aim of LED is therefore to upgrade the standard of living for all people.”*

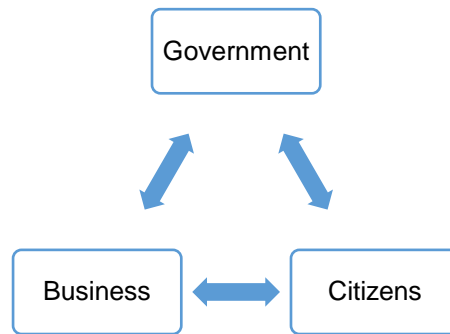
The main aim of LED is to encourage growth within a region through deliberate initiatives taken by the authority, citizens and the business community to work co-operatively to achieve their development objectives (Blakely & Leigh, 2013:405). LED differs from one region to another especially considering the political concern of a region and the economic affluence of the specific area (Kačar, Curić & Ikić, 2016:233).

The macroeconomic development objectives focus specifically on the traditional approach to development such as determining sectoral propositions while LED focuses more on the establishment of a specific division or area (Kamara, 2017:98).

LED motion is that economic development initiatives are more a bottom-up approach to economic development than a top-down approach for enhancing economic development within a specific area (Rodríguez-Pose & Tijnstra, 2005:4).

With the limited intervention from the provincial and national government to intervene in economic development strategies, the LED strategies focus more on the creation of an enabling environment in which local government, businesses and people can work together to form valuable partnerships (Koma, 2014:9).

LED authorises people in local communities to create work and business opportunities that the local government does not create a more sustainable future to work and live in (Kusakabe, 2013:53). Meyer (2013:625) states that LED entails collaboration and affiliation between authority, people and commerce, which can also be expressed as the LED triangle in Figure 2.8.



**Figure 2.8: LED triangle**

*Source:* Meyer (2014:626)

South Africa as a developing country varies in terms of the implementation of LED strategies due to low engagement from either the national or provincial government (Rodríguez-Pose & Tijmstra, 2005:4). Attributable to the fact that there are limited to zero attempts by the government to improve or change the situation in the country, because of the low participation from government, a solution to the problem is public-private partnerships whereby businesses are assisted to establish commercial growth (Fombad, 2013:11).

As a way of improving the governance and administration of policies to improve sustainability and eliminate poverty, the Department of Co-operative Governance and Traditional Affairs (COGTA) implemented the LED as a strategy for overcoming the shortcoming in other macroeconomic policies in South Africa (Meyer & Venter, 2013:98).

### 2.3.2 Agglomeration economics and efficiency

Agglomeration economics focuses on the analysis of the location of firms in terms of space and movement especially in the highly dense area (Giuliano *et al.*, 2019:383). Agglomeration economics are used to explain why organisations, individuals and firms tend to move in highly dense areas such as cities and industrial clusters (Glaeser, 2010:1).

The study of agglomeration economics, therefore, focusses on the reasons why economic activities tend to centralise, which is also known as the minimum cost location. Parr (2002:3) and (Glaeser, 2010:1) state that agglomeration economics involves an important spatial element named “concentration”, whereby individual firms or overall firms enjoy various “cost-saving” aspects, such as limited transportation costs.

Economies of scale, urbanisation and localisation are three particularly important elements that need to be considered in agglomeration economics (Parr2002:4). Urbanisation can be explained in terms of workers and organisations whereby firms and employers are much more effective in denser areas than in any other location. Metropolitan cities can also be considered as regions where major innovation

takes place due to urban clusters (Puga, 2010:3). Large cities enjoy benefits such as economies of scale and overall production, however, larger metro regions allow regions to increase their overall competitiveness (Puga, 2010:205).

Highly urbanised areas normally pay higher wages than those of less urbanised regions and that is one of the methods to measure the overall urbanisation (Satterthwaite, McGranahan & Tacoli, 2010:2810). The amount of rent paid in cities can also be considered as an important strategy in terms of evaluating productivity advantages (Puga, 2010:3). The perfect example is the number of wages paid in Johannesburg compared to the number of wages paid in other metros such as Nelson Mandela Bay. The average rent and wages paid by firms are much higher in Johannesburg than in Nelson Mandela Bay, because Johannesburg is a megacity with high urbanisation and a significant number of clusters.

Localisation is also an important aspect that indicates that highly urbanised areas are more clustered than urbanised areas, which leads to various comparative advantages (Parr, 2002:4). Helsley (1990:189) states that there are various elements that contribute to positive “external effects” such as specialisation among firms and industries and labour market economies, which reduce costs for firms in terms of employment and the sharing of specialised inputs, improved communication among industries, which eases the implementation of innovations and it improves the overall technical scale needed for a specific industry.

Even though industries and firms enjoy specialisation of inputs agglomeration, economies also have the characteristics of a local public good, which implies the sharing of public utilities, improved transportation services and highly effective infrastructure (Parr, 2002:4; Helsley, 1990:190). Industrial agglomeration stays an important aspect in regional economic development, despite the increasingly easier transportation of goods, services and knowledge across space (Glaeser, 2010:1). Agglomeration economies refer to certain types of economies that help firms and organisations in terms of their location. In other words, agglomeration economies consider space, urbanisation and knowledge spillovers, spatial equilibrium and transportation costs as significant aspects within the region.

The benefits of agglomeration economies include elements such as lower transportation costs, which is a benefit to the firm, higher wages for individuals employed in highly urbanised areas and the concentration of economic activities.

The agglomeration theory is very applicable in terms of regional economic development as the study of agglomeration economics focuses more specifically on location, the productivity of firms, the importance of internal and external economies as well as spatial development and planning.

### 2.3.2.1 *Comparative advantage approach*

The comparative advantage of a region can be defined as the potential of a demographic area to produce products more effectively and efficiently, with the least opportunity costs, suggesting these areas have a comparative advantage over a certain product in comparison to other regions which produce similar products (Todaro & Smith, 2011:575; Smit, 2010:109).

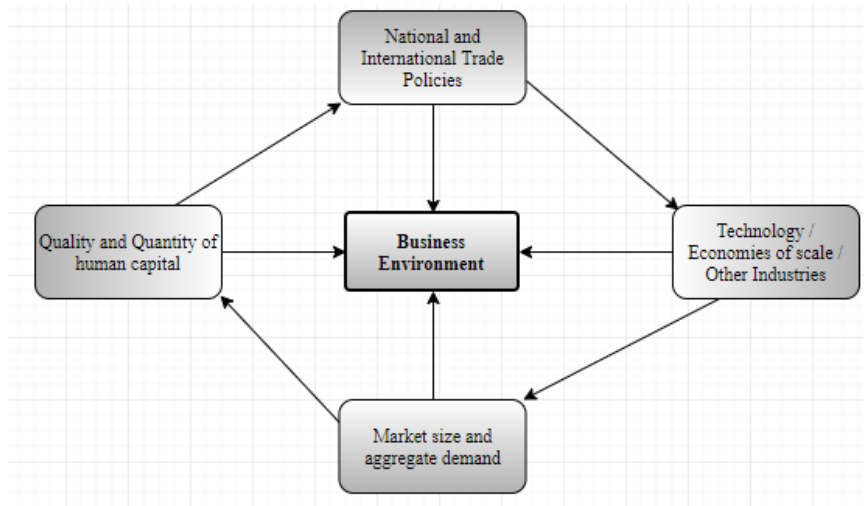
In terms of international trade, these regions would specialise in the production of those commodities where they have a comparative advantage in, thus creating more skilled labour and economics scale advantages (Mankiw, 2014). Firstly, introduced by Adam Smith (1776:309) in *Wealth of Nations*, he illustrated the differences between shoemakers and tailors (tailors would have an absolute advantage in both clothes and shoes, however, shoemakers should focus more on designing and manufacturing shoes) (Faccarello, 2015:3).

David Ricardo (1817:217), a British economist used the same example, except he utilised the idea that countries should specialise in commodities where they have the least opportunity costs and making products more efficient, as well as a higher product differentiation (Meoqui, 2019:2). In terms of the comparative advantage, various countries and regions have different mixtures of productive factors, which include capital, labour and land (Goldin, 1990:14).

Although comparative advantages play an essential role in countries or international trade, comparative advantages are also applicable within certain areas or regions. According to the Federal Reserve Bank of San Francisco (FRBSF, 1993:1), regions' physical distinctiveness will influence its level of comparative advantage. The geography and natural scenery in the City of Cape Town made it, for example, a significant tourist destination while the shipping terminal in Durban became the largest trade port in Africa.

Even though physical distinctiveness is very important to distinguish one region from another, there are several other factors as well, such as infrastructure development, the inducement of new organisations, the policies situated within the region as well as the overall market size (FRBSF, 1993:1).

Visser *et al.* (2015:27) explain that regional economic policies are important for regions to create comparative advantages because it aims at refining regional production structures, enhancing organisational, regional and national competitiveness while achieving significant economic growth and development.



**Figure 2.9: A framework for comparative advantage**

*Source:* Gupta (2015:14)

Figure 2.9 is an illustration of a framework for comparative advantages within a region or an area. Aspects such as the level of technology and economies of scale, the markets size and demand within the region, the quantity and quality of human capital as well as the national and international trade policies are all aspects that influence the comparative advantage of the business environment and all the factors are interlinked.

If an area has the adequate market size to export their goods with the right amount and quality of human capital and significant economies of scale, but not the most proper international trade policies, for example, then there will be a significant problem for the region to export their goods and to create a comparative advantage.

From a policy point of view, it is essential for the government, business sectors and industries to recognise and establish which commodities, industries and regions to assist to gain a competitive edge (Visser *et al.*, 2015:28). Pflüger and Tabuch (2016:2) explain that the identification and evaluation with regard to the division of labour and the significant decrease in transportation costs of a region are two particularly important aspects of increasing returns.

Gupta (2015:12) explains that countries or regions may develop comparative advantage and increasing returns through their region's technological advancements, the availability of resources, sufficient aggregate demand, human capital and skills as well as national and international trade policies.

In a country such as South Africa with a moderate number of SEZs, it is important to apply the principles of creating a comparative advantage approach whereby firms can manufacture goods at a competitive level.

Manufacturing has a significant percentage of employment and economic growth figures within the country, as such, policymakers need to focus on improving the manufacturing process through investing in SEZs while creating technological enhancements, human capital and achieving significant returns to scale.

### 2.3.2.2 *Spatial diffusion approach*

Spatial diffusion can be described as the distribution of activities and formation within a particular region. The concept of spatial diffusion can be seen by the escalated attentiveness of the role of growing cities in regional economic development as well as the diffusion in interregional prosperity differences (Hanham & Brown, 1976:65). Similarly, to the growth pole and structural change model where the focus is on the expansion of business activities and industries, the spatial diffusion follows the same direction.

According to Li and Li (2018:1), the effectiveness of spatial agglomeration and economic growth within a region are very closely related. Spatial diffusion and innovation are two aspects that are intricately linked to each other, especially since spatial development is a category of development economics (Hanham & Brown, 1976:65).

Amarasinghe *et al.* (2018:1) indicate that urbanisation in under-developed regions is limited especially on the African continent, with limited infrastructure development and genetic diversification. These are all aspects that curtail the implementation of spatial diffusion. Spatial diffusion, therefore, focuses on the persevering of spatial relationships over a region, showing magnitude and extensiveness of economic development and the impact it has on neighbouring areas via the estimation between nearby markets (Brady, 2014:150).

Roberts (2000:395) state that where the link between developed and under-developed regions are powerful, then a regional proposition approach to economic development may be most favourable. The soundness of linkages between under-developed and developed regions can be governed by estimating the outcome of a change in economic interest and the spillover effects it has on other economic regions (Roberts, 2000:395).

Spatial diffusion can be regarded as the opposite of agglomeration economics because localisation economies focus on the grouping of firms in an industrial cluster while urbanisation economics focuses on different industrial clusters, which allow the sharing of labour and knowledge (Cheruiyot, 2020:10).

In other words, the theory of spatial diffusion focuses more on the operation that promotes movement, the migration within regions and the repercussion consequences generated in the specific moves (Saint-Julien, 2004).

**Table 2.1: A cross-classification of some types of diffusion processes**

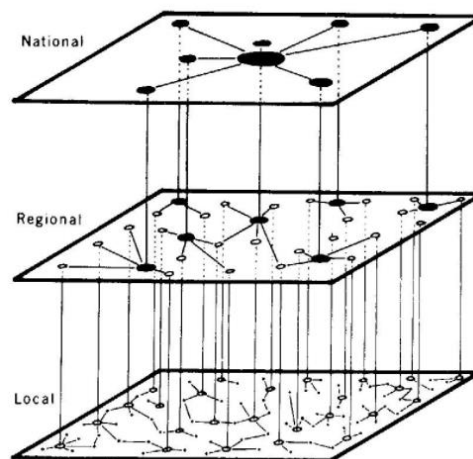
	<b>Contagious</b>	<b>Hierarchical</b>
<b>Expansion</b>	Innovation and ideas on local level and co-operative community	Ideas and innovation trend in urbanised areas and cities.
<b>Relocation</b>	Movement of people (migration), limited work opportunities (lack of ideas)	The movement of academics and transfer of knowledge, “steppingstone” migration.

Source: MacKinnon (1975:3)

Table 2.1 illustrates the communication or relationship procedure whereby all the “knowers” act as expansion or diffusion proxy in succeeding intervals of the procedure (MacKinnon, 1975:3).

The cross-classification can be described as contagious diffusion processes where knowledge is transferred by direct contact, hierarchical where development leaps through the geographical space, expansion where it is transmitted from one individual to another by direct contact and relocation where movement is from one area to another through carriers.

The spatial diffusion is the perfect example of geographical economics and the spatial distribution of economic activity. The planes of diffusion are illustrated in Figure 2.10 whereby national policies are distributed to a regional level (i.e., provincial), and to a local level (municipalities), which is the same way knowledge is transferred from one source to another.



**Figure 2.10: National, regional, and local planes of diffusion**

Source: Hägerstrand (1953:25)

### 2.3.2.3 Knowledge spillover approach

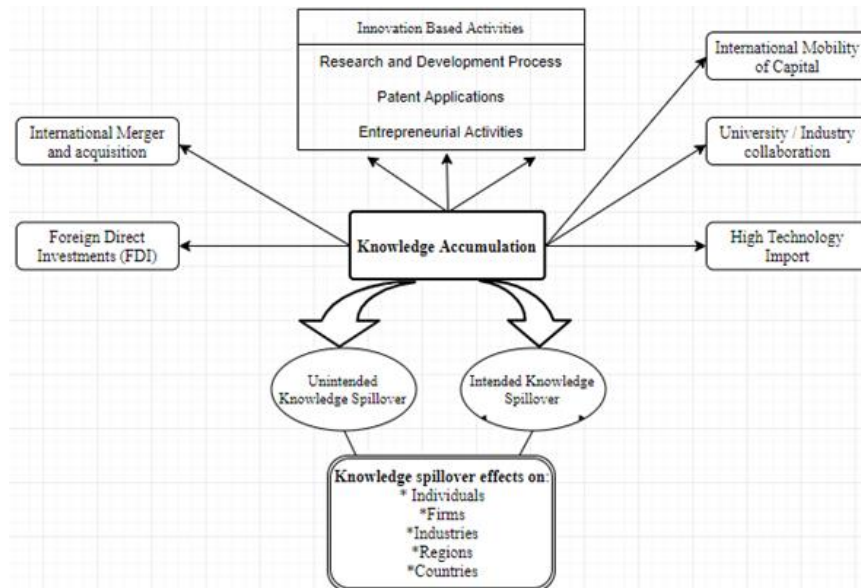
Agglomeration economies emphasise on the information-based principles and the idea around the theory is that knowledgeable employees help to teach other workers on specific ways to enhance their

existing skills (Glaeser, 2010:9). Human capital development plays a critical role in the knowledge spillover approach as it focuses on improved productivity.

Glaeser (2010:9) further states that the interaction of knowledgeable and skilled workers within cities will help to improve economic development as well as human capital, which leads to a significant rate of innovation. Localised economies involve the “concentration” of organisations and firms i.e. organisations within a similar industry, and this localisation of firms lead to higher rates of skilled labour, specialisation, higher information spill overs as well as insignificant freight rates.

Knowledge accumulation can be illustrated in Figure 2.11 whereby the primary source of knowledge accumulation is transferred to or obtained from FDI in terms of multinational organisations, international merger and acquisitions, the international mobility of capital, university and industry collaboration as well as high technology importation.

Other than knowledge accumulation from international activities there are also innovation-based activities in terms of research and development processes, patent applications and new entrepreneurial activities. Özsoy *et al.*, (2019:46) further point out that the spillover effects is based on unintended and intended knowledge spillovers, which affects organisations, employees, regions and countries.



**Figure 2.11: Knowledge accumulation and spill overs**

*Source:* Özsoy, Tunahan and Esen (2019:46)

#### 2.3.3.4 *The importance of public policy in economic development*

Public policy plays a significant role in agglomeration economies, especially in certain areas where agglomeration economies are more prevalent than in others (Glaeser, 2010:13). Public policy is especially important in areas where infrastructure development is needed similar to the Gautrain in the province of Gauteng situated in Johannesburg, South Africa, which enables dynamic cities to develop and improve their economic growth.

The implementation of public policy remains, however, a difficult scenario since the objectives and goals between national and local policymakers tend to differ. Public policy is important in any region due to its influence on regional economic development policy implementations and an improved association in terms of LED strategies and plans (Bradbury, Kodrzycki & Tannenwald, 1997:2).

Bradbury *et al.* (1997:2) further state that for example when a tax incentive is proposed it can stimulate economic development through reduced business costs, however, indirectly it can hamper a reduction in the collection of tax revenue from businesses and firms. Correspondingly, the deregulation may assist the organisation in total expenditure, however, it may harm the region or location as it influences the decay of the location or region.

Public policies within a country can either make or break economic development (Meyer, 2013:18). South Africa has poor public policy record, which is illustrated in the substandard education system, poor health care practices, under-developed infrastructure, excessively high policy uncertainty on a national level, high spatial diffusion among communities, the lack of specialisation in other sectors, except for the mining sector and lastly the worrisome levels of corruption and maladministration within the country.

Meyer (2013:26) argues that national policy needs to be implemented successfully before it can be diffused to a regional or local level. Nonetheless, public policy remains an indispensable aspect in economic development, and it is the responsibility of government to ensure that public policy is met and implemented adequately and sufficiently, before it can be implemented on a regional or local level.

#### 2.3.3.5 *Shift share analysis and location quotient techniques*

The basic index in the evaluation of a region or the industry structure analysis, the LQ (Location Quotient) can be used to figure out and calculate the regional advantageous and disadvantageous industries as well as the status of a regional factor (Xu, Cheng & Xu, 2018:5). As stated by Niyimbanira (2018:98) there are various techniques which use regional economic indicators or data to unveil the features that distinguish one regional economy from another. The economic base analysis is useful for regional and policy development as well as the business environment (Niyimbanira, 2018:98).

Literature shows that there are various ways to calculate and apply both the location quotient and the shift-share analysis in the South African context. Niyimbanira (2018), Meyer and Niyimbanira (2021), John (2019) and Meintjies (2001) used either the Location Quotient or the Shift-Share analysis as a method for evaluating the regional economic development position / structure within their specific study region. The quality of the evaluation for the analysis depend on the specific data gathered and the method used to calculate the shift-share analysis or the location quotient for the specific region and the industries analysed.

## **2.4 SYNOPSIS**

Regional economic development encompasses a wide range of different definitions, interpretations and understanding. The basis of this chapter was not to specifically consider SEZs and its functional form and especially builds the theoretical foundations of regional economic development and its practicality within the local economy.

Development economics as the main branch of regional economic development can be defined as the study of social sciences, human behaviour and standards of living. The premise of economic development focuses more on the quality of life, equality, the modernisation of institutions and the mitigation of certain risks. In a broad sense, development economics depends on the choices of community, people and businesses to ensure the effective implementation of policy guidelines.

Most of the literature utilised in this chapter focussed on the development of economic theories. The first part of the chapter focussed broadly on basic economic development, which development economists are familiar with such as the ‘Big Push theory’ illustrating the effects of co-ordinated investments and intended government spending.

The endogenous growth theory illustrated the significance of internal factors influencing production such as human capital and technological advancements, which are all aspects influencing the total output of the region. The new trade theory illustrated the importance of increasing returns and the impact it has on total exports and international trade.

The geographical and economic location theories included specific theories such as the central place model, which explores the sectoral composition of regions and network systems. The growth pole model was also explained, which defines the reason why firms tend to centralise and the majority of firms sell homogenous commodities, which also contributes significantly towards information sharing and “knowledge spillovers”.

The growth pole model also explains why firms tend to centralise such as SEZs that focus specifically on a network of firms manufacturing and selling goods in a similar industry. The structural change

model explored some of the reasons why under-developed regions tend to shift from traditional sectors, such as agricultural to more modern sectors, for example manufacturing.

The last section focussed specifically on regional economic development theory and agglomeration economics such as the circular cumulative causation model, which are utilised to indicate the forward and backward linkages of new industries or new SEZs within a region.

There are various positive spillover effects in terms of the establishment of new SEZs, which leads to the attraction of more firms and similar industries in the market. The input-output model was also explained in the chapter which is a very favourable method of analysis which shows the positive or negative effect of an economic shock on a specific region's local economy.

A brief description was examined in terms of LED, which aims at improving the standards of living of a region using active local economic development strategies and tools. Agglomeration economics were described in terms of its usefulness in locations and the importance of urbanisation to reduce transportation costs and improving urbanisation within a particular region. The comparative advantage approach illustrated the importance of “specialisation” in regions with specific emphasis on high product differentiation and the least opportunity costs.

The last segment of the chapter explained the importance of spatial diffusion and knowledge spillover effects, which emphasises information-based principles and practices. Spatial diffusion focuses more on the innovation and the different kinds of ways that information is diversified within specific areas or regions.

Knowledge is accumulated through various channels and transmissions such as the mobility of capital, international mergers and acquisitions as well as innovation-based activities such as research and development and entrepreneurial activities. The public policy was also defined in this part of the study, which indicates the importance of adequate policy selection and effective rule of law to attain a certain level of economic development.

## CHAPTER 3

### SEZS BASIC CONCEPTS, DEFINITIONS AND SUCCESS FACTORS

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#### 3.1 INTRODUCTION

The theoretical foundation provided in the previous chapter indicated that SEZs in their functional form contribute significantly towards regional economic development and its practicality within the local economy. The establishment of a SEZs is an active way for the government to improve standards of living and quality of life, using active co-ordinated investments and conducive government spending.

The geographical and economic location theories showed that location is a significant factor to consider in terms of information sharing and “knowledge spillovers”, however, also indicated the reason why SEZs tend to locate in areas with clusters (Christ, 2009:4). The previous chapter also indicated the importance of agglomeration economics and the impact it has on the cumulative causation models and the creation of forward and backward linkages, which ultimately leads to the attraction of new firms within the region. The comparative advantage of the approach illustrated the importance of “specialisation” within regions while also focusing on least opportunity costs and product differentiation.

The objective of the chapter is to define and outline special economic zones through a qualitative study that includes the different types of SEZs and the benefits that SEZs provide for the region at large. This chapter addresses the first, third, and fifth theoretical objectives outlined in Chapter 1. The first section focuses on the history of special economic zones, which explains the timeline for the establishment of the first SEZ to the modern 21<sup>st</sup> century SEZ.

The next section focuses extensively on the definition and benefits, which SEZs have to offer while focusing on the different types of economic zones, the role of SEZs on regional economic development and how it promotes free trade and contributing to economic growth. The next section will focus on the ownership of special economic zones and whether SEZs should be privately, publicly or a mixture of public and privately owned, while also looking at the organisational structure of SEZs and the role that each stakeholder plays in the operation of the SEZ. The last section of the chapter focuses on the overall policy considerations of SEZs to meet their underlying objectives. The policy should be designed in terms of the (i) governance and regulatory framework, (ii) the long-term strategic focus as well as the (iii) the overall design of SEZ value concept.

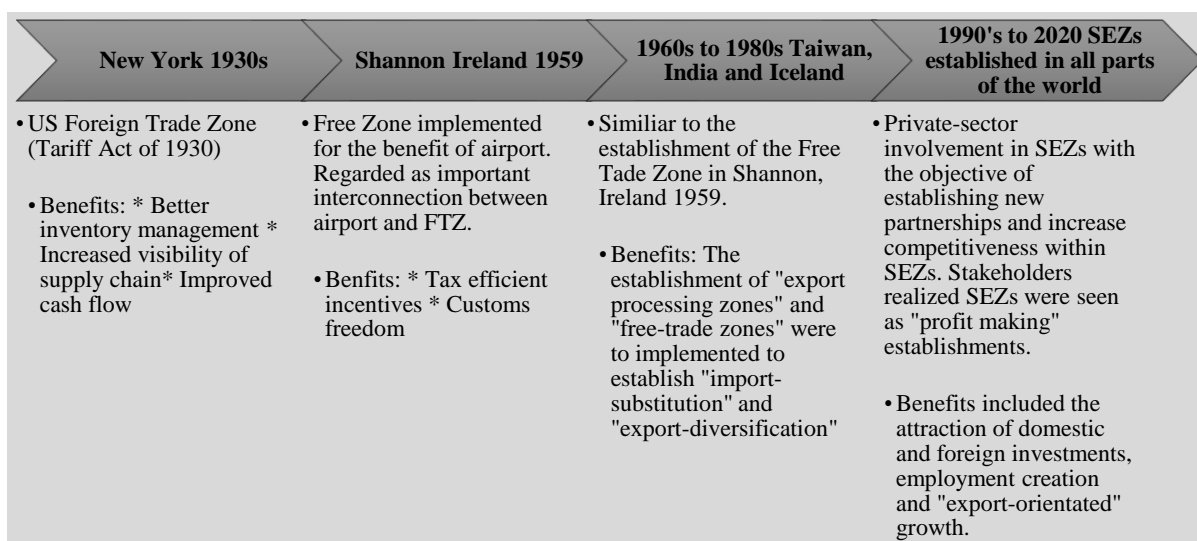
The last and most important section of Chapter 3 will focus on the success factors of SEZs which includes a comprehensive desktop study of essential elements and themes which should be used to measure the success of special economic zones. The final segment of this chapter focusses on the

importance of spatial diffusions which relies on innovation as a part of diversified information in developing regions.

### 3.2 A BRIEF HISTORY OF SPECIAL ECONOMIC ZONES

The earliest contemporary IDZ was established in 1959 in a town named Shannon in the western parts of Ireland (Zeng, 2016:3 & Naeem *et al.*, 2020:2). Subsequently, other countries around the world also established SEZs such as Taiwan, India and Iceland from the 1960s up until the 1980s, however, these special economic zones were referred to as “export processing zones (SEZs)” or “free-trade zones (FTZs)”, which implied that foreign shareholders could import non-duty products and manufactured goods in foreign markets (Bernstein, Altbeker & McKeown, 2012:11). The prosperity of these zones in the developed world showed noteworthy success utilising stimulated exports and changing the landscape of industrial transfiguration in developed countries, which resulted in the developing world to follow the same path (Aggarwal, 2012:872). Even though numerous EPZs (economic process zones) was prevailing as part of the Shannon model various other developing countries in Sub-Saharan Africa (SSA) and Latin America during the 1960s implemented their unique type of SEZ programmes (Woolfrey, 2013:6).

Figure 3.1 illustrates the timeline of the establishment of SEZs in the different decades. Initially, SEZs were established to increase the efficiency of workflows at locations with export-orientated goals and objectives. During the 1960s and 1980s, SEZs were mostly established in Asia as a tool for promoting exports and to substitute critical imported products, however, during the 1990s until now SEZs are geographically bound areas with specific advantages such as the attraction of investments, employment creation and “export-orientated” growth opportunities.



**Figure 3.1: Timeline for the establishment of SEZs**

Source: Author’s compilation

Figure 3.2 illustrates the first modern SEZ situated in Shannon (Ireland), which are mostly regarded as a “FTZs” whereby goods and commodities are used to accumulate, control and re-export under favourable customs regulations.



**Figure 3.2: The first modern SEZ: Shannon free-trade zone in Ireland**

*Source:* Shannon Group (2020)

Although SEZs have been in existence for many years and the number of established SEZs have risen beyond expectation in recent decades (Aggarwal, 2012:873), the main developmental objective for these countries is to formulate SEZ policies that could assist in export-advancement and import substitution to renovate and broaden their local economies (Aggarwal, 2012:873). The earliest adopters of the SEZ scheme included countries in East Asia such as China, Taiwan and South Korea, which produced zones that assisted these countries to compete on a national competitive magnitude (Naeem, Waleed & Khan, 2020:3).

Naeem *et al.* (2020:3) further state that countries in Southern Asia and Africa i.e. (Pakistan, Bangladesh, Zambia and Nigeria) had some difficulties to implement the SEZ regime in the earliest stages of discovery and they have not been able to bring structural information of the advantages that SEZs had to offer. Administrative, lawful and managerial frameworks flawed within these countries, which had a significant negative impact on the implementation of successful SEZs within these regions.

The most popular and well-established SEZs named the Shenzhen Special Economic Zone in China was initiated in 1980, and today (2021) there are more than 5300 SEZs in 134 countries around the globe (Pakdeenurit *et al.*, 2014:1). The prime categorisation interchanged from the traditional “FTZs” and

“EPZs” to a wider variety of SEZs focusing more on business activities, industrial development to more technological scientific services in biotech and information technology (IT) (COMCEC, 2017:1). Raheem (2011:178) states that SEZs are established as tools for improving the adequacy and reliability of revolutionary policies while at the same time attracting foreign and domestic investments within these specific SEZs.

The goal of SEZs is, therefore, to strengthen and intensify the welfare of a nation, however, some nations have competitive advantages and therefore should focus on the establishment of SEZs in a country depending on the infrastructure aims, position and politics (Narula & Zhan, 2019:2). Even though SEZs have been implemented in countries around the world, while managing the transfiguration of the economies of their host nations, a large majority of zones have been unable to construct an effective enabling environment or in that case to participate in international trade, and unfortunately, that is the case for South Africa as well (Bernstein *et al.*, 2012:2). SEZs constitute a significant portion of the international trade movement while encouraging a significant number of jobs and contributing to regional economic development (Raheem, 2011:178).

Even though the majority of these SEZs are utilised as a tool to promote international trade and to attract domestic and foreign investments, evidence indicates that a large amount of SEZs has failed to create interconnections with the local and regional economy and clusters (Naeem *et al.*, 2020:2). The success stories of SEZs cannot be ignored, for example, China which is home to more than half of the world’s SEZs had an export-to-GDP ratio of 6% during the 1970s, however, this ratio grew to more than 37% by the end of 2018 (Naeem *et al.*, 2020:3).

The success stories of SEZs in the Asian countries should not be ignored in any way, even though there are currently 5 400 zones across the world and more than 500 new established SEZs, it is an indication of the shape and new motion of industrial development in an ever-increasing international trade environment (UNCTAD, 2019: xii).

### **3.3 DEFINING SPECIAL ECONOMIC ZONES AND BENEFITS**

#### **3.3.1 Defining SEZs**

SEZs have a wide variety of definitions and concepts, however, the general explanation of special economic zones can be defined as a distinctly delimited region within the borders of a country where the regulatory authority is inconsistent with the rest of the economy and the area is physically secured (UNCTAD, 2019:11; Zeng, 2016:3; Sit, 1985:69). Even though SEZs are seen as areas with specific functions other than the rest of the economy, there are a few other aspects that set these regions apart from other areas of the country. SEZs is primarily based on the “laissez-faire” free market system, the quality of infrastructure is far more superior, it offers profits to potential stakeholders and the

administration manages the operational procedures independently (Sit, 1985:69; Bernstein *et al.*, 2012:2).

The aim for countries to establish SEZs is to improve the welfare of a country, however, it mostly depends on the manifesting goals, infrastructure, geographical location as well as the political situation of the country (Farole & Akinci, 2011:19). The magnitude of free zones differs from the small-scale free zones and export processing zones to large SEZs, however, it mostly depends on the industrial development and economic development objectives (Bost, 2019:142). Woolfrey (2013:1) and Bost (2019:143) further explains that governments establish SEZs to create job opportunities, improving manufacturing and exportation, while stimulating economic and industrial development.

Zeng (2016:3) explains that SEZs enjoy the benefits of implicit public service delivery and systematic customs as well as swift licensing and registration. SEZs, therefore, focuses extensively on the comprehensive industrial and economic development plan of action such as definite development objectives in rural regions through subsidies and other fiscal incentives (Woolfrey, 2013:2). Shah (2008:4) further explains that SEZs aid a country in terms of export-led development and growth plans to encourage economic undertaking in the domestic market.

SEZs are productive instruments for governments to guide industrial development while creating competitive industries and improve total economic output (Dassel & Eckermann, 2013:2; Wahyuni, Astuti & Utari, 2013:338). Governments see SEZs as a platform to create new and innovative products and services and to assess new policies while supporting the existing conditions for the rest of the economy (Woolfrey, 2013:4; Dassel & Eckermann, 2013:3).

The African Development Bank Group (2015:11) elaborates that special economic zones are utilised to encourage systemic collaboration between government and the private sector, however, effective co-ordination is needed to implement a lucrative SEZ policy or plan. Public-private partnerships and collaboration assist the SEZ to stimulate trade policy consistency, policy soundness and finally state capacity (Zeng, 2016:3; African Development Bank Group, 2015:11; Shah, 2008:4).

### **3.3.2 The different types of economic zones**

Table 3.1 is a representation of the different types of economic zones, although the concept of economic zones remains constant, the variance is inherited in terms of its size, location, markets and objectives. The most basic type of economic zones includes the FTZ whose primary objective is exportation while eco-IDZ focus more on the ecological and social impact and its effect on the environment. All though most literature refer to economic zones as free economic zones (FEZ), the consensus is to use the concept of SEZs due to their popularity, nonetheless, the basis of zones, in general, indicates the same interpretation and definition.

Chen (1995:594) highlights that economic zones plays a significant role in the regional, national and global objectives in terms of private and national-state capital. The interconnection between the private sector and governmental objectives plays a significant role in regional economic development (Chen, 1995:594).

Table 3.1 shows the type of zone, the primary objective of the economic zone, the markets which it serves and the development objective of the economic zone. The last column focuses on some practical examples of the various kinds of economic zones from various parts of the world. In the case of South Africa, the most obvious SEZ is the IDZ, which is mostly manufactured driven and focus on a wide range of fiscal incentives such as tax holidays and tax exemptions.

**Table 3.1: The types of economic zones**

Type of economic zone	Primary objective of economic zone	Physical configuration; Markets; Development objective	Practical example
Free-trade zone (FTZ)	The simplest form of SEZs is free-trade zones. Enclosed area that is export-orientated with tariff rebates and reduced taxes for imports as well. Offers wide variety of facilities such as warehousing, storage, as well as transshipment (Miyagiwa, 1986:338; Abdusharipovich, 2018:49).	Smaller than 100 km <sup>2</sup> , domestic, internal and export markets, integrated development.	Calabar FTZ (Nigeria), Khalifa Port FTZ (Abu Dhabi), Mielec Euro-Park (Poland), Port of Sacramento (California, USA)
Enterprise zone / Export processing zone (EPZ)	Also known as open economic zones or economic development zones are industrial estates which primarily focuses on manufacturing and exportation (Arnold, 2016:1; Pakdeenurit <i>et al.</i> , 2014:2). The EPZ focuses primarily on a free trade environment and includes the (a) all-inclusive type and (b) specialised type.	Smaller than 100 hectares, export market, export manufacturing.	Shannon EPZ (Ireland), Kaohsiung EPZ (Taiwan), Kandla EPZ (India), Masan EPZ (South Korea), Maquiladora Programme (Mexico)
Comprehensive SEZs	A multi-functional economic zone that has a one-of-a-kind geographical location is significant in size and contains a mixture of industrial, manufacturing and high-tech industries (Zeng, 2010:57). Comprehensive SEZs are less popular than export processing zones and FTZs since it includes a numerous industry, which in some cases are difficult to manage and implement.	Smaller than 50 hectares, conducted for export markets, various development objectives.	Shenzhen SEZ (China), Kashgar, Nanjing (China), Xiamen SEZ, Zhuhai SEZ (China)
Industrial park / IDZ	An industrial park can be defined as an important characteristic of economic development, which includes the provision of services i.e., standard and	Smaller than 100 hectares, serves domestic, internal and	Coega IDZ (South Africa), East London IDZ (South Africa), Richards Bay IDZ (South Africa),

Type of economic zone	Primary objective of economic zone	Physical configuration; Markets; Development objective	Practical example
	non-standard (Vidová, 2010:41). The companies within the industrial parks are manufactured driven and offer a wide range of benefits such as trade benefits and tax exemptions.	export markets with objective of integrated development.	Dube Trade Port (South Africa)
Bordered logistics parks	A bordered logistics park or also known as a bonded area are known as specific structure or region in which goods/commodities are kept for further processing or transportation. Remarkably similar to FTZs, however, these logistic parks' laws and regulation are different than those of EPZs (Abdusharipovich, 2018:49).	Smaller than 100 square kilometre, domestic, internal and export markets, integrated development.	North West Logistic Park, Szczecin (Poland), Fenton Logistics Park, St. Louis, (USA), Korzowa Logistics Park, Kraków (Poland)
Urban enterprise zones	Urban enterprise zones are organisations that aim to restructure stagnate urban regions and metros through the presentation of tax benefits and other important financial endowments (World Bank, 2008:11). Most of these zones are allocated in developed countries and large development in developing countries.	Smaller than 50 hectares, serves only for domestic markets, Objective is Urban revitalisation.	Empowerment Zone, Chicago Ill, (USA). New Jersey (UEZ),
Eco-industrial zones	Eco-IDZ are modern type of zone whereby the group of organisations aim to enhance ecological problems to achieve improved environmental and social conduct through collaboration (Bellantuono <i>et al.</i> , 2017:362).	No specific information in this regard.	Rantasalmi EIZ (Finland), Torino Environmental Park, Turin (Italy). EBARA Corporation, Tokyo (Japan)

Source: World Bank, 2008:10; Author's compilation

There is, however, one zone that includes a broader spectrum of SEZs and it is the comprehensive SEZs, which is more “specialised” than the other types of economic zones, which are included in Table 3.2.

**Table 3.2: Several types of specialised zones**

Type of specialised zone	Objectives of zone	Activities	Markets	Example
Science parks / “Technopoles”	Stimulating high-tech industries through encouraging business development, and including the latest technologies.	Promoting high-tech industries utilising “knowledge-intensive,” interlocked activities	National / Domestic and exportation	Silicon Valley, California, (USA), Amsterdam Science Park, (Netherlands)

Type of specialised zone	Objectives of zone	Activities	Markets	Example
Tourism	A tourism zone is a region forming of tourism sites with the objective of consolidated tourism development.	Linked to nature, culture, and history	Domestic and export	Virginia Tourism Corporation, Richmond (USA)
Professional and financial business services	Improving and expanding offshore financial services.	The facilitation of offshore, non-financial and financial services.	Primarily export-orientated	Dutch stock exchange, Amsterdam (Netherlands), Labuan Offshore Financial Centre (Malaysia)
Petrochemical zones	Promoting energy industries to improve economic activities.	Process biological intermediate products such as plastic, rubber and natural gas.	Domestic and export markets	Laem Chabang Industrial Estate, (Thailand)
Logistics parks or cargo villages	Support logistics within the region and contributing essential means of product distribution.	Transshipment, warehousing, and distribution	Re-exportation	Dalian International logistics park (China), D1 Logistics Park

Source: World Bank (2008:11)

### 3.3.3 The benefits of established SEZs

There are a wide variety of advantages and aids that help SEZs to operate effectively and efficiently. Existing literature refers to existing benefits as direct and indirect benefits for the firms, the industrial park as well as the local economy. The direct or “static” benefits include aspects such as the stimulation of job opportunities within the local economy, attracting sufficient FDIs in the manufacturing sector to increase exportation in the international markets (Alexianu *et al.*, 2019; Woolfrey, 2013:4).

Even though companies directly receive help from the establishment of SEZs the government also receives incentives in terms of government income in terms of tax collection, creating foreign exchange income through exportation while also creating added value from the economic activities (Woolfrey, 2013:4 & UNCTAD, 2019: xiii). Zeng (2016:9) states that the establishment of SEZs aids in skills improvement, the diversification of exports, facilitating cluster development and improving trade effectiveness.

The benefits of establishing SEZs do not only benefit the SEZ or companies within the SEZs itself it also focuses on the broad economic perspective in terms of relieving unemployment while also enabling government to implement new policies and procedures (Woolfrey, 2013:4). Sit (1985:69) articulates

those FDI's are the most presiding source of investment within zones due to their ability to transfer skills and technology easier.

The indirect or “dynamic” benefits for the establishment of SEZs include a wide variety of factors and aspects such as the promotion and encouragement of structural transformation in industrial development, reinforcing backward and forward linkages, strengthen the capacity of the local workforce while shifting managerial proficiency and technologies to local businesses (Naeem, Waheed & Khan, 2020:4675; Zeng, 2016:1).

Ślusarczyk, and Grondys (2018:2169) and UNCTAD (2019: xiii) further state that other indirect benefits include aspects such as innovation and skills improvement for employees employed within the SEZs, the diversification of the local economy and productivity magnification of local organisations. Bernstein *et al.*, (2012:12) and Pakdeenurit *et al.*, (2014:1) state that SEZ offers major financial aid through tax easing, expanding formal employment opportunities for the local communities, improved work conditions as well as the promotion and marketing of the business in terms of its specific industry and sector.

SEZs also influence the physical and social infrastructure of a region by creating an enabling environment for organisations and sectors working within the SEZs while connecting sources of inputs and transport hubs (Shah, 2008:4; Woolfrey, 2013:2). Zeng (2013:4) affirm that other indirect benefits deriving from SEZs include aspects such as a testing area for extensive economic refinement, demonstration effects and improving trade capability of domestic firms.

Bernstein *et al.*, (2012:2) and Petrovic (2017) further assert that the standard of infrastructure within SEZs differs from the rest of the nation due to the provided infrastructure offer benefits such as high-speed internet facilities as well as medical and day care facilities. However, these specific zones do not face the normal obstacles such as electricity problems and low infrastructure provision, which are predominant in the rest of a country. Figure 3.3 is an illustration of the characteristics of SEZs, which include aspects such as incentives, operation and regulation.

### 1. INCENTIVES

SEZs offers direct and indirect financial and non-financial incentives to firms and attract international organisations to invest.

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- **Direct investments** : Foreign direct investments, foreign exchange revenue, employment opportunities, export diversification
- **Indirect benefits**: Skills development, improving trade efficiency, technological advancements, export diversification.

### 2. MANAGEMENT

SEZs offer enhanced administration and ordinance by facilitating an area that is appealing to businesses.

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- Improved transparency and convenience with a committed regulatory authority.

### 3. PERFORMANCE

Produce the best infrastructure for industrial activities and attract the best facilities for firms and organisations within the SEZs.

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- High quality IT services, telecommunications and science parks
- Allocation of marketing, networking and consulting for the firms
- Highly effective transport hubs

### Figure 3.3: Features of special economic zones

*Source:* Marsh and McLennan Companies, (2018:2); Abdusharipovich (2018:49)

Even though SEZs offer benefits such as infrastructure provision, skills development and employment opportunities, these entities also offer a wide range of tax and non-tax incentives. Pertovic (2017) and Bost (2019) reveal that SEZs also offer tax holidays for organisations operating within SEZs, which include aspects such as the exclusion from paying corporate income taxes while receiving benefits in terms of capital investments that are usually sunset provisions.

Pertovic (2017) further reveal that SEZs offer efficient administrative policies, fast track customs policies and accessible regulatory and legal procedures. Bost (2019) explains that in addition to the tax and non-tax incentives, the zone-based firms enjoy major tax benefits to reduce the alteration of competitive organisations, which give organisations a competitive edge.

### 3.4 THE ROLE OF SPECIAL ECONOMIC ZONES IN REGIONAL ECONOMIC DEVELOPMENT

SEZs in general are an effective tool that allows authorities to effectively utilise resources that enable improving local, regional, national and global competitive advantages (Abdusharipovich, 2018:49 & Bergman, 1999:1). Special economic zones offer a wide variety of benefits and advantages, however, these SEZs help organisations to be innovate, which includes aspects such as improved labour markets and the transfer of knowledge within the local community (Abdusharipovich, 2018:50).

Developing countries perceive industrial clusters and SEZs as imperative to regional economic development objectives while focusing on the development community at large (Bergman, 1999:1). Zeng (2016:4) states that the organisations within the SEZ entities provide essential public services to

organisations within a geographical region while enhancing the performance of government budgets for critical infrastructure development. The regions also improve the agglomeration of specific industries while also improving the development of urban regions through significant employment opportunities for the local communities and improved economies of scale (Zeng, 2016:4; Farole & Kweka, 2011:1).

Ślusarczyk and Grondys (2018) interpret economic zones as entities with the same objectives in terms of the aim to improve economic development and growth by stimulating economic development within these clusters. In terms of international trade and development, most of the developing countries establish SEZs as a strategic objective to create bilateral trade agreements and partnerships. Cross border SEZs covering more than two countries are a critical element in regional economic development and trade (UNCTAD, 2019: xiii).

UNCTAD (2019: xiii) further states that SEZs are also utilised to contribute towards industrial development and diversification and to create linkages to global value chains (GVC). The benefits acquired from the establishment of SEZs include aspects such as trade and tax exemptions and enhanced infrastructure that is utilised to draw foreign investments from multinational enterprises (MNEs) that contribute significantly towards to technology and knowledge movement (Woolfrey, 2013:4).

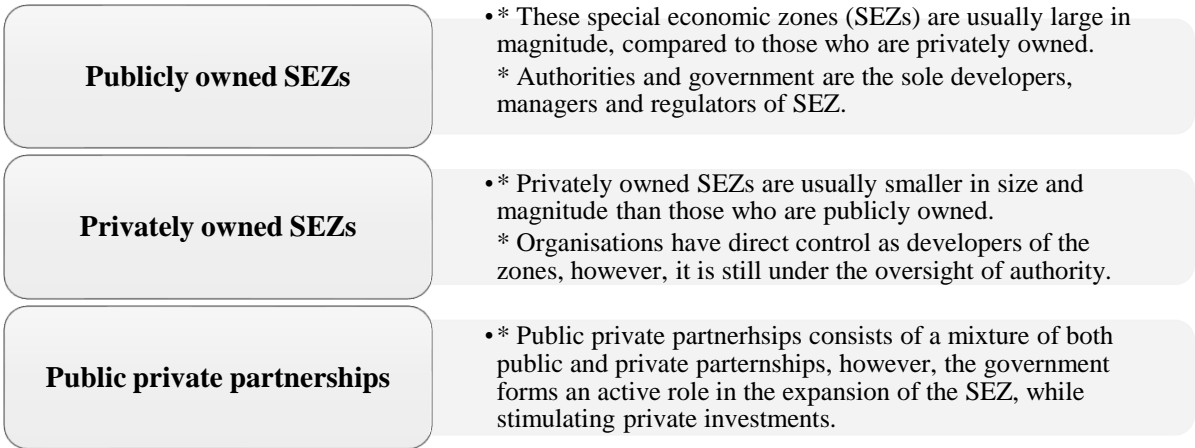
The United Nations Industrial Development Organisation (UNIDO, 2009:72) states that SEZs provide an opportunity for local organisations to manufacture their products at their filled capacity for exportation in international markets and play an essential part in establishing the region's economic system. The cluster benefits of SEZs in developing countries also offer various advantages in terms of agglomeration whereby firms can share knowledge and skills with similar firms in the industry (Akinci & Crittle, 2008:12). According to Pak and Park (1997:196), SEZs function in a free management structure and go well beyond their reputation as specific geographical areas that offer benefits, however, these regions offer an extensive field of business ventures such as manufacturing, agriculture, tourism and professional businesses services that provide remarkable economic development outcomes.

SEZs also provide equal opportunities for organisations through their incentives, rather than the rent-seeking opportunities from the substantial elites utilising protectionist strategies (Moberg, 2017:76). Moberg (2017:76) further states that the anti-competitive procedures implemented within SEZs make it more competitive for new and start-up organisations to enter the market. The objective of SEZs is therefore to promote free trade, regulating business practices and limited tax charges, which are all aspects contributing to the broad objective of economic growth and development.

**3.5 OWNERSHIP OF SPECIAL ECONOMIC ZONES**

After the formation of the earliest SEZs, the outline and projects escalated quickly (Bernstein *et al.*, 2012:10). COMCEC (2017:5) illustrate there is a significant amount of new and privately developed SEZs operating globally. The option for SEZs to function privately rather than publicly is mostly because developers want to ease the weight of public resources to be diminished (COMCEC, 2017:5). UNCTAD (2019:131) states that the ownership of SEZs can be public, independent as well as public-private partnerships (PPP), however, the choice should be based purely on the government’s policies with regard to SEZ establishment and the involvement of the various government levels i.e. (local, regional, provincial, or national). The ownership of SEZ” s) are generally publicly owned (such as IDZs), however, in some cases, the SEZs are privately owned and managed (UNCTAD, 2017:152). In terms of PPP, the government foundation may vary, such as incentive zone development, infrastructure support and the presentation of any supplementary services that they might need (Akinci & Crittle, 2008). Zones that are publicly owned tend to differ in terms of proprietorship and administration, for example, a centralised system is where authority has the primary accountability for controlling the activities of the SEZ (Petrovic, 2017:15).

A decentralised system is quite the opposite of a centralised system since municipalities (local government) are given management responsibility and collaboration is needed with local business communities to form partnerships or to find the right investors. The regulatory system is quite different from the rest of the economy, however, most of the time it is the responsibility of the government to find the rules and regulations in terms of ownership (UNCTAD, 2019:133). Figure 3.4 depicts the main differences in characteristics between the diverse types of SEZ and their main differences in terms of management and regulations within these SEZs.



**Figure 3.4: Characteristics of different SEZ ownership types**

Source: Author’s compilation; Petrovic, (2017:15)

In South Africa, most of the SEZs are owned and managed by the government (national, provincial or local) or PPP are established between the government and the private sector, which is stipulated in (Section 23 of the Special Economic Zones Act) (Roux & Schoeman, 2016:757).

Farole (2011:42) states that the ownership style between the private and public sector is heavily influenced by the regional influence, for example, zones in Asia and Southern Africa, a mixture of both private and public sectors, countries in Northern Africa, the Middle East, Europe, and central Asia are governed by public authorities.

Akinci and Crittle (2008) assert that 50 % of the global SEZs are publicly owned while the other half of the world’s zones are privately owned. ESCAP (2019:10) states that it is less suitable and feasible to establish public SEZs because they will be less developed and lower demand-driven due to the minimum sustenance from the private sector.

It is more efficient and effective to establish an SEZ based on a public-private partnership due to the higher investments percentage from the private sector and a lower weight on public finances while government support is a bonus (ESCAP, 2019:10).

### **3.6 ORGANISATIONAL STRUCTURE OF SPECIAL ECONOMIC ZONES**

Much like the ownership of SEZs, the organisational structure of SEZs depend largely on its management, operation and development (Gauthier, 2011:9). The structure in outlining a constructive institutional foundation include four important concepts namely (i) transparency in responsibilities (ii), sovereignty and inclusiveness, (iii) jurisdiction and collaboration and (iv) function and resources (Farole & Kweka, 2011:2).

The institutional foundation is especially important for the organisational structure within the SEZ and includes the roles and responsibilities of the zone regulator, manager, owner and developer (Farole & Kweka, 2011:2). The rules and responsibilities should be included for the following role-players: (i) regulator, (ii) government (iii) operators, (iv) developer and (v) owner. The roles and responsibilities of the stakeholders are illustrated in Table 3.3, which indicates the specific responsibility for each stakeholder.

**Table 3.3: The responsibilities of the stakeholders**

<b>Role-player</b>	<b>Role and responsibilities</b>
<b>Government</b>	The role of the government is to direct inceptive feasibility studies and determining a development consensus with the developers. The governments’ objective is also to ensure infrastructure development, skills development and training to develop a skilled workforce.

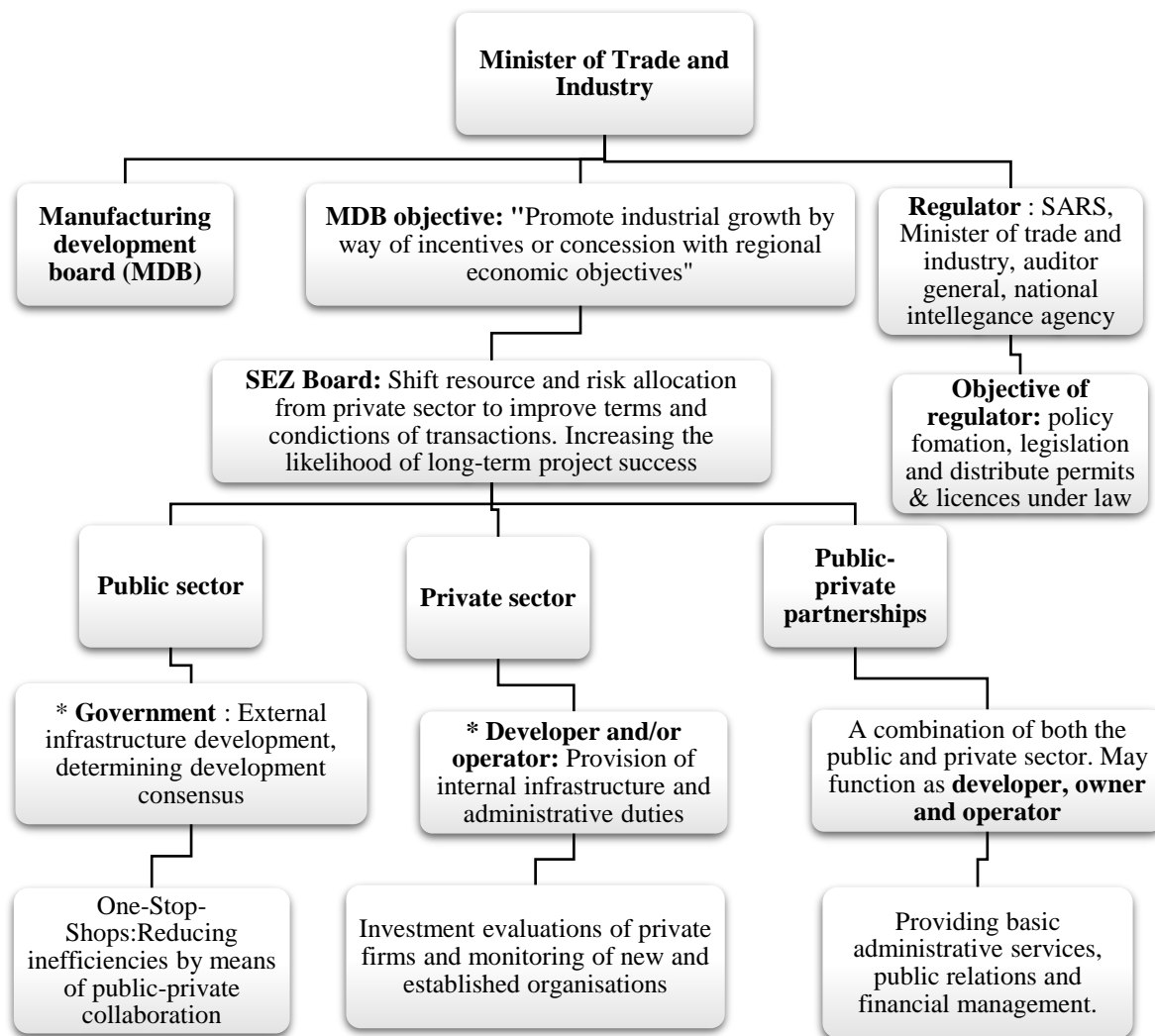
<b>Role-player</b>	<b>Role and responsibilities</b>
<b>Owner</b>	The owner being the government, the private sector or PPP handle the selection of developers and operators utilising a competitive tender process and to acquire land for the development of the SEZ.
<b>Developer</b>	The developer should be able to communicate with local government in finding the specific land, use planning and the provision of internal infrastructure such as roads, sewerage, and other utilities. Marketing the SEZ to various other potential investors are also a particularly key role of the developer.
<b>Regulator</b>	The regulator is primarily responsible for the long terms strategic planning for the SEZs to find private and public areas for the establishment of the zones. The role of the regulator is also to ensure compliance in terms of SEZ regulation and rules in terms of the SEZ act of that specific country. Monitoring is also an especially important responsibility of the regulator to ensure they are meeting the legal framework while ensuring the stated objectives are met.
<b>Operator</b>	The role of the operator is to supply the basic administrative services to investors and screening potential investors applications based on a set of predetermined specifications. The requirements for the operators include other aspects such as lease agreements and the provision of other value-added services. The operators also must organise the operations support system (OSS) such as the IT maintenance and software provision.

Sources: Farole and Kweka, (2011:4); Mangal, (2019:2-3)

Figure 3.5 is an illustration of the organisational structure of SEZs in a South African context. The Minister of Trade and Industry is regarded as the top level of the “organisational structure” due to its power to determine the establish a new SEZ. The manufacturing development board (MDB) is the board that are appointed by the DTI and the Minister of Trade and Industry and forms part of the *Manufacturing Development Act* (Act. No 187 of 1993) (Dream Team Capital, 2019). The progress of choosing the MDB is then to select a board of SEZs representatives, which include stakeholders from the private, public, and PPP.

The various responsibilities and roles differ from one country to another, however, the role-players in the “organisational structure” of SEZs will always be composite due to the ineffective synergism between parties to achieve the most proper outcomes (Gauthier, 2011:34). The public sector includes the national, provincial and local government that oversees conducting the feasibility studies of the potential SEZ while also providing critical infrastructure to the newly established SEZ (Farole & Kweka, 2011:4).

The private sector as well as the PPP between government and the private sector also plays a significant role as developers and operators of the SEZs (Mangal, 2019:2). The responsibilities of these entities include the provision of administrative services, public relations, evaluating existing and upcoming investments as well as monitoring (Gauthier, 2011:4). The regulator is very important to ensure the objectives of policy formation, legislation and the distribution of licences and permits are on time, while also ensuring accountability, transparency, participation and inclusion.



**Figure 3.5: Organisational Structure of SEZs in South Africa**

Source: Author’s compilation; Gauthier (2011:4)

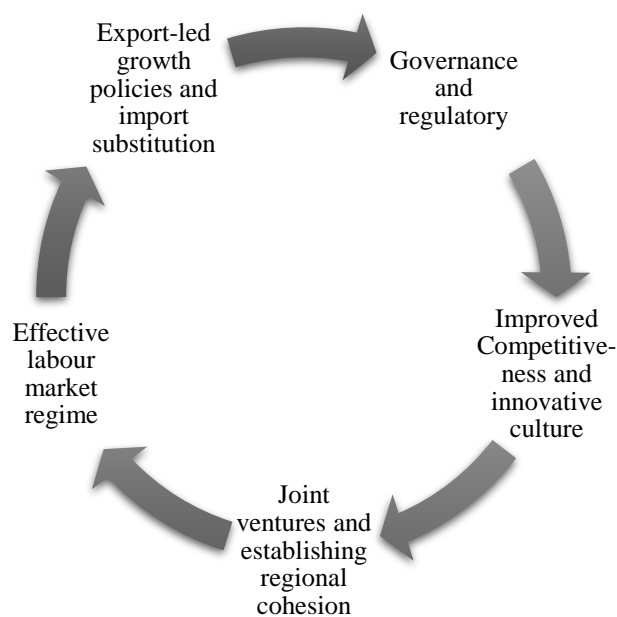
### 3.7 POLICY CONSIDERATIONS

Zeng (2016:3) argues that SEZs should focus on attaining one or more of the following targets which include (i) improving industrialisation and exports while at the same time engaging FDIs, (ii) perform as a “pressure valve” to reduce extensive unemployment, (iii) attaining financial sustainability to achieve the broader economic growth impact and (iv) functioning as a controlled environment to practice new policies and reforms. Shah (2008:6) states that the policy framework should be adjusted in such a way that the SEZ should establish wide, continual linkages to the local economy, which transfers into export promotion, which at the same time shock domestic prices.

The policy for establishing a special economic zone should also be based on the principle of eliminating any political prejudice in establishing SEZs but also to focus on the long-term strategic plans of the SEZ, such as system policies that will magnify positive linkages while reducing negative externalities

(Naeem *et al.*, 2020:13; Shah, 2008:6). The long-term strategic framework should focus more on diminishing regional disparities and discrepancies in terms of the guidelines for policy implementation (Ślusarczyk & Grondys, 2018:2169).

According to UNCTAD (2019:130), the policy of special economic zones should be based on three particularly important aspects, which include: (i) the governance and regulatory framework, (ii) the long-term strategic focus of the SEZ and (iii) the overall design of the SEZ value concept. Figure 3.6 is an illustration of the important aspects in policy formulation for SEZs that include aspects such as the regulatory framework, competitiveness, regional integration and effective labour market regime and export growth policies.



**Figure 3.6: Structured policies for special economic zones**

*Source:* Ambroziak and Hartwell (2018:1323); Bernstein *et al.* (2012:5)

Shah (2008:6) reasons that the policy framework for the establishment of an SEZ should be based on the balance between the possible disadvantages and welfare by the establishment of SEZs and these entities should be established in such a way that SEZs produce significant linkages to the local economies and consequently enhance exportation. Established SEZs in Asia presented some very important aspects for the sustained success of SEZs, which included factors such as innovative cultures, increased FDIs, location advantages, a strong institutional support programme, land reforms as well as innovation, technological advancement and clear objectives (Zeng, 2017:6).

The policy choices depend on the overall industrial policy and SEZ policies within a country, however, the SEZ policies in South Africa should aim to improve exportation, which in turn will create a positive effect on employment creation. Bernstein *et al.*, (2012:24) state that the labour market should refocus

its priorities to create labour-intensive work opportunities for citizens instead of focusing on capital intensive sectors to reduce inequality and to improve trade activities within developing countries.

Policy options in South Africa should also focus more on the conservation of local industries from the non-native competition by supporting local businesses and implementing strategies such as import substitution and export-led growth initiatives (Bernstein *et al.*, 2012:24). In recent times the industrial policies have not been adequate due to the short time to implement the policies and the lack of resources to properly implement industrial policies (Kaplan, 2019:9).

South Africa already has an existing SEZ policy, which is provided by the Department of Trade and Industry to set a transparent policy structure concerning the functioning, development and administration, however, there are a few obstacles in terms of the policy guidelines (Republic of South Africa, 2012:21). The one obstacle that SEZs face is to include the improvement of the long-term objectives of regional economic development requirements to enhance the SEZ shortfalls in the long term (Republic of South Africa, 2012:21).

The problem is not necessarily the policy itself as stated by Bernstein *et al.* (2012:24) but the inability of the business environment to recruit more employers in the labour market and alternatively utilise improved technological methods because of the dynamic changes in the industry. There should also be an understandable, probable and comprehensive policy planning framework that is in line with the regional industrial development strategy, IPAP (Zalk, 2014:335), as well as the New Growth Path (NGP) (Republic of South Africa, 2012:21).

Narula and Zhan (2019:17) state that the challenge to adjust an SEZ policy that has a prompt effect on employment opportunities and the long-term success of the SEZ will also largely depend on the engagement of government and other crucial economic actors involved in the SEZ. According to UNCTAD (2018), a country needs to design an SEZ policy that is interlinked with the industrial and trade policy to create globally competitive industries while directing towards the SEZ locational advantage to create a successful SEZ. Zeng (2016:8) notes that modern SEZs are becoming the driving force of eco-industrial cities as well as green development, which is important in terms of environmental sustainability. The policy objectives of SEZs should be developed in such a way that it benefits the regional economy to create higher economic activities and employment benefits for people in the surrounding communities while creating positive linkages to the local firms and organisations.

### **3.8 SUCCESS FACTORS FOR SPECIAL ECONOMIC ZONES**

Numerous factors underwritten to the triumph of successful SEZs will tend to be different according to the specific aspects and circumstances within that specific SEZ. The following success factors are

supported by various sources with regard to mutual points and significant lessons learned from some of the most successful SEZs in the world.

Research suggests that some of the key factors that determine the success of an SEZ are incentives, regulations, policy framework, administration and location (Akinci & Crittle, 2008:26). An investigation with the support of several sources and case studies showed that several other factors influence the success or failure of an operating SEZ. The success factors are divided into three broad categories with a subsector for each category, which include the microclimate, mesoclimate and macroclimate.

**Table 3.4: Microclimate success factors**

Success factor	Elements affecting the success factor	References
<b>Physical infrastructure</b>	Affordable factory sites and utilities	Aggarwal (2017), Sosnovskikh, (2017), Cheong, (2014), Ahmed <i>et al.</i> , (2020).
	Logistical infrastructure	
	Appropriate infrastructure	
	Sufficient power generation and distribution volumes	
	Export infrastructure	
	Availability of facilities	
<b>Operations</b>	Development of existing organisation	Aggarwal (2017) Akinci & Crittle (2008), Baissac (2015)
	Effective PPP	
	Efficient zone management	
	Service quality	
	Custom facilitation	
	Upgrading of firm-level capabilities	
<b>Incentives</b>	Competitive fiscal incentives	Cheong, (2014), Wahyuni & Cesar, (2019), Ahmed <i>et al.</i> , (2020)
	Sufficient tax holidays or reduced taxation	
	Identical dealing of domestic and foreign investments	
	Effective customs regulations (reducing import tariffs)	
	The provision of low-interest loans	
	Vibrant investment schemes	
	Subsidies available to potential investors	
	Improved services and management structures	
	Clear and precise objectives from management	
<b>Management and organisation</b>	Operative management	Pakdeenurit <i>et al.</i> , (2014) Akinci & Crittle (2008)
	Enabling partnerships	

Success factor	Elements affecting the success factor	References
	Effective long-term management goals	Cheong (2014). Moberg (2017), Baissac (2015).
	Limited rent-seeking behaviour	
	Effective marketing services	
	Institutional partnership and policy coherence	
<b>Financial capabilities</b>	Foreign direct investments (expansive outputs, employment, and labour activity)	Sosnovskikh (2017), Pakdeenurit <i>et al.</i> , (2014)
	Venture capital investments	
	Commitment to economic exchange	
	Adequate private investments	
	Cost of investment	
	Market structure	
<b>Innovation</b>	Sufficient revenue	Zeng (2013), Sosnovskikh (2017).
	Policy innovation	
	Industrial innovation	
	Technological innovation	
	Innovative cultures	

Source: Author's compilation

The microclimate success factors include the basic operational and regulatory framework of the SEZ, however, it focuses on the tangible aspects such as the physical infrastructure (logistics, export capabilities and the level of energy production). The operational framework focuses on the service quality of goods and services, the effectual management of the zone as well as the facilitation of customs.

The incentives are another subcategory that measures the level of success for SEZs, which include aspects such as sufficient tax holidays, the establishment of low-interest loans and vibrant investments schemes for both local and foreign investors. The organisational structure and management act as another important success factor for successful SEZs and include aspects such as limited rent-seeking behaviour from management, enabling partnerships as well as institutional partnerships and policy coherence.

The financial capabilities show the overall wealth and capital investment capabilities of the SEZ to function cost-effectively, however, it also largely depends on the market structure and FDIs. Innovation plays a significant part in the functionality of SEZs because it increases productivity and profitability within the organisation, while also finding new and innovative ways to use technology in the workspace.

**Table 3.5 Mesoclimate (Region specific)**

Success factor	Elements affecting the success factor	References
<b>Labour</b>	Abundant labour supply	Aggarwal (2017), Sosnovskikh, (2017). Pakdeenurit <i>et al.</i> , (2014), Akinci & Crittle (2008) Naeem <i>et al.</i> , (2020), Bernstein <i>et al.</i> , (2012)
	Relaxation in labour standards	
	Availability of cheap labour	
	Skilled labour	
	Adequacy of labour regime	
	Sufficient capacity building for local workforce	
	Flexible labour markets	
<b>Land / Location</b>	Land reforms	Zeng (2013), Sosnovskikh (2017), Akinci & Crittle (2008), Aggarwal (2017), Ahmed <i>et al.</i> , (2020), Farole (2011)
	Land use planning and zoning systems	
	Location advantages	
	Strategic location or level of accessibility	
	Availability of supporting industries in surrounding areas	
	Location and market size	
<b>Regional economic development</b>	Level of urbanisation in region	Aggarwal, (2017), Ahmed <i>et al.</i> , (2020).
	Border/Airport/Port development	
	Regional co-operation between business and local organisations	
	Suitability of operational industry	
	Domestic market development	
	SEZ provides sufficient economic development within region.	
<b>Value chains</b>	SEZs linked to domestic enterprises and industrial clusters through supply or value chains.	Zeng (2013), Aggarwal (2017), Farole, (2011)
	Adequate forward and backward linkages are created.	
	Assistance with local sourcing.	

Source: Author's compilation

The following elements that affect the success or failure of SEZs are the mesoclimate (Regional influences) which include aspects such as labour laws (adequacy of the labour regime, capacity building of the workforce within the region and the relaxation in labour standards) (see Table 3.6). The location of the SEZ is an important aspect in terms of location advantages and the availability of supporting

industries within the region, in other words, it is important to have a strategic location with adequate levels of accessibility.

The regional economic development within the region proves to also be important aspects to consider since it is important to evaluate the border, airport and port development and the urbanisation of the region while also evaluating the domestic market development and the suitability of the operational industry within the SEZ. Value chains are proven to also play a significant role in the regional economic development since it is important for the SEZs to link the local industries and to form important value chains while creating adequate forward and backward linkages while helping the local sourcing for job creation and revenue generation.

**Table 3.6 Macroclimate**

Success factor	Elements affecting the success factor	References
<b>Policies</b>	Investor-friendly customs regime	Aggarwal (2017), Zeng (2013), Sosnovskikh, (2017), Akinci & Crittle (2008) Cheong, (2014), Moberg, (2015) Farole, (2011), Bernstein <i>et al.</i> , (2012)
	Enabling environment	
	Pro-business policies	
	Strategic approaches adopted by policymakers in the SEZ implementation	
	Budgetary policy – productive assets and social protection	
	Macroeconomic – growth and stability	
	Labour policy	
	Private sector development	
	Valiant policy innovations	
	Non-discriminatory and business-friendly rules and regulations	
	Procedures and rules guiding the development, planning and licensing of SEZ	
	Promotion of circular economy	
	Competitive organisations within SEZs	
Anti-corruption standards and policies		
<b>Government Support</b>	Commitment to reform and pragmatism from top leadership	Zeng (2013), Sosnovskikh (2017). Akinci & Crittle (2008), Pakdeenurit <i>et al.</i> , (2014), Bernstein <i>et al.</i> , (2012), Zeng (2016)
	Political and economic autonomy	
	Strong support and pro-active participation from government	
	Clear objectives, benchmarks and intense competition	
	Political stability	

Success factor	Elements affecting the success factor	References
	Strong administrative bodies	
	Industrial investment support from government is clear and organised	
	Political stability	
	Effective co-ordination from government departments	
	Efficient public services	

*Source:* Author's compilation

The last category includes the macroclimate, which influences the success or failure of SEZs and includes the wider policy framework as well as the effectiveness of government support. The policies include a wide spectrum of aspects such as the national labour policy regime, the enabling environment for businesses to succeed, policy innovation, the promotion of a circular economy as well as private sector development. One of the most important aspects of the policy framework includes the competitiveness of the industry and the resources available to create sufficient productivity.

The macroclimate also focuses on macroeconomic policies such as the goal of growth and stability while also implementing pro-business policies for SEZs. Government support is associated with policy in the sense that government support needs economic and political autonomy in terms of decision-making but also plays a decisive role in implementing strong administrative bodies. The role of government support is also to create sufficient external infrastructure, co-ordinating work within government departments. It takes significant commitment and pragmatism from the top leadership in government institutions to ensure pro-active participation and observation.

### 3.9 SYNOPSIS

This chapter revised the literature involving the literature relating to the definitions, concepts, benefits, and success factors of SEZs. The objective of this chapter was to define and analyse the concepts related to special economic zones and to investigate the determinants for successful SEZs. As well as to define, explain and interpret the goal and aim of economic zones, the role which they play in the economy and the different types of zones that exists. This chapter explained which aspects/elements influences the functionality of the economic zones. This chapter attempted to explain which factors and elements could possibly hinder the success of the establishment of an SEZs and its operations.

The first segment of the chapter focussed on the history of the establishment of the first SEZs. The success of the first SEZ spilt over into other parts of the world which indicated that these zones indicated significant progress employing export-orientated goals and objectives. The number of new SEZs

increased significantly over the past few decades, which indicates that SEZs are tools for improving the welfare and competitive advantages.

The second and third part of Chapter 3 focussed on the concepts of SEZs, which in short can be explained as delimited areas in which rule and regulations differ from the rest of the country. For example, organisations situated within the SEZs enjoy more benefits than organisations operating outside the SEZs, which include benefits such as quality infrastructure and a “free market system”. There are also different types of economic zones such as “FTZs”, “export processing zones”, “comprehensive SEZs”, “industrial parks”, “bordered logistics parks”, “urban enterprise zones” and “eco-IDZ” all of which differ in terms of their operative objectives, physical configuration and development objectives, however, the principle and regulations remain the same.

Section 4 introduced the important role of SEZs on regional economic development utilising improved labour markets and transfer of knowledge within the regions. SEZs also enhances the infrastructure development and urbanisation of regions through significant employment opportunities. Empirical evidence also indicated that economic zones improve economic development utilising increasing international trade activities while regulating business practices and limiting the tax charges.

The succeeding section indicated the ownership of SEZs, which can be public, private. or a mixture of both public and private partnerships. Therefore, the SEZ will either be centralised or decentralised. Numerous sources as indicated in the chapter indicated that PPP is often the most efficient and cost-effective method of SEZ ownership. This section forms a very important role in the functionality of economic zones since the combination of both private and public partnerships plays a very effective role in the establishment of an economic zone. The main purpose of this section is to establish that an economic zone cannot function or be funded without the assistance of both the public and private sector.

The next section also considered a comprehensive organisational structure of SEZs, which depends largely on the development, operation and management. There are numerous role-players such as government, owners, developers, regulators and operators, which all play a significant role in the management and operations of the SEZs. The organisational structure of SEZs in South Africa includes the Minister of Trade and Industry together with the MDB, which aim to promote industrial growth by way of incentives with the regional economic development objectives, while other role-players such as South African Revenue Services (SARS), the Auditor General (AG), and the National Intelligence Agency (NIA) form part to fulfil the objectives. The vocation of the SEZ board includes resource allocation for the public, private and PPP whereby they play crucial roles as developers, owners and operators.

The last section of Chapter 3 focussed on the important elements and themes that should be used to measure the success of SEZs. An extended desktop study conducted to identify the success factors indicated that the elements should be distributed into three categories namely the microclimate, the mesoclimate and the macroclimate. A total of 12 success factors were identified, which should be used as a benchmark to evaluate the level of success, namely aspects such as the physical infrastructure, operations, incentives, management and organisations, financial capabilities, innovation, labour, land and location, regional economic development, value chains, policies as well as government support.

Chapter 4 focuses more on the international best practice principles and studies of SEZs and the operations of SEZs in various parts of the world. The objective of Chapter 4 is to justify the practicality and operations of SEZs in both the developed and developing world. The objective of Chapter 4 is to give a brief overview of the economic history of each country, the success stories of SEZs, the different types of economic zones, the strategic locations of SEZs, the management of zones and the significance of economic zones on the country.

The objective of Chapter 4 is to investigate the various SEZs in the different parts of the world and to evaluate which success factors play a significant role in the establishment of an economic zone. The chapter firstly give a brief overview of the economic history of the country, the history of economic zones, the different terms used for zones, the location of the SEZs in the country, the number of SEZs within the country, the management of the zones and the significance of economic zones on the country. Chapter 4 also evaluates the competitive advantages of the countries in terms of the industry strength and revenue generation. The chapter illustrates the significant role of authority in the establishment and functioning of the SEZs and factors that may potentially have a negative effect on the operations of a SEZ.

The chapter also focus specifically on the types of incentives and investments provided by the government, the significant role of location in terms of trade and the land availability and zoning regulations. The role of the customs department is also discussed and the degree of free trade provided to the firms. The incentives provided to the organisations are also discussed in full as well as the organisations and boards responsible for the enactment of incentives provided. The chapter also discusses the labour regulations for the different countries and the value chains of the various trade zones and the way in which it influences regional trade and development. The policies of government and support of each country are also be discussed as an illustration of the macro environment and ease of doing business.

## CHAPTER 4

### A REVIEW OF INTERNATIONAL CASE STUDIES AND BEST PRACTICE PRINCIPLES OF SEZs

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#### 4.1 INTRODUCTION

Chapter 3 focussed extensively on the literature relating to concepts, benefits and the success factors of economic zones. The chapter explained the characterisations of economic zones, the concepts, abbreviations and meaning of economic zones in different scenarios. The goal of the chapter is to have a comprehensive understanding of the concept relating to economic zones and the determinants that make SEZs successful.

The aim is also therefore to understand what factors will help SEZs succeed and what elements will hinder the functionality of SEZs. Chapter 3 made it clear that the success of SEZs spillover into other regions of the world by implementing export-orientated aims and goals. The number of new SEZs increased significantly over the past few decades and it continues to grow on a constant basis, which allow countries to apply their competitive advantages to improve the welfare and growth of the country.

Chapter 3 also focussed on the definition of SEZs, which are described as delimited regions in which regulations and rules of trade differ from the rest of the country. The firms operating in SEZs receive more benefits than those organisations operating outside the SEZs by illustrating a “free market system” rather than a “planned economy”.

There are also different types of economic zones such as “FTZs”, “export processing zones”, “comprehensive SEZs”, “industrial parks”, “bordered logistics parks”, “urban enterprise zones” and “eco-IDZ”, all of which differ in terms of their operative objectives, physical configuration and development objectives, however, the principle and regulations remain the same as discussed in Section 3.3.2.

The chapter also clarified the key role of SEZs on regional economic development by utilising the labour markets to their advantage and distributing knowledge within the area. The establishment of SEZs illustrated that it improves urbanisation and infrastructure development by employment opportunities and economic development by means of international trade. The chapter also reflected on the ownership of SEZs and whether it is private, public or a mixture of both and the outcomes indicated that PPP are the most effective type of ownership for economic zones.

The final part of Chapter 3 explained the crucial factors that could be used to evaluate the success of SEZs. A desktop study was used to categorise the success factors in the micro-, meso- and macroclimate. A total of 12 success factors were found, each with its own subcategories and included

aspects such as the physical infrastructure, incentives, operations, value chains, regional economic development, government support, management and organisation, innovation, financial capabilities, location and land, labour and policies.

The objective of Chapter 4 is to investigate the various SEZs in the different parts of the world and to evaluate which success factors play a significant role in the establishment of an economic zone. The chapter firstly give a brief overview of the economic history of the country, the history of economic zones, the different terms used for zones, the location of the SEZs in the country, the number of SEZs within the country, the management of the zones and the significance of economic zones on the country.

Chapter 4 also evaluate the competitive advantages of the countries in terms of the industry strength and revenue generation. The chapter discusses the vital role of authority in the establishment and functioning of SEZs and factors that may potentially have a negative effect on the operations of a SEZ.

The chapter also specifically focuses on the types of incentives and investments provided by the government, the key role of location in terms of trade and the land availability and zoning regulations. The role of the customs department is also discussed and the degree of free trade provided to the firms. The incentives provided to the organisations are also discussed in full as well as the organisations and boards responsible for the enactment of incentives provided.

The chapter also looks at the labour regulations for the different countries and the value chains of the various trade zones and the way in which it influences regional trade and development. The policies of government and support of each country are also discussed as an illustration of the macro environment and ease of doing business.

Section 4.2 provides a brief overview of the SEZs in countries within the developed world, which include the United States of America (USA), selected countries in Europe including Poland, Bulgaria, and Lithuania. The developed countries chosen for this study are used due its substantial number of SEZs in the country and are regarded as some of the most successful SEZs in the developed world.

Section 4.3 gives a brief overview of selected SEZs in the Association of Southeast Asian Nations (ASEAN) countries including Vietnam, Thailand and Malaysia. The reason for selecting only a few countries in the ASEAN group are due to its significant growth of SEZs within these regions and is regarded as some of the most investor-friendly SEZs within the ASEAN group.

Section 4.4 gives an overview of SEZs in China and lastly a brief overview on SEZs in an African country named Ghana. China is the country with the most and the most successful SEZs in the world over the past few decades.

## 4.2 AN EVALUATION OF SEZs IN DEVELOPED COUNTRIES

This section gives a brief overview of economic zones in developed countries such as the USA and certain countries in Europe including Poland, Bulgaria, and Lithuania. The choice of these countries is mostly due to its significance in terms of the number of SEZs within the country and the major success factors that make these SEZs so effective.

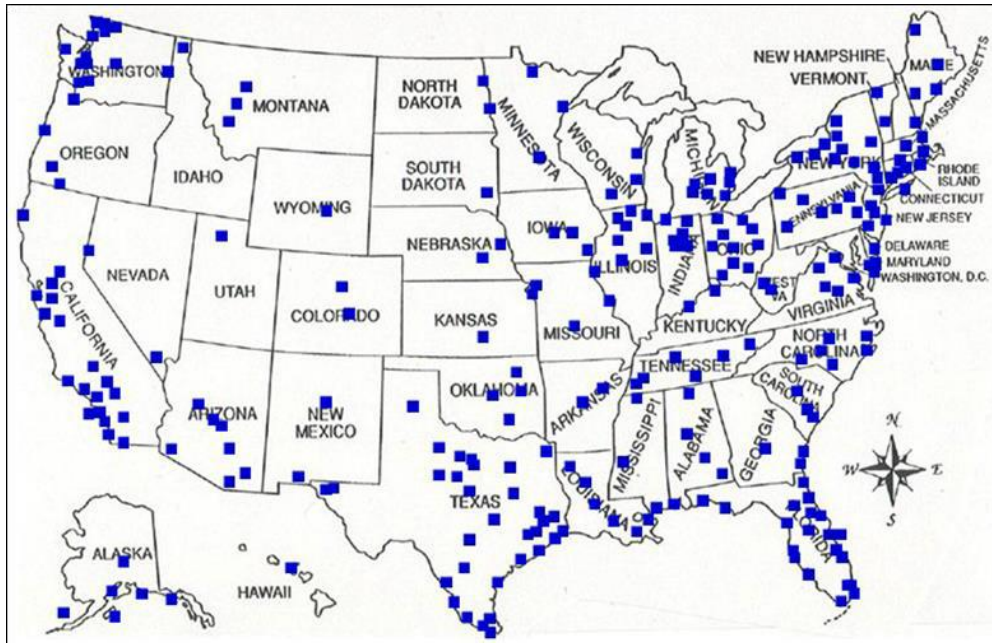
### 4.2.1 United States of America

In the USA the term SEZs are not commonly known or used, as such they use the term *foreign-trade zones* (FTZs) (CSR, 2019:1). According to Seyoum and Ramirez (2012:14), the USA use the term “foreign-trade zones” as supposed to “FTZs” to evade misperception with “free ports” used in countries such as Hong Kong and Thailand. Free ports are exclusive ports found near airports and shipping ports where normal custom rules and taxes do not apply.

According to the Michigan economic development Corporation (2017:1), foreign-trade zones are similar to FTZs because it is a specifically geographically bounded area where goods can be dispersed, reserved, processed and used without having to pay specific customs duties on the products, which in turns create specific trade advantages for US organisations. The first FTZ programme was established by the Foreign-trade Zones Act in 1934, which it was utilised to smooth the restraining force of the Smoot-Hawley Tariff Act of 1930, which raised the price of goods by nearly 52% (CSR, 2019:1).

Internally, three key things happened to accelerate zone use, which included a permit for manufacturing in zones in 1950 and in 1952 the FTZ board decided that subzones can be proved on an organisation’s facility and in 1982 the National Treasury Department decided that manufacturers were allowed not to pay taxes or other transportation fees (CSR, 2019:7). The goal for the USA government was to accelerate the establishment of new FTZs to achieve objectives such as cost efficiency, competitive global price competition and the progression in technology to enhance production capabilities (CSR, 2019:7).

The main goal of these foreign-trade zones (FTZs) is to preserve employment and to keep capital investments within the USA (Min & Lambert, 2010:111). Between 1980 and 2019, the number of FTZs increased significantly from 59 to 277 with 545 subzones, highlighting the major impact of the establishment of FTZs on total exports and the significant growth in petroleum refining (Tiefenburn, 2013:154; UNCTAD, 2019:138).



**Figure 4.1: USA foreign-trade zones, by State**

Source: CSR (2019:8)

In the USA economic zone affairs constitute a notable percentage of total trade and attribute 10% of the entire US imports, while there is an estimated 450 000 people employed within the foreign-trade zones (FTZs) (CSR, 2019: i). The production undertakings form 63% of products entering FTZs, while logistic services, storage and warehousing constitute 37% (CSR, 2019: i).

FTZ users undergo several benefits, such as duty exemptions, the reduction of taxes and fees as well as several supply chain efficiencies (Michigan Economic Development Corporation, 2017:1). Foreign-trade zones in the USA are normally networked because it is practical to move products and goods from one FTZ to another without spending capital on levies and other custom duties (Lavissiere & Rodrigue, 2016:10).

Authority in the USA utilise SEZs as a way to promote economic development and growth by widening the tax base, which is important for revenue generation (Bell, 2016:964). Friedman (2008:609) states that FTZs in the USA are actively used as tools to promote regional economic development, which leads to the creation of valuable supply chains and employment within the local regions.

Bell (2016:974) further explains that the USA FTZs programme are effective in serving local firms to gain incentives from trade such as lower custom duties, excise taxes and ad valorem taxes, which supports the diminishing costs of trade and stimulating regional economic development. There are a total of four parties involved in the management of foreign-trade zones, which include the US Foreign-trade Zones Board, the US Border Protection and Customs, Grantee and the Operator (Pakdeenurit *et al.*, 2014:1047).

**Table 4.1: The respective roles of FTZ management**

Foreign-trade zone management	Roles and responsibilities
US foreign-trade zones board	The US foreign-trade zones board manage the formation of zones, the approval of precise production activities as well as the comprehensive oversight of zones. The FTZ “board” also focusses on the appointment of an Executive Secretary who manage the board’s staff.
Customs and Border Protection	The US Customs and Border Protection (CBP) in partnership with the Department of Homeland Security (DHS) is liable for the facilitation, regulation and monitoring for the flow of goods through the US ports of entry (POEs).
Grantee	An organisation who made an appeal for the creation and organisation of the Foreign Trade Zone Group. The parties who are part of this group include non-profit organisations, private organisations, local authority and port authority.
Operator	The operator is the company or individual who is grantee engagement to be general administration in the zone or subzone.

Source: Pakdeenurit *et al.* (2014:1047), CSR (2019: i), Jones and Rosenblum (2013: i)

Foreign-trade zones (FTZs) are protected regions, which are under the administration of the USA CBP officials, however, these zones lie separate from the customs domain of the USA, however, this make the FTZs more appealing locations for specific industries and services (Bell, 2016:979). The system in the USA is very feasible since FTZs cover larger regions or parts while subzones are rather small and isolated, which make the transportation and supply management more effective and simpler (Bell, 2016:980).

The location of foreign-trade zones (FTZs) is typically located in or close to customs POEs and officially considered separate from the customs area of the USA (Seyoum & Ramirez, 2012:14). Legally, FTZs must be in a radius of 100 km from the supervising office of customs, while the subzones have no limit (Seyoum & Ramirez, 2012:14). Subzones also allow firms that re-export and import products to use the FTZ benefits without having to relocate within the free-trade zone site, however, FTZs also function as production facilities (Michigan Economic Development Corporation, 2017:2; Friedman, 2008:606).

Seyoum and Ramirez (2012:15) scribe that there are several advantages for firms operating within the FTZs, some of which include duty avoidance or duty rescheduling, quota influence and exhibition advantages as well as reversed tariff and local tax relief. The advantages can be explained in the following practical ways:

*Duty avoidance or duty rescheduling* – Goods allowed into the FTZs are not linked to any customs duty until it is admitted into the customs region, this process assists organisations to advance their liquidity and improve their cash reserves.

*Reversed tariff or local tax relief mechanisms* – US organisations can import any product globally with the added advantage of lower custom duties and excise taxes.

*Quota influence and exhibition advantages* – It is possible for importers to transport products for demonstration within the zone, meaning that overseas commodities can be displayed for a limitless period without any duty expenses.

Table 4.2 is an illustration of the definite benefits that firms will receive when operating within a (FTZ). Even though organisations will receive incentives such as duty avoidance and non-payment of inventory excise taxes there is also other elements such as reduced rate of theft and reduced time delays processing raw materials through customs, which saves the firm both time and money.

**Table 4.2: Foreign-trade zone related benefits**

Quantifiable benefits	Non-quantifiable benefits
Reduced rate of stealing, leading to reduced insurance costs.	The ability to keep items that are limited by quota limitations.
Non-payment of inventory excise taxes when goods are stored in FTZs.	The ability to influence or change items presently restricted by quota limitations into goods that are not restrained by quotas.
Avoidance of duties on commodities exported.	The ability to demonstrate products without having to pay any duties.
Savings on duty drawback costs and the cost of temporary import bonds for goods re-exported.	Fewer planning and administration than those of bonded warehouses or duty drawbacks.
Reduced time delay processing raw materials through customs, which help the reduce inventory cost and time.	

*Source:* Beeman and Magill (2005:15), Author’s compilation

It is beneficial for organisations operating within Foreign FTZs since these trade zones make it more effective and efficient in terms of international trade. The benefits of establishing a FTZ outweighs the potential risks or shortcomings and it can only be valuable for an organisation to be part of foreign-trade zones to save money and limit the number of duties payable on the products and commodities. It may be an excellent way to showcase products without having to pay any duties and the planning and paperwork are limited as supposed to those SEZs operating in bonded areas or IDZs.

#### 4.2.1.1 *The success story of tech clusters in the USA*

Clusters can be defined as an arrangement of related organisations and industries located close to one another and draw high-yielding advantages from their close connections (Mattoon & Wang, 2014:52;

Porter, 2000:16). The reason clusters are so significant in economic development is the fact that clusters are closely related to competitiveness, economic performances and cluster mapping (Ketels & Memedovic, 2008: 379-380). “Tech” clusters work in the same way as normal clusters, however, tech clusters are regions where new production processes or goods and services are shaped (Kerr & Robert-Nicoud, 2020:3). One of these “tech” clusters named Silicon Valley is situated in the southern region of the San Francisco Bay area, which has more than two thousand tech firms and regarded as one the densest tech clusters in the world (Amadeo & Kelly, 2020).

The top companies in Silicon Valley includes organisations such as Facebook, Apple, eBay, Google, Microsoft, HP and Tesla. Silicon Valley is a region that is developed on the right cultural approach and resource accessibility, which fosters innovation and new products and services (Ester, 2017:37). The success of Silicon Valley can be attributed towards the organisation of partnerships, which specifically focus on collaborative advantages result from partnerships between companies (Vangen & Huxham, 2013:51).

Amadeo and Kelly (2020) affirm that the success of Silicon Valley is due to their collaborative partnerships, professional linkages that leads to improved information sharing and the cultural diversity. Porter’s theory of clusters states that the interfaces between organisations are more concentrated and therefore more effectual when organisations function in close proximity (Sword, 2013:7). The firms within Silicon Valley use the same approach as suggested by Porter, however, more countries should adopt the idea of clusters as a medium for stimulating regional economic development and creating collaborative and networking advantages.

In the same way that Porter’s theory of clusters is valuable in modern economics, it is also necessary to look at the success factors of tech clusters in the same way. Regional economic development needs to be promoted within the various firms operating in the SEZs by means of networking and collaborative advantages.

#### *4.2.1.2 An evaluation of success factors in the USA*

Table 4.3 is a short evaluation of the success factors for FTZs in USA in terms of the microclimate which include the physical infrastructure, operations, incentives received from government, the management and organisation, financial capabilities and innovation.

**Table 4.3: Microclimate success factors for USA**

<b>Success factor</b>	<b>Elements affecting the success factor</b>
<b>Physical infrastructure</b>	The FTZs in the USA consist of excellent and effective infrastructure for the organisations operating within the FTZs. The transportation and networking between the FTZs are excellent due to their excellent logistical infrastructure.
<b>Operations</b>	The FTZs provide excellent security that reduces the rate of stealing and lower insurance costs. The FTZs also provide the proficiency to keep goods that are limited by quota restrictions. There are also less planning and administration involved than those of duty drawbacks and bonded warehouses. There are reduced time delays for the processing of raw materials through customs, which leads to savings in time and money. The customs facilitations in FTZs are excellent, which improves the operations within the FTZs.
<b>Incentives</b>	The foreign-trade zones (FTZs) firms do not pay for inventory excise taxes when goods are stored at the FTZ. Local suppliers are also not obligated to pay duties on exported commodities. There is an excellent rate of savings on the duty drawback costs and the cost of temporary import bonds for goods re-exported. The customs regulations are efficient, which leads to reduced import tariffs.
<b>Management and organisation</b>	The management of the FTZs are excellent due to the limited rent-seeking behaviour from management and authorities. The FTZ's also illustrates institutional partnerships and policy coherence. The management of the FTZ's have their own respective clear aims and goals to ensure that the operations are fluent.
<b>Financial capabilities</b>	The goal of FTZ's is to create employment and to expand its current capital investments. The aim therefore is to create sufficient revenue and to venture capital investments within the geographically bounded regions.
<b>Innovation</b>	The clusters in the USA pride themselves in innovation of all forms, including policy innovation, industrial innovation and technological innovation. Cluster are very beneficial for organisations and their innovation by means of creating better competitiveness, cluster mapping and economic performances. The "tech cluster" of Silicone valley is the perfect example of a cluster focus industry striving in innovation with the convoy of firms such as HP, Microsoft, Google and Tesla.

Source: Author's compilation

Table 4.4 illustrates the mesoclimate (region specific) success factors for the FTZs in USA. The mesoclimate factors include elements such as labour standards, land availability and location, the regional economic development aspects and value chains between FTZ's and local firms.

**Table 4.4: Mesoclimate (region specific) factors for the USA**

<b>Success factor</b>	<b>Elements affecting the success factor</b>
<b>Labour</b>	The labour supplies and labour standards are very good within the FTZs of the USA. The country possess an abundance of skilled labour and a sufficient capacity building of the local workforce.
<b>Land / Location</b>	The FTZs are near the customs port of entry, however, it is not part of the customs area of the USA. The FTZs are situated in strategic locations, which increases the level of accessibility.

<b>Regional economic development</b>	In terms of regional economic development, the firms in the region have a sufficient level of urbanisation in various parts of the country. There are adequate port and border development as well as regional co-operation between businesses and government.
<b>Value chains</b>	The SEZs are linked to the industrial clusters and domestic enterprises through effective value chains. The FTZs serve as both a production facility and a warehouse for distribution which enables the operations of the business to be more efficient.

*Source:* Author's compilation

Table 4.5 explains the macroclimate factors for US FTZs, which include characteristics such as economic policies and government support. The success of the USA FTZs can largely be expressed by its stable economic policies and commitment to reform from top leadership.

**Table 4.5 Macroclimate factors for USA**

<b>Success factor</b>	<b>Elements affecting the success factor</b>
<b>Policies</b>	The United States of America provide an enabling environment for businesses by means of excellent infrastructure development and delivery of services. Organisations within the SEZs are competitive and the macroeconomy is very stable.
<b>Government support</b>	The government support is crucial within the USA. The commitment to reform and pragmatise from the top leadership is clear. The FTZ management consists of the US Foreign-trade Zones Board and the CBP, which illustrates dedicated support and pro-active participation from government. The organisations situated within the FTZs are extremely competitive on a global scale. The interactions between government departments are excellent and consists of strong administrative bodies. The government sets clear objectives and benchmarks for firms operating within the FTZs. Limited rent-seeking behaviour is also transparent within the operations of the FTZs.

*Source:* Author's compilation

#### **4.2.2 Europe**

In Europe there is an insignificant amount of SEZs, which is only 105 of which 5 are under-developed and the majority of SEZs in Europe are controlled by government (UNCTAD, 2019:138). The first ever SEZ was established in Ireland (Shannon) in 1959, however, it soon after started to develop and function in more countries in East Asia and Latin America (Akinci & Crittle, 2008:23).

Bost (2019:145) points out that there is not a substantial number of SEZs in Europe and most often does not even use the word SEZ but refer to FEZ's, whereby these zones focus more on customs advantages. FEZs are based on the same principle as FTZs, whereby the goods and commodities are positioned within areas that are free from VAT and other duties (Bost, 2019:145).

The reason most countries in Western Europe do not have FEZs is since the EU limit manufacturing and other industrial activities due to the EU regulations such as the Council Regulation (EEC) No. 2913/92 (Akinci & Crittle, 2008:23). Akinci and Crittle (2008:23) further explain that processing zones

are allowed in restricted regions such as Spain (Canary Islands), Portugal (Madeira) and Germany (Hamburg).

The direct employment in millions employed by FEZs in Europe is a mere 1.769 million while in Asia and the Pacific there are more than 60 million people employed by FEZs and the reason is that most European countries are controlled by EU rather than their own trade policies (Meunier & Nicolaïdis, 2011:4; Akinci & Crittle, 2008:34). The implication of countries following the EU trade policies include the lack of freedom to implement policies and systems that will contribute to free trade.

Akinci and Crittle (2008:44) further assert that FEZs in Europe had modest success in the last few decades except for Poland, Bulgaria and Lithuania, and as such the following part of the study discusses these three countries in-depth. Figure 4.2 shows the three countries in central and eastern Europe, which are used to evaluate the SEZs and FEZs of the selected countries.



**Figure 4.2: Map of central and eastern Europe**

*Source:* Dobek-Ostrowska (2015:12)

Table 4.6 shows the key economic indicators for the three countries. The economic indicators show the population size (Millions), GDP at current prices (billion USD), per capita GDP (current prices USD), current account balance (USD) and FDI's.

The table shows that the country with the highest population size is Poland followed by Bulgaria and Lithuania. Poland also has the highest GDP. Lithuania has the highest GDP per capita (current USD) followed by Poland and lastly, Bulgaria. The FDI shows that Poland has the highest total investments followed by Bulgaria and Lithuania.

**Table 4.6: Key indicators of selected European countries**

Country	Population (millions)	GDP (current prices, billion USD)	Per capita GDP (current prices USD)	Current account balance (current USD, billion)	FDIs (Net inflows: Current US\$, billions)
Poland	38	594	15,656	21.06	14.40
Bulgaria	7	69	9,975	4.70	2.076
Lithuania	3	56	19,99	-0.5	1.574
<b>Total</b>	<b>48</b>	<b>719</b>	<b>45,62</b>		<b>18.05</b>

Source: World Bank (2021)

#### 4.2.2.1 Poland

First established in 1995 Poland has 21 SEZs, of which 14 are SEZs and 7 are FTZs and all of them are privately owned and the types of SEZs include mostly *Specjalne Strefy Ekonomiczne SSE's*, industrial and technological parks as well as duty-free zones and warehouses (UNCTAD, 2019:152; Hajduga, Pilewicz & Mempel-Śnieżyk, 2018: 84).

ESPON (2020:25) further explains that the SEZs were established between 1995 and 2001 and are recognised as the most efficient and lucrative SEZs in the world. In Poland SEZs comprise “a managerially remote part of the region of Poland where new business owners invest in the region and are able to promote from the local and regional support in the form of exclusion of paying significant amounts of corporate taxes” (Ministertwo, 2017:5)

After the downfall of the communist coalition in 1989, most of the countries in Europe started a prompt economic and political alteration. During this progression, Poland noticeably lessened the development space in contrast to wealthier countries of Western Europe (Ciżkowicz *et al.*, 2017:576). In 1994 the Polish administration applied SEZs as a position-cantered policy that was directed at alleviating these variances by employment and drawing new investments (Ciżkowicz *et al.*, 2017:576).

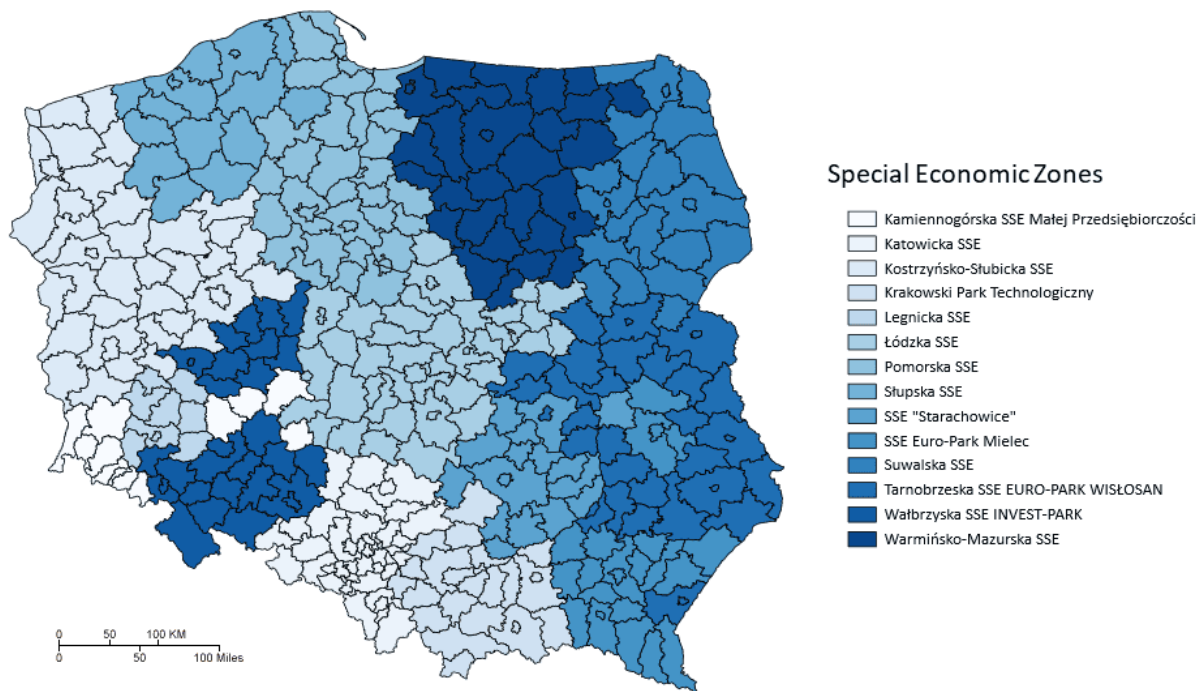
When organisations are requesting for SEZ – assigned area, the firms must declare the amount of new jobs they intend to create and the investment goals they want to accomplish. According to Ciżkowicz *et al.* (2017:10), further explains that if the testimony is not met, then the firm might lose the SEZ designation and pushed to return the necessary financial support received.

Increasing support on SEZs has been seen in Europe in terms of the continuing enlargement of SEZ regions in selected European countries such as Poland and Bulgaria (Nazarczuk & Uminski, 2019:11).

According to ESPON (2020:25), SEZs in Poland are interregional and comprise various subzones within the various regions.

Figure 4.3 is a geographical illustration of the SEZs. In Poland there is a total of 14 SEZs in the country, which include Wałbrzyska, Pomorska, Suwalska, Warmińsko-Mazurskie, Kamiennogórska, Kostrzyńsko-Słubicka, Legnicka, Mielecka Euro-Park, Katowicka, Tarnobrzaska, Łódzka, Krakowska Technology Park, Starachowicka and Słupska, which are placed in 287 municipalities and 189 cities of Poland (Ślusarczyk and Grondys ,2018:2).

The administration of SEZs is regulated by the (Special Economic Zones Act of 1994) which signifies that bodies situated within the region of the zone that meet the specified requirements concerning new workspaces and the number of investments can take advantage of the property taxes and income taxes (Hajduga *et al*, 2018: 85; Ambroziak & Hartwell, 2018:1322).



**Figure 4.3: SEZs in Poland**

*Source:* Poland Investment and Trade Agency (2018).

Table 4.7 is an illustration of an overview of the Polish SEZs. The table shows that Polish SEZs finances all incentives and tax exemptions are allowed for 25-50% exemptions for large companies, 35-60 % for medium-sized companies and 45-70 % for small businesses. The table also shows that there are plans for new investments in all SEZs in Poland and training will be provided in selected SEZs.

**Table 4.7: An overview of Polish SEZs**

SEZ region	Financing of incentives	Coastal	Tax exemptions for investments	Plans for investing new investment areas	Training assistance for SEZ	Business support for SME's	Organisation of internships
Kamiennogórska	Yes, for all regions	×	Yes, for All SEZs. The state covers nearly 25-50%, 35-60% for medium-sized companies and 45-70% for small businesses.	√	×	×	×
Katowicka		×		√	×	×	×
Kostrzyńsko-Słubicka		√		√	×	×	×
Krakowska		×		√	√	×	×
Legnicka		×		×	×	×	×
Łódzka		×		√	√	√	×
Mielecka		×		√	×	×	×
Pomorska		√		√	×	×	√
Słupska		√		×	×	×	×
Starachowicka		×		√	×	×	×
Suwalska		√		√	×	×	×
Tarnobrzaska		×		√	×	×	×
Wałbrzyska		×		√	×	×	×
Warmińsko-Mazurska		×		√	×	×	×

Source: ESPON (2020:28)

There are numerous benefits that firms can get from establishing their organisation within the SEZs, which include aspects such as infrastructure endowment, tax exemptions, legal assistance and improving the relationship with local government (Hajduga, Pilewicz & Mempel-Śnieżyk, 2018: 84).

The SEZ development framework focuses on improving competitiveness within areas or regions, developing regional unity, avoiding relegation in problem regions, creating an enabling environment for the efficient and effective partnership formations (Ślusarczyk and Grondys, 2018:2). Table 4.8 shows a list of the various SEZs in Poland, the number of firms within the SEZs, the total number of employees within the SEZs and the accumulated investments received.

**Table 4.8: Investments and employment outcomes of Polish SEZs in 2020**

SEZ region	Number of firms	Employment (number)	Accumulated investments
Kamiennogórska	53	7,600	€0.6 billion
Katowicka	400	80,000	€8.4 billion
Kostrzyńsko-Słubicka	150	65,000	€2.2 billion
Krakowska	200	30,000	€1.0 billion
Legnicka	57	16,095	€ 1.5 billion
Łódzka	167	70,000	€3.3 billion
Mielecka	191	46,000	€2.3 billion
Pomorska	139	27,000	€2.5 billion
Słupska	75	7,000	€0.5 billion
Starachowicka	76	9,500	€0.7 billion
Suwalska	128	10,000	€0.7 billion
Tarnobrzaska	156	25,000	€2.0 billion
Wałbrzyska	215	95,000	€5.6 billion
Warmińsko-Mazurska	148	25,000	€1.0 billion
<b>Total</b>	<b>2155</b>	<b>513 195</b>	<b>€32.3 billion</b>

Source: ESPON (2020:29).

The Katowice SEZ was established in 1996 and is situated in Śląsk, the largest SEZs in the country and hosts more than 400 firms (Rydz, 2003:358; ESPON, 2020:29). According to Katowice Special Economic Zone (2020), the Katowice SEZ is the best SEZ in Europe and second best in the world in 2019 with regard to total investments accumulated.

The second largest SEZ in terms of total investments accumulated is Wałbrzyska situated in Warszawa and was established in 1997, which include global investments from organisations such as Mercedes, Toyota as well as Umicore, indicating large specialisation in the automotive industry (Polish Investment & Trade Agency, 2020). The economic zones functioning in Poland vary significantly in contrast to other countries. Nazarczuk and Uminski (2019:17) affirm that some variances include the following:

- (i) The number of subzones is very high.
- (ii) The zones are not enclosed or fenced.

- (iii) No customs department commodities are allowed to join and leaving the zone.
- (iv) One co-partnership organisation may administer investment sites in various regions, which results in inter-SEZ rivalry for approving investment sites.
- (v) SEZs are not distributed in several locations, but in numerous locations within the country.

#### 4.2.2.2 *An overview of Poland SEZs success factors*

Poland has an excellent SEZs success factor in terms of SEZ development and growth. Table 4.9 illustrates the microclimate success factors in Poland, which includes the infrastructure, the operations of the SEZs, types of incentives given, the management and organisation of the SEZs, the financial capabilities and innovation.

**Table 4.9: Microclimate success factors in Poland**

Success factor	Description
<b>Physical infrastructure</b>	Poland offers excellent infrastructure in terms of export infrastructure and the availability of facilities.
<b>Operations</b>	Poland offers excellent PPP and there result in efficient zone management.
<b>Incentives</b>	The SEZs in Poland offers the complete financing of incentives. Tax exemptions are allowed for investors (25-50%) for large corporate firms, (35-60%) medium-sized organisations and (45-70%) for small organisations.
<b>Management and organisation</b>	There are adequate enabling partnerships and effective long-term management skills. SEZs should declare the number of jobs and investments intended to be created, and if not met, the firm may lose SEZ designation. This means that there are adequate policy coherence and operative management and oversight.
<b>Financial capabilities</b>	Even though Poland receives major investments within their SEZs and FDI's, the government also plan for investing in new investment areas for all the SEZs.
<b>Innovation</b>	Poland has a very innovative culture overall and are prone to industrial and policy innovation on a constant basis.

*Source:* Author's compilation

Table 4.10 shows the mesoclimate (region specific) success factors that include elements such as the labour skills, the location, regional economic development factors and the influence of value chains on SEZs.

**Table 4.10: Mesoclimate (Region specific) in Poland SEZs**

Success Factor	Description
<b>Labour</b>	The labour regime of Poland is adequate, and the employees offer skilled labour and sufficient capacity building for local workforce.

Success Factor	Description
<b>Land / Location</b>	Excellent land use planning and zoning regulations. SEZs not very near one another, but it enables a strategic location advantage in terms of transportation and distribution.
<b>Regional economic development</b>	There is adequate level of urbanisation in SEZs with excellent border and port development with a transcendent co-operation between businesses and local government.
<b>Value chains</b>	SEZs are linked to domestic enterprises and industrial clusters with adequate forward and backward linkages.

*Source:* Author's compilation

Table 4.11 shows the macroeconomic climate conditions of Polish SEZs which include policies such as investor-friendly customs regimes, the enabling environment, and the role of government.

**Table 4.11: Macroeconomy in Poland SEZs**

Success Factor	Description
<b>Policies</b>	Policies with regards to SEZs in Poland are adequate which include investor-friendly customs regime, enabling environment, pro-business policies and focus on private sector development.
<b>Government support</b>	Poland offers dedicated support and pro-active participation with strong administrative bodies. There is also effective co-ordination from government departments and efficient public services for organisations operating in SEZs.

*Source:* Author's compilation

#### 4.2.2.3 *Bulgaria*

SEZs in Bulgaria were operational from 1987 as regions of manufacturing for foreign organisations and various joint ventures (Ahrens, Meyer-Baudeck, 1995:94). The SEZs, however, failed as tools of change because local organisations were not able to operate, which had a significant negative impact on the domestic economy and local economic growth (Ahrens, Meyer-Baudeck, 1995:94).

In the 1990s the local authorities chose to implement several SEZs throughout the country and various commercial and industrial zones in Bulgaria was established in Bulgaria, which included zones such as the Rakovski IDZ, Letnitsa IDZ, Kuklen Commercial and Industrial Zone, Parvomai IDZ as well as the Maritsa Commercial and Industrial Zone (Industrial Zones Bulgaria, 2020). Much like Poland, Bulgaria have both SEZs as well as customs-free zones, which offer various fiscal incentives and there is a total of 9 in Bulgaria (UNCTAD, 2019:152).

The SEZs established in central and eastern Europe countries (i.e., Poland, Lithuania, and Bulgaria) aim at regional economic development and industrial development, however, the SEZ system precede EU

consent, however, they are still operational (UNCTAD, 2019:153). Countries in central and eastern Europe including Bulgaria are operated by state-owned enterprises (UNCTAD, 2019:153).

According to the IDZ Bulgaria (2020), one of the most effective SEZs is the Rakovski IDZ situated near Plovdiv city and regarded as the best SEZ in Bulgaria. The location of SEZs in Europe are very closely located to rivers, airports and ports and can be regarded as strategic locations since 5 out of 10 trans-European corridors pass through the nation, whereby 3 out of the 5 passes in close proximity to the Rakovski IDZ (Industrial Zones Bulgaria, 2020).

#### 4.2.2.4 *An overview of Bulgaria's success factors*

Table 4.12 shows the microclimate success factors in Bulgarian SEZs. The success factors include the physical infrastructure of the SEZs and the incentives received from the Bulgarian government.

**Table 4.12: Microclimate success factors in Bulgarian SEZs**

Success factor	Description
<b>Physical infrastructure</b>	Bulgaria offers excellent technical infrastructure.
<b>Incentives</b>	The SEZs in Bulgaria offers a flat corporate income tax rate of 10%. Social security contribution aid available for precise business activities in certain regions.

*Source:* Author's compilation, CEE (2017)

Table 4.13 illustrates the mesoclimate (region specific) success factors in Bulgaria. The table shows that Bulgaria has a very capable and skilled workforce, it has strategic location advantages and the SEZs are closely linked with the local firms.

**Table 4.13: Mesoclimate (region specific) success factors in Bulgaria SEZs**

Success Factor	Description
<b>Labour</b>	The labour market in Bulgaria has a very skilled and educated workforce.
<b>Land / Location</b>	Perfect land and location strategic framework since the SEZs are located near railways, airports and ports and 5 of the 10 trans-European corridors run through the country.
<b>Regional economic development</b>	The regional economic development is adequate within Bulgaria, mainly due to the excellent transportation systems that links the country with some of the major EU countries in Europe.
<b>Value chains</b>	SEZs are linked to domestic enterprises and industrial clusters with adequate forward and backward linkages.

*Source:* Author's compilation

Table 4.14 illustrates the macroclimate success factors, which include policies for effective economic development and the role of government to support foreign investment projects.

**Table 4.14: Macroclimate success factors in Bulgaria SEZs**

Success Factor	Description
<b>Policies</b>	Bulgaria offers the European politic principle in the development and implementation of competitive power for enterprise development.
<b>Government support</b>	Bulgaria offers institutional support for major foreign investment projects.

*Source:* Author's compilation

#### 4.2.2.5 Lithuania

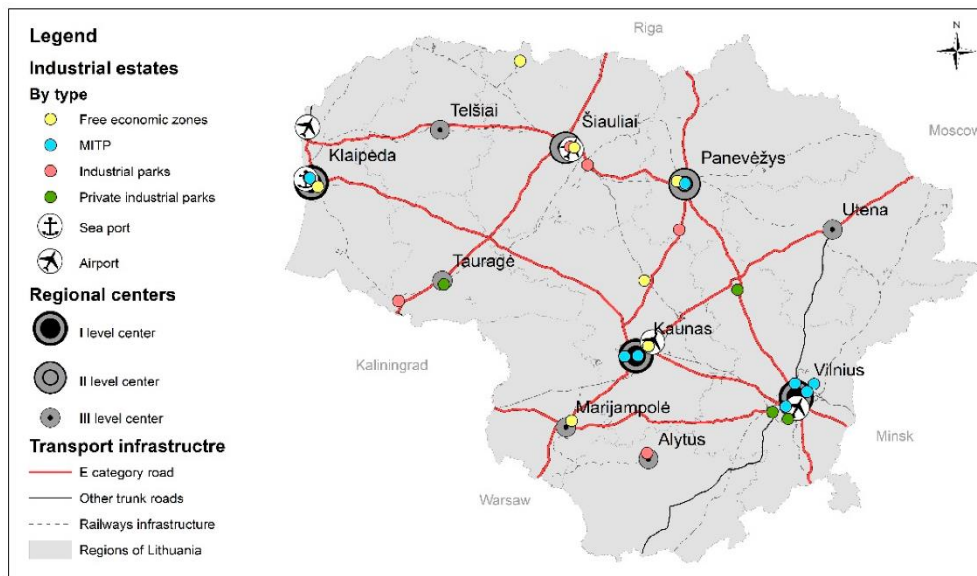
Lithuania forms part of the Baltic states, which include three countries namely Estonia, Latvia and Lithuania (Zájedová, 1999:79). These three countries became affiliates of the EU on the 1<sup>st</sup> of May 2004 and since then the EU is working constantly with these three states to reach regional economic development goals (Demirelisci, 2018:2).

The western and central areas of Lithuania require physical and social infrastructure, the regions undergo severe population losses through migration and ageing and receive little to none funding from the EU and in turn fight to attract sufficient FDI (Terleckaite, 2020:4)

Similar to Poland, the strategic goal of the Baltic states was to attract foreign investments, in other words, these regions had to grow to be on the same level as the EU and therefore had to implement microeconomic stabilisation plans and policies within their regions (Demirelisci, 2018:3).

Unfortunately, the Baltic states were far behind the other EU member states in overall economic development and as a result needed a secure long-term plan on economic and development objectives. The Lithuanian government decided on FEZs as a method for stimulating economic growth as opposed to SEZs (Demirelisci, 2018:2).

There is a total of seven FEZs in Lithuania, which include Klaipėda FEZ, Šiauliai FEZ, Panevėžys FEZ, Kėdainiai FEZ, Kaunas FEZ, Marijampolė FEZ and lastly, Akmenė FEZ. According to UNCTAD (2019:152), Lithuania is the third best country in terms of operations in terms of FEZs operations, just falling behind Poland and the USA.



**Figure 4.4: Free economic zones in Lithuania**

Source: Vabuolytė *et al.*, (2020:8).

In 1998 the first FEZ was established in Kaunas and later in Klaipėda in 2002, while the rest of the FEZs were established between 2011 and 2015 (ESPON, 2020:25). Figure 4.4 illustrates the Klaipėda FEZ situated on the coast of Lithuania, while the rest of the other FEZs are inland.

The goal of the Lithuanian government is to establish FEZs in certain industries and sectors of the economy whereby they have strategic advantage, such as the Klaipėda FEZ that focuses on electronics, automotive, renewables and plastic products (ESPON, 2020:18).

The central economic hub for Lithuania is Vilnius, which is the only region in the country that has a greater GDP per capita than that of the nation's average. The region hosts 2 of the 7 FEZs in Lithuania, which include the Kaunas and Klaipėda FEZ. The other FEZs are situated in areas with high unemployment and low economic growth such as the Marijampolė FEZ.

According to Tark Grunte and Sutkiene, (2014:3) each individual FEZ is set up by a different law, specifying the various kinds of actions needed in the zone, the zone boundaries and other critical conditions. Whenever new organisations want to be situated within the Lithuanian FEZ, they will need to obtain certification from the FEZ administration (Tark Grunte Sutkie, 2014:3). Table 4.11 is an illustration of an overview of the Lithuanian FEZ's. The table illustrates that the corporate tax for the SEZs is 0% for the first 6 years and then 7.5% for the next 10 years, while the rest of the country pay a standard corporate tax rate of 15%. The surprising factor is that the Klaipėda FEZ is the only FEZ that support research and development financing support and offers flexible manufacturing facilities, while

the other FEZs do not offer these amenities. According to Tark Grunte Sutkiene, (2014:4) foreign investors do not pay any real estate taxes while local investors are bound to pay the necessary taxes.

**Table 4.15: An overview of Lithuanian FEZs**

FEZ region	Financing of incentives	Coastal	Corporate income tax	Support in setting up a firm	Support in project opportunities from EU	R&D financing support	Flexible manufacturing facilities
Klaipėda FEZ	Yes, for all FEZs the state provides financing	√	0% for first 6 years then 7.5% over following 10 years	√	×	√	√
Šiauliai FEZ		×		√	×	×	×
Panevėžys FEZ		×		√	×	×	×
Kėdainiai FEZ		×		×	×	×	×
Kaunas FEZ		×		×	×	×	×
Marijampolė FEZ		×		√	×	×	×
Akmenė FEZ		×		×	√	×	×

Source: ESPON (2020:20), Invest Lithuania (2021)

Table 4.12 illustrates the summary results of the Lithuanian FEZs. The Klaipėda FEZ is the largest FEZ in the country with over 130 firms operating in the region and creating more than 5000 formal employment opportunities, while generating more than €600 million. The second FEZ that are significant in terms of investments and operations are the Kaunas FEZ, which has 29 operating firms and more than €400 million accumulated investments. The accumulated investments in the Klaipėda FEZ, Kaunas FEZ and Marijampolė FEZ are more significant than all the SEZs accumulated investments in Poland.

**Table 4.16: Summary of results of Lithuanian FEZ's**

FEZ region	Number of firms	Employment (number – thousand)	Accumulated investments
Klaipėda FEZ	130	5,400	€630 million
Šiauliai FEZ	n/a	n/a	€15 million
Panevėžys FEZ	n/a	n/a	€13 million
Kėdainiai FEZ	n/a	n/a	€4 million
Kaunas FEZ	29	3,500	€490 million
Marijampolė FEZ	n/a	n/a	€ 100 million
Akmenė FEZ	n/a	n/a	€13 million

Source: ESPON (2020:29)

Even though FEZs in Lithuania are typically set up in under-developed areas, the main promotion is products manufactured within the FEZ, which creates exportation and sales to the rest of the nation (Terleckaite, 2020:26). According to ESPON (2020:21), the reasons why investors tend to invest in these regions are mostly due to the significant infrastructure quality, business-friendly atmosphere and the offering of financial incentives. FEZs in Lithuania have an unusual authority framework than in other countries.

The inducements are financed through the public, however, the organisations situated in the FEZs are operated by private firms (ESPON, 2020:19). The choice of firms within the FEZs are selected by the government centred on a tender procedure and then consequently select the private zone management (PZM) organisations, which leases the property from authority (ESPON, 2020:21). Even though FEZs in Lithuania have been able to draw investments, there still is not enough land space available for new firms to operate in (ESPON, 2020:24).

#### 4.2.2.6 *An overview of Lithuania's SEZs success factors*

Table 4.17 shows the microclimate success factors within Lithuania. The success factors include the physical infrastructure, operation within the SEZs, incentives received, organisation and management, financial capabilities as well as innovation.

**Table 4.17: Microclimate success factors in Lithuania**

<b>Success Factor</b>	<b>Description</b>
<b>Physical infrastructure</b>	Lithuania offers brilliant infrastructure development in some regions, however, new investments are needed for the expansion of physical infrastructure in the future.
<b>Operations</b>	The operations within the FEZ's are completely operated by the firms situated in the FEZ's, while the government offers the financial incentives.
<b>Incentives</b>	Firms that operate within these FEZ's enjoy a corporate tax rate of 0% for the first 10 years, however, the tax rate increases by 7.5% over the next 6 years. The dividend and real estate tax rate are equal to 0%.
<b>Management and organisation</b>	The management and organisations of the FEZ's situated in Lithuania is completely self-governed by the private organisations within the FEZ's, however, the government decides on the selection of firms.
<b>Financial capabilities</b>	The financial capabilities of Lithuania are extremely beneficial for new firms, since the organisations within these zones tend to bring more investments within the region, which in turn creates more jobs and expand business productivity.
<b>Innovation</b>	The progression of innovation of Lithuanian organisations improves its competitiveness with the foreign and domestic markets. Persisting innovation plays a significant role in the Lithuanian economy.

Source: ESPON (2020), Ministry of Lithuania (2021), Author's compilation

Table 4.18 shows the mesoclimate success factors, which include the labour regime, capacity building of the local workforce, the land use planning and zoning regulations, regional economic development as well as the capable value chains.

**Table 4.18: Mesoclimate (region specific) in Lithuania SEZs**

Success Factor	Description
<b>Labour</b>	The labour regime of Lithuania is sufficient, and the employees offer skilled labour and sufficient capacity building for the local workforce. The only problem is the high unemployment rates in some regions of the country.
<b>Land / Location</b>	Poor land use planning and zoning regulations and FEZs are spread in different regions of the country. The FEZs lack of infrastructure development in some areas, however, in general it is not adequate for FEZs.
<b>Regional economic development</b>	There is an adequate level of urbanisation in SEZs with excellent border and port development with an excellent co-operation between businesses and local government.
<b>Value chains</b>	SEZs linked to domestic enterprises and industrial clusters with adequate forward and backward linkages.

Source: ESPON (2020), Author's compilation

Table 4.19 shows the macroclimate of SEZs in Lithuania and include success factors such as policies and the role of government.

**Table 4.19: Macroclimate in Lithuania SEZs**

Success factor	Description
<b>Policies</b>	Policies with regard to FEZs in Lithuania are adequate, which include investor-friendly customs regime, enabling environment, pro-business policies and focus on private sector development.
<b>Government support</b>	The government support in Lithuania is adequate and offers excellent investment initiatives and co-ordination from government and FEZ's.

Source: ESPON (2020), Author's compilation

### 4.3 AN EVALUATION OF SEZS IN DEVELOPING COUNTRIES

Section 4.3 will describe SEZs in the developing economies. The features of developing countries include aspects such as a low level of gross national income (GNI) per capita that equals the total national income divided by the population size.

Developing countries also shows large income inequalities, extreme poverty levels, low labour productivity, a high dependency on agriculture and high levels of unemployment (Dabla-Norris *et al.*, 2015:10). This section focuses on SEZs within selected countries in Asia and Africa. The first segment focuses on countries within selected ASEAN countries that includes Vietnam, Thailand, and Malaysia and the second part focuses extensively on SEZs in China and one African country.

#### 4.3.1 Selected ASEAN countries

The ASEAN is an intergovernmental organisation whose primary goal is economic growth and regional economic development among its members (World Economic Forum, 2017). The nations that are part of the ASEAN intergovernmental organisation include countries such as Thailand, Vietnam, Myanmar, Cambodia, Malaysia, Indonesia, Singapore, Philippines, Lao PDR and Brunei Darussalam (Mundula & Salustri, 2012:1).

Three countries from the ASEAN group were used namely Vietnam, Malaysia and Thailand. The reason for specifically choosing these three countries is due to the number of SEZs available and the volume of information found with regard to these countries SEZs.



**Figure 4.5: Map of the ASEAN countries**

*Source:* The Economist (2020).

Table 4.16 illustrates the various countries in terms of their population size, GDP in billions (USD), per capita GDP in current USD and the total share in GDP. The top five countries that contribute significantly towards the economic growth of the regions include Thailand, Indonesia, Malaysia, Philippines and Singapore and are regarded as the first countries associated to the ASEAN countries in 1967 (Mundula & Salustri, 2012:1).

The ASEAN nations consist of a total land area of 4,479,201.5 km<sup>2</sup>, a population of 666.438,505 and a GDP (current prices) of USD 3,171 billion (2019) and is one of a key economic influence of international growth (The global economy, 2021; Wahyuni, 2019:2).

**Table 4.20: The ASEAN countries key indicators**

Country	Population (millions)	GDP (current prices, billion USD)	Per capita GDP (current prices USD)	GDP share	Accession to ASEAN
Vietnam	98	261	2,663	8.23(%)	1995
Thailand	67	543	8,104	17.13(%)	1967
Indonesia	274	1,119	4,083	35.29(%)	1967
Philippines	108	376	3,481	11.86(%)	1967
Singapore	6	372	62,000	11.73(%)	1967
Malaysia	33	365	11,060	11.51(%)	1967
Myanmar	55	76	1,381	2,40(%)	1997
Cambodia	17	27	1.588	0,85(%)	1999
Lao PDR	8	18	2,250	0.56(%)	1997
Brunei Darussalam	0.5	14	28,000	0.44(%)	1984
Total	666,5	3171	124610	100(%)	

Source: The Global Economy (2021)

#### 4.3.1.1 Vietnam

Since the late 1980s Vietnam has preferred to globalise its economy to alter its economy with a turnaround strategy with SEZs. FDIs play a crucial role in the economy of the country and industrial parks, SEZs and technology parks are important instruments to attract the necessary investments into the country (Morisson, 2015:87). Samsung plays a vital role in the success of technology parks in Vietnam since the company invested more than \$11 billion and therefore contributing towards production and exportation (Fouqui, 2015).

The policy of economic zones was first introduced in Vietnam during the 1990s with the establishment of EPZs, border gate economic zones (BGEZ), high-tech industrial zones (HITZ). While new kinds of economic zones have been expanding over the past decade, which include special administrative economic zones (SAEZ) as well as coastal economic zones (CEZ) (Tam, 2019:83). Tam (2019:88)

further states that Vietnam has two main types of economic zones namely the coastal economic zone (EZ) and the border EZ.

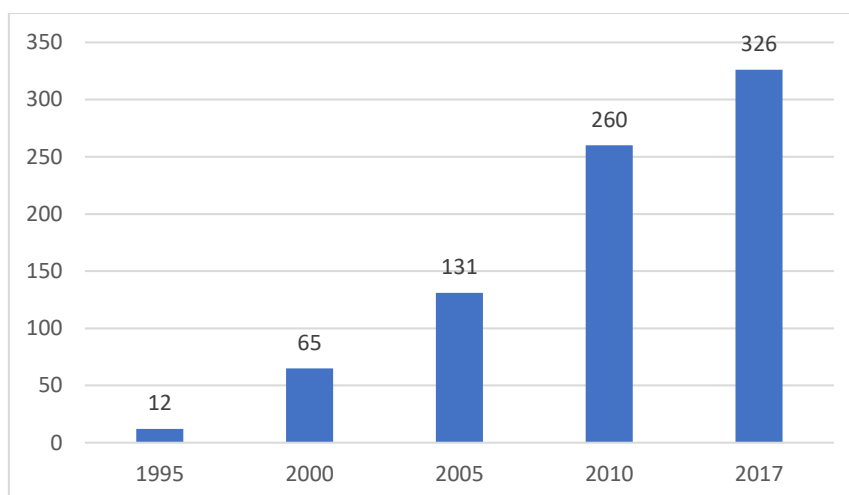
According to Shira and Associates (2019), there are a total of 326 IDZ in Vietnam, while more than 75% of these SEZs are in operation as illustrated in Figure 4.6. The recent developments in bilateral free-trade agreements saw a significant increase in total trade within the country and increased from USD 5 billion in 1990 to a significant USD 325 billion in 2018 (EU, 2019:18). Vietnam's efforts to progress with the establishment of SEZs certainly had a positive impact on their economy, since 40% of total exports amount from EZs (Morrison, 2015:88). Even though Vietnam has enormously invested in EZs and industrial parks it really takes a toll on the country's environmental resources (Morrison, 2015:103)

According to Tang (2019:18), the SEZ's has a nearly 7400 foreign-invested ventures resulting in a total FDI amount of US\$ 125 billion. Tang (2019:18) further elaborates that the total exports rose from 19 billion USD in 2010 to 120 billion in 2017, while imports also increased from 19 billion USD to USD 104 billion. There is a significant number of SEZs in the south-east part of the nation near Ho Chi Minh city and the red river basin near Hanoi (Morrison, 2015:89). The first IDZ was established in 1991 named the Tan Thuan EPZ and the largest IDZ is the Phuoc Dong in the Tay Ninh province (Morrison, 2015:90).

The role of investment co-ordination in Vietnam is controlled by the Ministry of Planning and Investment of Vietnam (MPI). The MPI also plays a significant role in socio-economic development, domestic and foreign investments as well as EZs (Ministry of Planning and Investment, 2018). The ministry is directly under the prime minister of Vietnam, however, the management and operations are controlled by private sector (Wahyuni, 2019). The technological advancements play a significant role in research and development and include hi-tech zones such as Hao Lac Hi-Tech Park, Danang Hi-Tech Park as well as Saigon Hi-Tech Park, which attract high-tech companies (Wahyuni, 2019).

The industrial policy plays a significant role in the economy of the country because a transformation started in 1986 by the Doi Moi reform from a closed economy to a market-orientated economy, which focussed specifically on export promotion and import substitution (Anh *et al.*, 2016).

The aim of the Vietnamese government is to focus specifically on sectors that will have an impact on economic growth in the long term. The government focuses specifically on sectors such as agriculture, environmental sustainability, science and technology, education and renewable energy and the policy from government and new investments are allowed only by those specific sectors, otherwise incentives will not be provided (PwC, 2018).



**Figure 4.6: Number of IDZ in Vietnam**

*Source:* Tang (2019:18)

Even though SEZs in Vietnam are growing at a rapid pace, there is so much inconsistency in the literature with regard to the outline of SEZs and how they work in the country, especially since its in the developing stages of SEZ implementation as suggested by Tang (2019:18). The Ministry of Planning and Investment (MPI) in Vietnam is regarded as a key role-player in the establishment of SEZs, however, private organisations manage and operate these SEZs (Tam, 2019:87).

With regard to incentives received by investors, there are no clear and concise method to understand how the incentives work, the financial capabilities provided, labour regimes implemented and the value chains within the regions. Policies and government support is also vague and it would be difficult for potential investors to fully comprehend and understand how the organisations will work within these SEZs.

#### 4.3.1.2 *An overview of Vietnam SEZs success factors*

Table 4.21 shows the microclimate success factors for SEZs in Vietnam. The key success factors include the physical infrastructure, operations, incentives received, management and organisation, the financial capabilities as well as innovation.

**Table 4.21: Microclimate success factors for Vietnam SEZs**

Success factor	Elements affecting the success factor
<b>Physical infrastructure</b>	The infrastructure in Vietnam is adequate but not excellent and in some regions the government do not provide basic services.
<b>Operations</b>	In Vietnam there is a total of 326 IDZ, while more than 75% of these zones are operational. The management and operations are totally controlled by the private sector, however, the public sector choose the firms to operate in the FTZs.

Success factor	Elements affecting the success factor
<b>Incentives</b>	The incentive in Vietnam is vague in terms of specifying the exact types and categories of incentives. The government does, however, provide some funding by means of the Ministry of Planning and Investment Vietnam (MPI). The country allows for the relief of duties in certain sectors such as agriculture, mining and metals, electronics, chemicals, public services, technology and innovation. Vietnam also considers through its board of investors (BOI) the exclusion of import duties on machinery and equipment, supplies in the manufacturing processes and consent to employ unskilled foreign labour.
<b>Management and organisation</b>	The Ministry of Planning and Investment of Vietnam (MPI) administer the investment co-ordination. Even though the ministry is directly under the prime minister of Vietnam, the operations and management are controlled totally by the private sector. Vietnam, through its regulation from government focuses on the exclusion of import duties such as machinery, equipment and supplies in the manufacturing sector.
<b>Financial capabilities</b>	The total trade increased significantly from USD 5 billion in 1990 to USD 325 billion in 2018, showing a higher income and investments. There are 7400 foreign-invested ventures resulting in a total FDI amount of USD 125 billion.
<b>Innovation</b>	FDIs play a crucial role in the economy of the country and industrial parks and technology parks is an important instrument to attract investment and innovation. The country invests most of their capital towards technology improvements in terms of research and development, some of which include hi-tech zones such as Hao Lac Hi-Tech Park.

Source: Author's compilation

Table 4.22 shows the mesoclimate success factors for Vietnam. The labour regime for Vietnam is very flexible and has minimum red tape regulations in terms of employment. The table also indicates land availability and the importance of value chains in terms of interregional trade.

**Table 4.22: Mesoclimate success factors for Vietnam SEZs**

Success factor	Elements affecting the success factor
<b>Labour</b>	The labour regime in Vietnam seems quite flexible since the contracts of employment are either open-ended or fixed terms under the several parties (employee and employer) meaning that terms and conditions are discussed in an agreeable manner with minimum red tape from the Department of Labour (Silkin, 2019:2).
<b>Land / Location</b>	The land availability in Vietnam seems adequate since the government prioritise land ownership of property.
<b>Value chains</b>	The interregional trade is excellent and there is a good relationship between the firms operating in the SEZs and the local organisations.

Source: Author's compilation

Table 4.23 is an illustration of the macroclimate success factors, which are significantly determined by the overall macroeconomic outlook such as the economic policies and influence that government has in terms of incentives provided.

**Table 4.23 Macroeclimate for success factors for Vietnam SEZs**

Success factor	Elements affecting the success factor
<b>Policies</b>	The industrial policy of the country focuses significantly on transformation and include the transfigure of a market-orientated economy and concentrate on import substitution and export promotion. The policy of the Vietnamese government is to offer relief to certain sectors where there is major demand such as agriculture, mining and metals, electronics, chemicals, public services, technology and innovation.
<b>Government support</b>	The government of Vietnam focuses specifically on the expansion of certain sectors that are the most important to them as a country, some sectors include science and technology, health care, agriculture, environmental sustainability and education, which allow the country to specialise in these sectors and improve the incentives towards these sectors.

*Source:* Author's compilation

#### 4.3.2.1 Thailand

Thailand with its capital in Bangkok has a population of 67 million people, a GDP per capita of USD 8104, a GDP share of 17.13% out of all the ASEAN countries and an entrée to ASEAN countries in 1967 (The global economy, 2021). In Thailand there is a total number of 50 EZs where 44 of these zones are industrial parks and 6 of them are technology parks (Morrison, 2015:86).

The SEZs are areas selected by the SEZ development started by the Thai government (Open Development Thailand, 2018). Given the substantial number of industrial parks in Thailand, the Industrial Estate Authority of Thailand (IEAT) are primarily liable for the administration and development of these industrial parks (Morrison, 2015:86).

Thailand is considered as the biggest car manufacturers in the south-east of Asia and was ranked 12<sup>th</sup> internationally in 2016 (Bangkok Post, 2018). Thailand has a considerable number of international automotive firms based in the country, whereby the motors are manufactured and licensed by foreign producers such as BMW (Germany), Ford (UK), Honda (Japan) and Tata (India) (Thailand Automotive Institute ,2017). The SEZs provide 2.70% of total employment in Thailand, which is nearly 2 million people (Wahyuni, 2019:2).

The largest SEZ in Thailand is the Tak SEZ situated in the Tak province, which has an area of 1,419 km<sup>2</sup> and has an investment capital of 110 million USD in 2018 (Open Development Thailand, 2018). Most SEZs located in Thailand are situated near the border of Thailand, which function as a business entrance linking Thailand with neighbouring nations such as Myanmar, Laos, Cambodia and Malaysia (Bangkok Post, 2020).

According to PWC (2021), the BOI use tax incentives for certain undertakings of the Investment Promotion Act of 1977 as well as the Competitive Enhancement Act of 2017. The BOI tax incentives

stipulate tax incentives will be provided to the agricultural sector, mining and metals, electronics, chemicals, public services as well as technology and innovation. The tax incentives include the following aspects:

- Exclusion of import duties on machinery and equipment.
- Exclusion of import duties on supplies used in the manufacturing process.
- Consent to employ unskilled foreign labour.
- A deduction of a quarter of the project induction/costs from the scheme capital.
- Double subtraction from the cost of services such as water supply, electricity and transportation.
- The non-tax incentives include aspects such as using foreign skilled labour and land ownership of property.

The customs department also have some financial incentives such as the cutback of registered funds for bonded warehouses from 16000USD to 32000USD, however, the free zone registered funds must be worth at least 32000USD.

The investment strategy of Thailand is clear and targeted. The industrial aim of the nation is the innovation centre in Southeast Asia (Wahyuni, 2019:9). The goal of the country is to set up various high-tech companies by incentives such as skills training, research and development as well as modernisation (Wahyuni, 2019:9). The policies in Thailand are in place for new investors and can be regarded as very a business-friendly nation to capitalise since the business procedure and practices are relaxed (KPMG, 2018:35).

In the year of 2018, the country was graded 26<sup>th</sup> out of 190 countries on ease of doing business (KPMG, 2018:89). The positive implementation of Thailand 4.0 is to support the development of the country as a regional hub (KPMG, 2018:89).

The growth of the country can be seen in the various trade agreements between Thailand and countries such as Australia, Bahrain, India, Japan, New Zealand and Peru (KPMG, 2018:92). Table 4.24 is a short evaluation of SEZs in Thailand and the main inputs (natural resources, human resources and the physical infrastructure), the governance and management as well as the important role of industrial linkages.

**Table 4.24: An evaluation of SEZs in Thailand**

Variable	Evaluation
<i>Inputs</i>	
Natural resources	The natural resources in Thailand are limited, however, it is not their main magnetism. The competitive advantage of Thailand is its automotive industry, which are seen by the high capital investments in the automobile industry from Japan.
Human resources	Thailand finds it difficult to get skilful engineers and employees working on management level.
Physical infrastructure	The physical infrastructure of Thailand is good but not excellent. The facilities are up to standard, however, the services provided to businesses from government are not up to standard.
<i>Governance and management</i>	
Government	The national government of Thailand plays a major influential role in the management of investments while the provincial government p a limited role. The BOI are very encouraging of new investments and are very supportive, transparent and helpful.
<i>Industrial linkages</i>	
Relating and supporting industries	Investors have a lot of experience in the automotive industry and the relating and supporting industries are very helpful, since the quality of goods in local regions have improved over the past few years. Although its new policy Thailand 4.0 wants to maintain development of the country as a regional hub while ensuring economic development and innovation.

Source: Wahyuni *et al.* (2013:339)

#### 4.3.2.2 *An overview of Thailand SEZs success factors*

Table 4.25 is an illustration of the microclimate success factors for SEZs in Thailand. The elements include the physical infrastructure (quality of facilities), the operational features of SEZs, incentives provided to investors, the management and organisational structure of SEZs, the financial capabilities and innovation.

**Table 4.25: Microclimate success factors for Thailand SEZs**

Success factor	Elements affecting the success factor
<b>Physical infrastructure</b>	The physical infrastructure is not as good as expected, the quality of facilities is up to standard, however, the service provision to business by the government is below par.
<b>Operations</b>	In Thailand there is a total number of 50 EZs of which 44 of these parks are industrial parks and six of them are technology parks.
<b>Incentives</b>	The BOI in Thailand implement tax incentives to a selected number of industries such as the mining and metals industry, agriculture, public services, chemicals, technology and

Success factor	Elements affecting the success factor
	innovation. The following incentives are provided to the firms: * The exclusion of import duties on machinery used in the manufacturing sector, * The consent to use unskilled foreign labour, * A deduction of ¼ of initial product costs from the scheme capital, and *A double subtraction from the cost of service such as electricity provision, water supply and transportation costs. The customs department also have financial incentives such as the cutback of registered funds for bonded warehouses from 16000USD to 32000USD.
<b>Management and organisation</b>	The government plays an influential role in the regulations and administration of the zones, however, the private sectors operate the SEZs. The BOI encourages new investments and they are very transparent, supportive and helpful in the administration.
<b>Financial capabilities</b>	The largest SEZ in Thailand named the Tak SEZ situated in the Tak province has an estimated area of 1419 km <sup>2</sup> and an investment capital of 110 million USD in 2018.
<b>Innovation</b>	The country also aims to set up numerous high-tech firms mainly by means of incentives such as research, skills and training, development and modernisation.

Source: Author's compilation

Table 4.26 shows the mesoclimate success factors for SEZs operating in Thailand. The elements discussed include labour (total employment), the strategic locations of the SEZs, regional economic development and the importance of value chains in the country.

**Table 4.26: Mesoclimate success factors for Thailand SEZs**

Success factor	Elements affecting the success factor
<b>Labour</b>	SEZs provide more than 2.5% of total employment in the entire country, which is nearly 2 million people.
<b>Land / Location</b>	The locations of the SEZs is situated in very strategic locations i.e., near the border of Thailand, which function as a business entrance linking the country with other countries such as Laos, Cambodia, Myanmar and Malaysia.
<b>Regional economic development</b>	The country has a significant comparative advantage in terms of car manufacturing in the south-east of Asia and in 2016 was ranked 12 <sup>th</sup> in the world. Thailand has automotive firms operating in the country with the likes of Sweden, Germany, India and Japan as their main production base. The positive implementation of Thailand 4.0 is to keep development of the country as a regional hub.
<b>Value chains</b>	Investors contribute a significant amount of capital in the automotive industry and the supporting related industries in the surrounding regions since the quality of goods in local regions improved significantly over the past few years.

Source: Author's compilation

Table 4.27 shows the macroclimate success factors for SEZs operating in Thailand. The elements that affect the success of SEZs include factors such as economic policies and the role of government in supporting SEZs in the country.

**Table 4.27: Macroeclimate for success factors for Thailand SEZs**

Success factor	Elements affecting the success factor
<b>Policies</b>	The policies with regard to SEZs in Thailand seem favourable for foreign investors since the country encourages foreign investments and it is quite easy to do business in the country. The policies in Thailand aim to attract new investors and the business practices are very relaxed.
<b>Government support</b>	The government of Thailand in its BOI use various tax incentives for operations of the Investment Promotion Act of 1977 as well as the Competitive Enhancement Act of 2017. The national government of Thailand plays a major influential role in the management of investments, while the provincial and local government play a limited role. The BOI encourages new investments and are supportive, helpful and transparent.

Source: Author's compilation

#### 4.3.3.1 Malaysia

Malaysia with its capital city situated in Kuala Lumpur has a population of 33 million people, a GDP per capita of 11,060 USD (current prices) and a total GDP share of 11.51% of the 10 countries part of the ASEAN group (The global economy, 2021). Malaysia is the first country that are part of the ASEAN group to employ SEZs (Wahyuni, Anoviar & Santoso, 2012:6). According to Chai and Im (2009:3), in the 1950s the Malaysian economy excessively depended on primary commodities like wood and rubber, however, after gaining autonomy in 1957 the government focussed heavily on industrialisation.

The country faced various problems in their economy during the 1960s such as the shortfall of Penangs' free port position and as a result the provincial government of Penang changed the outlook of regional economic development and the industrialisation started with the employment of FTZs as a mechanism for attracting investments and to improve exportation while also focusing on local job creation (Chai & Im, 2009:3).

In the 1970s the national government advocated the Free-trade Zone Act of 1971 to enhance the growth of IDZ and industries that are export driven (Yeow & Ooi, 2009:3). The first FTZ was established in Bayan Lepas in the province of Penang, which saw the first ever FTZ among the ASEAN community (Chai & Im, 2009:3). Currently the FTZ situated in the province of Penang is a key hub for international network systems and provides an effective interchange between international sourcing approaches of multinational enterprises (MNEs) and regulatory guidelines in deciding development advances from international production distribution (Athukorala, 2014:222).

By 1975 there were eight zones functioning and EPZs turned out to be the main drivers of exportation since a large portion of US investors moved to Malaysia. The electronics and equipment industry grew significantly during the late 1970s and 1980s, which contributed significantly to employment, investments and export remuneration that grew into the leading progressive engine in the economy

(Asian Development Bank, 2015:90). In 1987 the SEZs were introduced by government to improve capacity growth and skills development, which saw the EPZs becoming successful growth poles (Asian Development Bank, 2015 :73)

During the 1980s and 1990s Malaysia became more industrialised than ever before and hence the government decided to implement a structural shift from low to high value-added industries (Asian Development Bank, 2015:91). So, the government also decided to implement two distinct types of free zones: free industrial zones (FIZs) which replaced FTZs and free commercial zones (FCZ), which provided services and trading, especially entrepôt trade (Chai & Im, 2009:4).

In the year 2000 the manufacturing sector faced a tremendous setback in terms of not being able to achieve the level of production within their high value-added industries. The reason for this setback as confirmed by Rasiah *et al.* (2015) was a mixture of inadequate policy, management, observing and ineffective labour market regimes. Nonetheless, by the year 2009 the E&E reported for 56 % in the total manufacturing exportation and 91% in electronics, which obviously had multiplier effects on the broader economy (Asian Development Bank, 2015:91).

SEZs in Malaysia reported for 73% of FDIs, 83 % of total exportation and 5% of total employment in the country (Asian Development Bank, 2015:88). The E&E industry is the leading industry in the country and most of the firms are situated in SEZs, which links with associated industries and contributing to the government's policy of structural transformation (Asian Development Bank, 2015:88).

According to the International Growth Centre (IGC) (2019) more than 75% of the Malaysian SEZs are publicly owned, while only 23% are privately owned, showing a strong bureaucracy. The ZESs in Malaysia seem to have a more stable economic growth and the most essential industrial parks are recognised in the state of Selangor. which include SEZs such as the Iskandar Development Zone, the Northern Corridor Economic Region, Sabah Development Corridor and the East Coast Economic Corridor (Asian Development Bank, 2015:92)

The Penang FTZ is the first established SEZs in Malaysia and have proven to be a significant processing zone for tech companies such as Dell, IBM, Intel, AMD, Canon, Sony and Fairchild (Athukorala, 2014:28). According to MIDA (2021), the diverse kinds of SEZs in Malaysia include FTZs, Licensed Manufacturing Warehouse (LMW) and all these zones receive duty-free imports.

Table 4.28 is a short evaluation of SEZs in Malaysia, which include the inputs (natural resources, human resources and physical infrastructure), financial (incentives and funding of SEZs), governance and management as well as the industrial linkages within the Malaysian economy.

**Table 4.28: An evaluation of SEZs in Malaysia**

Variable	Evaluation
<i>Inputs</i>	
Natural resources	The natural resources in Malaysia is limited, however, the main competitive advantage in the country is the country’s significant E&E industry. The industry is the most significant contributor to the economy, contributing USD 80 billion each year towards exportation.
Human resources	The workforce is very educated and skilled and are also good in English communication. The education system in Malaysia seems to support the progress of the manufacturing sector. Skills training are provided for workers in the FTZs.
Physical infrastructure	The physical infrastructure of FTZs is well-developed with the best infrastructure development in the ASEAN group. FTZs in Malaysia provide adequate infrastructure, such as roads, railways and IT systems.
<i>Financial</i>	
Incentives	<p>Tax incentives in Malaysia are provided for in the Income Tax Act of 1976, Customs Act of 1976, the Promotion of Investments Act 1986 and Free Zones Act 1990 (MIDA, 2021). The following incentives are stipulated:</p> <ul style="list-style-type: none"> <li>• A company situated in the FTZ receives an Investment Tax Allowance (ITA) and is eligible to a 60% grant on its qualifying capital expenditure imbursement incurred within the first five years.</li> <li>• A company allowed Pioneer Status (PS) will receive a five-year fractional exclusion from the disbursement of income tax, however, it pays 30% of its net capital gain, with exclusion period starting on its first production day.</li> <li>• A high technology firms that has the PS will receive the exclusion of tax for 100 % in its net capital gain for a time span of five years.</li> <li>• According to the Free Zones Act (Section 4), organisations receive free service taxes, excise duties and customs duties.</li> </ul>
Funding of SEZs	The funding of SEZs in Malaysia is not noticeably signified, however, FTZs authority should propose a budget to the Minister of Finance to establish how funding will be allocated as stipulated by Section 13(4) of the Free Zone Regulations.
<i>Governance and management</i>	
Government	The government plays a very significant and active role in the establishment and functioning of the FTZs. The most of the SEZs are owned by the government, while only 20% are privately owned.
<i>Industrial linkages</i>	
Relating and supporting industries	SEZs encourage economic links between the rural and urban regions.

Source: Wahyuni *et al*, (2013:339), MIDA, (2021), Le Roux and Schoeman, (2016:758), Chain and Im (2009:11), Authors compilation.

The FTZ's in Malaysia are administrated by the minister of finance and may choose regions where FTZs and FCZs may be established as stated by Section 3(1) of the Free Zones Act 438 of 1990. The authorities of the FTZs need to report to the minister of finance as a constitutional body merged with specific departments from the Malaysian government and functions, support and govern the SEZ as stated in Section 3(2) of the Free Zones Act (Le Roux & Schoeman, 2016:758). According to Chain and Im (2009:6), a customs department need to be established in FTZs to control the movement of commodities and goods.

#### 4.3.3.2 *An overview of Malaysia SEZs success factors*

Table 4.29 shows the microclimate success factors that has an impact on the effectiveness and operational structure of the SEZs. The first factor is the physical infrastructure, the operations of the SEZs and the incentives provided to the firms operating within the SEZ.

**Table 4.29: Microclimate success factors for Malaysian SEZs**

<b>Success factor</b>	<b>Elements affecting the success factor</b>
<b>Physical infrastructure</b>	The physical infrastructure of Malaysia is well-developed with one of the best infrastructure developments in the ASEAN group, especially the roads, railways, and IT systems.
<b>Operations</b>	More than 75% of the SEZs in Malaysia are publicly owned by the government, while only 23 % of them are privately owned, showing a strong bureaucracy. The country has numerous EZs, some of which include FTZs, LMW of which all receive duty-free imports.
<b>Incentives</b>	<p>Tax incentives in Malaysia are provided for in the Income Tax Act of 1976, Customs Act of 1976, the Promotion of Investments Act 1986 and Free Zones Act 1990 (MIDA, 2021). The following incentives are stipulated:</p> <ul style="list-style-type: none"> <li>•A company situated in the FTZ receives an ITA and is eligible to a 60% grant on its qualifying capital expenditure imbursement incurred within the first five years.</li> <li>•A company allowed PS will receive a five-year fractional exclusion from the disbursement of income tax, however, it pays 30% of its net capital gain, with exclusion period starting on its first production day.</li> <li>•High technology firms that has the PS will receive the exclusion of tax for 100% in its net capital gain for a time span of five years.</li> <li>•According to the Free Zones Act (Section 4), organisations receive free service taxes, excise duties and customs duties.</li> </ul>
<b>Financial capabilities</b>	<p>The FTZs in Malaysia contribute more than 70% of FDIs, more than 80% of total exports and nearly 5% of total employment in Malaysia. The Penang FTZs in Malaysia had significant success in recent years with international tech companies investing in the country with the likes of Canon, Sony, Dell, Fairchild and Intel. The E&amp;E industry is regarded as the most significant industry contributing nearly USD 80 billion each year.</p> <p>However, the funding is not signified, meaning the funding are very limited, however, the FTZ authority receive funds from the minister of finance to establish funding stipulation according to Section 13(4) of the free zone regulations.</p>

*Source: Author's compilation*

Table 4.30 shows the mesoclimate success factors for SEZs operating in Malaysia. The first element is labour and the level of skills of employees, the location of the FTZs, the regional economic development and the importance of value chains.

**Table 4.30: Mesoclimate success factors for Malaysian SEZs**

Success factor	Elements affecting the success factor
<b>Labour</b>	The labour regime in Malaysia is very adequate and Malaysia offers some of the most highly skilled labour forces in the world and the workers are excellent in communicating in English.
<b>Land / Location</b>	The land use planning in Malaysia is adequate and the country provides excellent cluster development for specific industries. The FTZs are in strategic locations that allows for adequate trading links between rural and urban regions.
<b>Regional economic development</b>	The FTZs situated in regions such as Penang are regarded as the hub for international network systems and provides effective interchange between international sourcing approaches of multinational enterprises (MNEs) and regulatory guidelines in deciding development progression from the international production distribution.
<b>Value chains</b>	Malaysia has significant value chains in different regions, especially in an industry such as the electronic and equipment industry, which are regarded as the largest industry in Malaysia in terms of revenue generation. The FTZs encourage the economic links between urban and rural regions.

*Source:* Author's compilation

Table 4.31 shows the macroclimate success factors within the SEZs of Malaysia. The government has an act (Free-trade Zones Act of 1971), which are used to stimulate industrial growth and investments within the country.

**Table 4.31: Macroclimate for success factors for Malaysian SEZs**

Success factor	Elements affecting the success factor
<b>Government support</b>	The government advocated the new Free-trade Zones Act of 1971 to improve industrial growth and to grow exportation and trade. The government aims to attract investments, create jobs and improve overall trade. This supports the structural shift from low to high value-added industries and the transformation thereof. The country encourages investments from MNEs and the other types of investments. Malaysia offers excellent customs regimes and pro-business policies with the focus of private sector development. All the FTZs in the country are owned by the public, however, the private sectors operate and manage the functionalities within the FTZs. The government is also pro-active in terms of infrastructure development within the various FTZs.

*Source:* Author's compilation

#### 4.4 AN EVALUATION OF SEZS IN ASIA

The Chinese SEZs has the world's most successful SEZs. The success stories of the Chinese SEZs are fascinating and numerous countries in the developing world are attracted to implement SEZs as

flourishing as the Asian model (Alexianu *et al.*, 2019:2). Section 4.4 will focus on the success story of the Chinese SEZ and the expansion model that developing countries can use to ensure the benefits of zones prevail over their costs.

#### **4.4.1 Special economic zones in China**

The remarkable growth of China has revived the awareness of the development state, meaning the government balance social development and economic growth while also employing state control to tackle poverty and simultaneously increasing economic development (Kishtainy *et al.*, 2012:287). Beginning from the country's establishment in 1949 to 1979, the nation had a planned economy that focussed on increasingly high economic development with limited FDIs allowed within the country.

The introduction of SEZs in the late 1970s saw the nation move from a planned economy to a more socialist economy (Crane *et al.*, 2018:101). SEZs were established as a facilitator for the Chinese economy to shift from centrally planned to a free market economy (Crane *et al.*, 2018:101). In the late 1970s China began a sequence of restructuring of its communist systems, after a decade long devastation of the cultural revolution, which left most people in poverty and a dramatic change was needed (Kishtainy *et al.*, 2012:287).

The central government decided to implement an open-door policy in July of 1979; the authorities chose that both the Fujian and Guangdong provinces should ease trade with “special policies and flexible measures” (Zeng, 2013:1). In order to enable the rehabilitation of China with the world economy and to attract more investments, SEZs were utilised in 1979 (Kam & Tang, 1999:8).

In 1980 it first established four SEZs namely Xiamen (Fujian province), Shenzhen, Zhuhai and Shantou (Guangdong province). During 1984 exclusive power was given to 14 coastal regions to use foreign capital more effectively and one of these regions was Guangzhou, the capital of Guangdong province (Kam & Tang, 1999:8). By the end of 1985, the total number of FDI in the four SEZs accounted for more than 25% of total FDI in China.

The economic growth between 1980 and 1984 grew more than 9% and Shenzhen grew by 58%, Zhuhai (32%), Shantou (9%) and Xiamen (13%) (Moberg & Tarko, 2021:122). The success of these zones was because of constructive policies and the appropriate combination of production factors in the SEZs contributed to significant growth rates in China (Zeng, 2013:1).

In the year 1981, the four established SEZs (Shenzhen, Zhuhai, Shantou, and Xiamen) accounted for more than 59% of total the FDI in the country, while Shenzhen accounted for 51% of total FDI (Zeng, 2013:1). More supporters of the Chinese influential started encouraging the SEZs as they grew in magnitude and size.

As a result, the SEZ could remain functioning despite some disputes, as of 1985 a corruption disgrace in Hainan indicated some of the problems of SEZ' (Moberg & Tarko, 2021:121). The consequences of the corruption scandal allowed authorities to perform more monitoring and executing central power over SEZs, and as a result the government detached numerous guidelines for SEZ businesses (Moberg & Tarko, 2021:122). By the end of 1985, the total amount of FDI in the four zones contributed 1.17US\$ which is near 20 % of the country total (Zeng, 2013).

Academics widely assumed that China did not really board on the road to modernisation and the literature insinuates the same idea, however, after the 1990s the road to socialist modernisation began (Yuan, 2017:1). The development and growth of China's SEZs, denoted by the Shenzhen SEZ, implies accurately the course of progressing and adjusting its economic development approach amid delays and lessons, by enhancing the industrial structure by means of a steady shift from civilisation driven by economic growth to a more aid-orientated society focusing on development (Yuan, 2017:2).

Today SEZs in China are the most successful and diverse than any other types of EZs in the world, having the widest variety of SEZs with the most success (Chen, 2019:50). The most popular SEZs in China include those of Zhuhai, Shanghai Pudong New Area, Shenzhen, Xiamen, Hainan, Tianjin Binhai New Area and Shantou (Zeng, 2013:4). According to Crane *et al.* (2018:101), the economic impact of the SEZs has major positive effects for the economy, especially for those regions with more than one SEZ.

Figure 4.7 is an illustration of the six SEZs of China where most of the manufacturing, export, processing and transshipments happen. Most of the SEZs, FTZs, HIDZs and EPZs are located near the coastal region of the country, while only 35% of all the EZs are situated inland (Zeng, 2013:9). Most of the SEZs in operation are situated within the Guangdong province.

The Guangdong coast is situated in the north of the Chinese sea and includes other countries such as Malaysia, Vietnam, Taiwan and the Philippines, which can be regarded as a region of significant economic and demographic potential, especially where the services and goods of Guangdong can be traded on an international scale (Bellandi & Tommaso, 2005:710). The economic contribution that the Guangdong province make in terms of production and manufacturing is among the highest provinces in China (Bellandi & Tommaso, 2005:710).



**Figure 4.7: Special administrative regions and SEZs of the People's Republic of China**

Source: Mak (2012)

China has numerous types of EZs such as HIDZ, FTZs and EPZs.

- High-tech industrial development zones (HIDZs)

One method of encouraging regional economic growth through modernisation and entrepreneurship is through the establishment of a science park or also known as a HIDZs (Huang, Audretsch & Hewitt, 2013:829). Huang *et al.*, (2013:830) further state that these HIDZs linked with a university as “a tool for the transmission of academic research answers, a foundation of knowledge spill overs and a facilitator for regional economic development”. Science parks therefore play a critical role as a policy initiative that can boost the progress of new technology-based organisations that produce yields on academic research by commercialisation (Huang *et al.*, 2013:830).

The government first introduced high-tech industrial zones in the late 1980s whereby the main aim of the procedure was to use the technological measurements and resources of universities and SMMEs to cultivate new and high-tech products and to accelerate the commercialisation of research and development (R&D) (Zeng, 2013:8). The first HIDZ was established in 1988 in Zhongguancun (Beijing) and ever since then the country managed to establish an additional 53 state-level HIDZs in China – 25 of which are coastal and 29 HIDZs. According to Zeng (2013:8), the top performers in terms of HIDZs in China includes Shanghai Zhangjiang, Wuxi, Beijing, Nanjing and Zhongguancun.

- Free-trade zones (FTZs)

The FTZ is one of the most popular kinds of SEZs in the world. It can be described as an enclosed region that targets exportation with various tariff reductions and low tax rates for importations. The enclosed region offers a wide variety of facilities including storage, warehousing, and transshipment (Miyagiwa, 1986:338; Abdusharipovich, 2018:49). The size of the SEZs is smaller than 100 km<sup>2</sup> and the objective of the FTZs are to export and import in the domestic and national markets and focusing on integrated development.

China tested free-trade zones before their official establishment as a country joining the intergovernmental organisation known as the WTO (World Trade Organisation) (Colton, 2006:197). The first state-level FTZ was established in Shanghai known as Waigaoqiao FTZ in 1990 and presently there are 15 FTZs in 13 coastal cities (Zeng, 2013:9).

Despite that these FTZs operate within the border of China the regulations are different than those of customs, for example firms operating within the FTZs are entitled for tax reimbursements on exports, import duty exclusion and reduced tax rates (Zeng, 2013:9). The FTZs in China does not play a significant role in international trade, since the country is linked to the WTO, however, the FTZs are linked near the ports, which gives the country a significant advantage (Zeng, 2013:9).

- Export processing zones

Export processing zones can be described as economic development zones or IDZ that focuses primarily on the manufacturing of goods with the purpose of exporting (Arnold, 2016:1). Arnold (2016:1) asserts that the primary aim of the EPZ is the focus of the free-trade environment, which includes the (a) all-inclusive type and (b) the specialised type. The first EPZ was established in Kunshan region and currently there are 61 export processing zones with 44 of them located on the coast side while 17 are situated inland.

Export processing zones are the preferred EZ since organisations can manufacture and export their goods on the same premises (Zeng, 2013:9). The IDZ in China were reduced from 7000 in 2004 to 1600 in 2006 whereby 220 of these zones are owned by the state (Zeng, 2013:9). The reduction in the number of IDZ can be ascribed to the Chinese government to reduce the number of unqualified zones.

#### 4.4.1.1 *The success of Shenzhen SEZ*

The practice of restructuring the economy and contributing significantly to the economic development objectives represented by the success story of Shenzhen, indicates the distinctive path for attaining economic development (Yuan, 2017:1).

As a region with the weakest central planned economy at that point in time, Shenzhen was one of the first areas to be enriched because of its geographical advantages with regard to its proximity to Macau and Hong Kong (Yuan, 2017:2).

Shenzhen was a small fishing village during the 1970s with a population size of nearly 30 000 on the thin river crossways from Hong Kong (Kurry, 2012). Shenzhen was one of the first of the four SEZs to be established in China in 1979 after the economic shift that relieved any organisation within Shenzhen from paying regional or national taxes (Crane *et al.*, 2018:101). The development and growth of Shenzhen soon became an incident of accelerated growth and changed the innovation and technological landscape of China and the world.

The industrialisation of Shenzhen was incorporated into the regional and national growth plan, which enabled the country to expand its manufacturing and expand its globalisation process (Kurry, 2012). The Shenzhen region was rooted in the national economic development system and is regarded as one of the most significant undertakings of the central government in the modern PRC (Kurry, 2012). The fast development of this SEZ or “innovative cluster” can be justified in four distinct stages over a period of 40 years as illustrated in Table 4.19.

**Table 4.32: The four stages of transformation in the Shenzhen SEZ**

Stage	Description
<b>Stage 1</b>	From 1978 to 1992 can be described by labour-intensive development by means of the introduction of institutional reforms (open-door policies).
<b>Stage 2</b>	From the period 1992 to 2003 Shenzhen reached a lower-middle status in the international value chain by focusing more on high-intensity capital development. The official launch of a socialist market economy facilitated foreign investments and fast-tracked the development of information and electronic industries.
<b>Stage 3</b>	The third stage expanding from 2003 to 2013 included economic alteration during the high increases in land prices. During this time span Shenzhen soon became the middle of the global value chain by improving its appeal of the city and the various high-tech firms that formed meaningful clusters, enhancing innovation and new momentum.
<b>Stage 4</b>	In the final stage from 2013 to 2018 Shenzhen manifested itself as one of the highest positions in the global value chain because of its resource and innovation-driven growth and development.

Source: UN-Habitat (2019:x)

Today, Shenzhen is home to the key corporations in China such as Huawei, BGI, WeChat, DJI an organisation working on arial technologies and SenseTime who research and develop artificial intelligence (UN-Habitat, 2019:1). The UN-Habitat (2019) report showed that Shenzhen is the second largest innovative cluster internationally, falling behind Tokyo and Silicon Valley.

The OECD (2017:1) states that the GDP of Shenzhen grew at an average rate of 9% in 2016 while the national GDP only grew at an average of 6.7%. The Shenzhen region have the youngest population whereby 90% of the population size are 34 years or younger and the region also manufactures most of the world's consumable appliances (OECD, 2017:1).

The region has a significant competitive power in terms of its labour-intensive economy, which allowed the region to capture the market and to transform the economy as a scientific hub for innovation and development (Yuan, 2017:7). Xinhua (2020) states that the technological hub is among the highest in the world and viewed as an international trailblazer in industrial and technological innovation.

From an economic point of view, the Shenzhen region has a main comparative advantage in terms of labour and the market economy system (Wang & Meng, 2003:18). The governance of the region is an assembly of efficient and effective business-friendly regulations and legal systems that are matched with international practices (Wang & Meng, 2003:18). One more reason the Shenzhen is so successful is largely due its selection of FDI investments strategies.

#### 4.4.1.2 *An overview of China's success factors*

The most noticeable SEZ success stories come from China (Moberg & Tarko, 2021:125). The Chinese government spend immense funds on the establishment of SEZs, however, the establishment of the SEZs are cautiously approached by reforms before applying it on a bigger scale (Moberg & Tarko, 2021:126). The reason why the government spend significant amounts of capital on SEZs are mainly to (1) attracting technological and organisational proficiency as part of capital investment, (2) improving international trade, (3) achieving positive economic growth to promote regional economic development, (4) increasing employment and (5) producing more land leases, rents and transfers (Chen, 2019:56). Table 4.33 shows the microclimate success factors of China. The success factors explained in this section include the physical infrastructure, operations, incentives, management and organisation, financial capabilities as well as innovation.

**Table 4.33: Microclimate success factors in China**

<b>Success Factor</b>	<b>Description</b>
<b>Physical infrastructure</b>	At local government, the Chinese government assertively subsidise its comparative economic advantages by investing in physical infrastructure for all kinds of SEZs. The organisations have access to major infrastructure such as airports, railways and ports.
<b>Operations</b>	The SEZs in China operate mostly in capital and technology intensive formal sectors by which they enjoy larger support from government and stronger linkages to the formal markets.
<b>Incentives</b>	The Chinese SEZs offers various incentives to attract foreign investors, some of the key incentives include low-cost land, various tax breaks, instant custom clearance, deporting

	capital investments and profits, duty-free imports for intermediate goods and raw material and export tax exemption. The government also does not necessarily fund everything with its individual resources, however, they involve more PPP to address the necessary capital limitations.
<b>Management and organisation</b>	The SEZs within the various regions followed a management and organisational style which include (a) administrative supervision, with managerial purposes performed by government administrative groups, (b) an administrative group, with management by government-elected groups and (c) dual management by partners of SEZs and government selected groups. The SEZs therefore are in a way directly managed and organised by the government itself, however, the firms are still liable for the functioning of its own operations.
<b>Financial capabilities</b>	The government support SEZs in China because these zones contribute nearly 22 % of total GDP, 45 % of FDI's and 60 % of total exports while creating more than 30 million jobs.
<b>Innovation</b>	The government emphasises the importance of innovation in its industries and markets and as a result the government emphasises a lot on R&D and innovation by means of enlarging investments, creating R&D infrastructure and proposing exclusive incentives to attract high-tech organisations.

Source: Zeng (2013:29); China Development Bank (2015:1); Chen (2019:58)

Table 4.34 shows the mesoclimate (region specific) success factors for the Chinese SEZs. The success factors include the labour skills, the location of the SEZs, regional economic development and the importance of value chains.

**Table 4.34: Mesoclimate (region specific) success factors in Chinese SEZs**

<b>Success factor</b>	<b>Description</b>
<b>Labour</b>	The labour in the SEZs is labour-intensive and focuses more on export-orientated production and manufacturing. The Chinese SEZs also focuses on the attractiveness for skilled labour including various funding sources such as housing, research and transfers.
<b>Land / Location</b>	The SEZs are situated near the border country, which enhances the political connections with neighbouring countries. The country offers very low land costs within these regions. The SEZs in China are near the coastal regions, which enables them to have better linkages to the global market.
<b>Regional economic development</b>	The government aims to have a concentration of labour-intensive and export-orientated factories.
<b>Value chains</b>	Several SEZs in China are extremely competitive among themselves and create important value chains between the different regions.

Source: Zeng, (2013:29); Bräutigam and Xiaoyang, (2012:812); Chen (2019:57).

Table 4.35 shows the macroclimate success factors in the Chinese SEZs, which include the policies of government and the level of support offered by government.

**Table 4.35: Macroeconomic success factors in China SEZs**

<b>Success Factor</b>	<b>Description</b>
<b>Policies</b>	The government stipulate that property rights should be protected. The country follows an open-door policy to avoid political interference. The SEZs also executes a gradualistic approach towards reform, meaning they aim at policy in a step-by-step approach as supposed to changing everything at once.
<b>Government support</b>	The government focuses on the improvement of industrialisation, job creation, improving technology and innovation, stimulating exports and enhancing regional economic development. The local economy plays a crucial role in the success of SEZs. Some aspects include efficient administrative and regulatory systems and the provision of infrastructure in the region.

Source: Bräutigam and Xiaoyang, (2012:812); Chen (2019:70); Zeng (2013:13)

#### 4.5 AN EVALUATION OF SEZS IN AFRICA

Currently there are more than 230 SEZs in Africa while more than 50 SEZs are under-development, with the largest amount of SEZs in Africa situated in Kenya (UNCTAD, 2019:138). The African involvement with SEZs for the past few years has been substandard (Page & Tarp, 2017:4). SEZs in Africa are not as popular as in other parts of the developing world such as Asia, since the development of SEZs in most of the African countries started in the late 1990s and 2000s (UNCTAD, 2019:140). Most of the SEZs on the African continent focus on labour-intensive, low-skilled manufacturing industries, unfortunately the performances of these zones have not been satisfactory (Karambakuwa *et al.*, 2020:17).

Africa showed a major increase in the establishment of SEZs and the benefits differ widely from one country to another, however, the success of these SEZs did not improve the socio-economic problems in an extensive manner (such as poverty and unemployment) (Karambakuwa *et al.*, 2020:12). Mauritius is the only country in Africa who achieved SEZ success by structural transformation, however, some aspects such as the employment and infrastructure have not improved, which in turn destabilise their sustainability (Page & Tarp, 2017:4). The observations show that the real difficulty with SEZs in Africa may lie in their long-term planning, deprived selection of location, lack of leadership and deficiency of political motivation (Page & Tarp, 2017:4).

The establishment of SEZs in Africa show that SEZs are not as common and profitable as SEZs in other developing countries like Thailand, Vietnam and Malaysia. In general, most African countries have poor infrastructure development, political instability and a weak business environment, which reduce industrial development (Karambakuwa *et al.*, 2020:22). From an administrative point of view some of the weaknesses within the establishments include inadequate management, limitations in organisation and deficiency of strategies for policymaking and operation (Karambakuwa *et al.*, 2020:22).

According to Page and Tarp (2017:7), the investments of African SEZs are hindered by the authority of SEZs, inadequate legal outlines and ineffective administrations and most of these problems are embedded by insufficient financial resources and fragile capacity. Management and governance is a very important aspect for the operations of SEZs, however, the lack of incentives of policymakers to expand SEZ policies, ascendency and regulations are also hindrances (Page & Tarp, 2017:17). The most transparent example of rent-seeking behaviour is when political influence exploits the benefits that SEZs present, including aspects such as fiscal incentives and affordable land for personal financial gain (Page & Tarp, 2017:7). Due to the low development of SEZs in Africa, the decision was to only evaluate one of the African countries named Ghana in Section 4.5, which had some success with SEZs within their country.

The reason Ghana was chosen are mostly due to its relative success in terms of implementing FEZs in the past few decades. Another reason Ghana was chosen as the main country to be evaluated is due to all the significant information available with regard to FEZs. EZs are a new concept on the African continent and as such only one country are evaluated. The success factors of countries in the developed world should not be unrecognised and in fact the success factors should be used as a model or blueprint for whenever new EZs are established in the developing world.

#### **4.5.1 Ghana**

African countries in general have found it difficult to integrate into the world markets in the past, however, the continent experienced some significant changes over the past few decades (Angko, 2014:2). After the country's independence in 1957, the Ghanaian economy gained success in its economy by means of integrating into the world markets. As a result of economic hardships and severe poverty over the past few decades the country initiated the establishment of export processing zones under the regulation of the Ghana Free Zones Board (Angko, 2014:23). The goal of authority was to generate employment, create more income for local regions and to promote exportation (Florence *et al.*, 2017:20)

Ghana developed FEZs during the 1990s, which is at a later stage in comparison to other sub-Saharan countries such as Liberia and Senegal which established FEZ's during the 1970s (Akinci & Crittle, 2008:25). The introduction of free zones officially started in 1995 to boost competitiveness within various regions to achieve goals such as economic growth and export promotion (Angko, 2014:22). The World Bank stated that the Ghanaian SEZs are one of the top designed, most adaptable and of the most innovative FEZs on the continent (Moberg & Varko, 2021:130). The reasons why The World Bank indicated that these SEZs can be seen as a "top designed SEZs" are mostly due to their magnitude in size, which expands into an extensive variety of businesses and the incentives are very appealing for future investors (Moberg & Varko, 2021:131).

The zones in Ghana are called export processing zones (EPZs), however, the term free zones are used interchangeably due to the various terminology used in the world to label the EZ (Angko, 2014:3). Ghana has the traditional EPZs which are administrated and regulated by the Free zones Board of Ghana (Akinci & Crittle, 2008:20). Most of the EZs in SSA are developed and operated by authority, however, Kenya and Ghana's SEZs are operated by the private sector (Akinci & Crittle, 2008:25).

Since 2005, the authority embraced a universal approach to the development of SEZs by establishing the Ghana Trade and Investment Gateway Project and the Ghana Free zones Board directed the development of SEZs (Tyson, 2018:6). Ghana established four EPZs, which included Sekondi, Shama, Ashanti and Tema EPZs (Angkwo, 2014:22).

- **Shama EPZ** – The Shama EPZ located in the western parts of Ghana has a total land area of 300 acres (1215 hectares) and serve as a multi-purpose territory, however, limited development and activities have been taken place within the EPZ.
- **Ashanti EPZ** – The Ashanti PEZ situated at the Boankra region has a land area of 1099 acres (445 hectares). It is designed as a technology park, however, limited development is recognisable within the EPZ. The demarcated region includes industries to develop manufacturing such as an ICT cyber village, light and heavy industrial manufacturing, logistics and warehousing provision, social services and cocoa processing.
- **Tema EPZ** – The most successful EPZ and leading zone is situated in the largest seaport in the country. The Tema Export Processing Zone has a total land area of 1200 acres (480 hectares) and is regarded as one of the largest industrial and residential towns in the seaport (Angkwo, 2014:26). Tema EPZ host numerous companies including plastic products, cocoa processing and manufactures housing supplies. The competitive edge that the region has in comparison to other EPZs are the location of the Tema EPZ, which are situated in the biggest port terminal with quality road infrastructure and remain the most significant EPZ in Ghana.
- **Sekondi EPZ** – The Sekondi EPZ situated in the Sekondi-Takoradi port has a total land area of 2200 total acres (880 hectares) and is mostly signified as region with significant oil industries and gas related activities, however, no new significant development activities have been taken place recently (Boafo, 2018).

The Industrial Development Associations (IDA) together with the Investment Gateway Project have financed \$50 million for the development of both hard and soft infrastructure (Tyson, 2018:6). The hard infrastructure included aspects such as the new water connections, electricity supply, sewage availability and road access, while the soft infrastructure included regulatory and legal reform for the creation of Ghana Investment Promotion Council to draw foreign investments (Tyson, 2018:6).

The most notable SEZ the Tema EPZ attracted \$16 billion and more than 3000 investment projects, however, the EPZs continued to face water and electricity restrictions (Tyson, 2018:6). The lack of services availability led to some of the SEZs not being as so effective as those in other developed countries (Florence *et al.*, 2017:20). The SEZs also did not serve local interest by means of employment creation and regional economic development, however, they were rather shaped under a political arrangement that led to insufficient liberalisation externalities (Moberg & Tarko, 2021:125).

#### ▪ **Operational functions of the EPZs**

In order to safeguard direction between nationwide investment policies and investment in SEZs, at least one of the members (Export Promotion Council or Ghana Investment Promotion Centre) should be part of the investment board and be regarded as non-voting representatives of the zone group (ICG, 2019:15). The SEZs in Ghana have independent boards to regulate the operations of the zones to avoid political interference in the zones, which include the Free zones Board in Ghana (ICG, 2019:10).

The free zones in Ghana is entirely driven by the private sector, however, government have a restricted control to monitor, regulate and enable the undertakings of the organisations, operatives and developers (Angkwo, 2014:24). The aim of the Ghana Free Board Zone is to assist in changing Ghana to be the “Gateway to Western Africa” by means of establishing free zone incentives and control of an effective “one-stop-shop” to encourage investments both domestically and internationally (Angkwo, 2014:24). According to the ILO (2021) the functions of the Board are as follow:

- Present licences to aspirants.
- Promote applicants for licences, facilities and certifications.
- Assess the approval agreements relating to the development and procedures of the FTZs.
- Supervising the operations, development and functioning of the organisations and free zone developers.
- Safeguard agreements by both the firms and the free zone developers under the Free Zone Act.
- Monitor and keep documentation and the data on the programmes of operatives, firms and developers.

There are various incentives of the Free Zones Board of Ghana, some of which include both fiscal and non-fiscal incentives. The fiscal incentives provided to firms include aspects such as (Angkwo, 2014:27):

- Organisations situated in the FTZs are relieved of 100% for the disbursement of both indirect and direct taxes from imported products used in the manufacturing of goods within the FTZs.

- Income taxes payment exempted on earnings for first year and valid for 10 years.
- The rate of income tax will not exceed 8% after 10 years of operation.
- Dual taxation exempted for employees and foreign investors.
- Taxes are exempted from dividends received by the shareholders in the firms.

The non-fiscal incentives include the following aspects (Angkwo, 2014,28):

- Import licensing are non-compulsory.
- Marginal customs regulations and preshipment assessment are not mandatory.
- Financial controls such as restrictions on earnings and payments will only be controlled by the organisation and not the FTZs.
- Investors can administer foreign accounts with domestic banks and guaranteed adjacent to expropriation and nationalisation.
- A minimum of 70% of all the manufacturing goods should be exported, while at least 30% of the produced goods should be sold on the local markets.

#### 4.5.2 An overview of Ghana’s success factors

The EPZs in Africa found it difficult to integrate into the world markets, however, these situations have changed over the past few decades (Angko, 20142). As a result of severe economic hardships such as severe poverty and income inequality the government decided to implement export processing zones under the regulation of the Ghana Free Zones Boards.

The introduction of free zones during the 1990s led by Ghanaian government indicated that it would improve competitiveness, create employment and boost local investments, however, none of the EZs enjoyed major success (Moberg & Varko, 2021:131).

Table 4.36 shows the microclimate success factors for African SEZs. The factors are not necessarily “success” factors but rather “challenges”, however, it gives a brief overview of how SEZs can transform the state of affairs to successfully implement EZs on the continent.

**Table 4.36: Microclimate challenges for Ghanaian SEZs**

Success factor	Elements affecting the success factor
<b>Physical infrastructure</b>	The IDA and the Investment Gateway Project invested more than USD 50 for the investment of both hard (water connections, electricity supply, road access) and soft infrastructure (regulatory and legal reform). With a major investment plan of USD 16 billion and more than 3000 investment projects, the government still faced difficulties in

	terms of water and electricity provisions. The physical infrastructure of the FTZs is substandard.
<b>Operations</b>	The World Bank stated that the Ghanaian SEZs are some of the world's top designed, most innovative and most adaptable SEZs and their operations expand to all different sectors of the economy. Even though the country invests large amounts of capital in the EPZs such as the Shama EPZ, Ashanti EPZ and Sekondi EPZ, the only EPZ with major success is the Tema EPZ situated in the largest seaport of Ghana.
<b>Incentives</b>	<p>There are various incentives that the Free Zones Board of Ghana, some of which include both fiscal and non-fiscal incentives. The fiscal incentives provided to firms include aspects such as:</p> <ul style="list-style-type: none"> <li>▪ Organisations situated in the FTZs are relieved of 100% for the disbursement of both indirect and direct taxes from imported products used in the manufacturing of goods within the FTZs.</li> <li>▪ Income taxes payment exempted on earnings for first year and valid for 10 years.</li> <li>▪ The rate of income tax will not exceed 8% after 10 years of operation.</li> <li>▪ Dual taxation is exempted for employees and foreign investors.</li> <li>▪ Taxes are exempted from dividends received by the shareholders in the firms. The non-fiscal incentives include the following aspects (Angkwo, 2014,28):</li> <li>▪ Import licensing are non-compulsory.</li> <li>▪ Marginal customs regulations and preshipment assessment are not mandatory.</li> <li>▪ Financial controls such as restrictions on earnings and payments will only be controlled by the organisation and not the FTZs.</li> <li>▪ Investors can administer foreign accounts with domestic banks and guaranteed adjacent to expropriation and nationalisation.</li> <li>▪ A minimum of 70% of all the manufacturing goods should be exported, while at least 30% of the produced goods should be sold on the local markets.</li> </ul>
<b>Management and organisation</b>	The EPZs situated in Ghana are operated by the private sector and the public sector plays a significant role in the establishment of the EPZs. The free zones are driven by the private sector, however, the government have some control over aspects such as the regulations and monitoring over the firms, developers, and authority. The Ghana Free Board Zone execute functions like the *presentation of licences to applicants, *Accessing the approval agreements relating to the procedures and development of FTZ's, * Supervising the operations, functioning and development of free zone developers, *safeguarding agreements by developers and firms under the Free Zone Act and * monitoring and document the data on the programmes from operations, firms, and the developers.
<b>Financial capabilities</b>	Even though the IDA and the Investment Gateway Projects financed nearly USD 50 million towards the development of infrastructure the overall financial capability from the government is not sufficient for new investors, especially since the infrastructure development is inferior.
<b>Innovation</b>	The country does not utilise innovation as a primary objective of economic growth and development. The country focuses more on the primary sector as the main element for income generation and innovation is limited within the EPZs.

Source: Author's compilation

Table 4.37 shows the mesoclimate success factors for Ghanaian SEZs. The table show that SEZs in Africa have not been implemented as initially planned and EPZs donot contribute largely towards the

economy, however, if government implement a “blueprint” such as the success factors used in China, there is a possibility for SEZs to contribute significantly towards the economic growth of the country and the continent as a unity.

**Table 4.37: Mesoclimate challenges for Ghanaian SEZs**

Success factor	Elements affecting the success factor
<b>Labour</b>	The SEZs does not contribute significantly towards employment contributions or creating linkages with local industries. The political influences lead to insufficient liberalisation externalities.
<b>Land / Location</b>	The country possesses a wide variety of land areas especially within the EPZ regions, however, most of the land are vacant with limited development.
<b>Regional economic development</b>	The EPZs perform limited tasks to improve the regional economic development, for example the local organisations have limited guidance towards business opportunities with the EPZs.
<b>Value chains</b>	The value chains in the EPZs are very limited due to the difficulty for the country to adequately integrate into the world markets, however, in recent years there has been some transformation.

*Source:* Author’s compilation

Table 4.38 shows the macroclimate “challenges” that negatively affect EPZs to be implemented as a gateway project to attract new investments. Policies and government support are some of the major concerns that negatively affects the implementation of new and established operating SEZs.

**Table 4.38 Macroclimate challenges for Ghanaian SEZs**

Success factor	Elements affecting the success factor
<b>Policies</b>	The introduction of EPZs were first introduced in the late 1990s to improve competitiveness, grow the economy and expand exportation, which were administered by the Free Zones Board of Ghana. The aim of the Ghana Free zones Board is to help in changing Ghana to be the “Gateway to West Africa” by means of effective “one-stop-shop” to encourage investments both internationally and nationally. Despite the initial investments, the policies surrounding the EPZs are vague and unclear with limited development and activities taking place within the EPZs.
<b>Government support</b>	The EPZs are administered by the Ghana Free zones Board and from 2005 the authority supported a universal approach to the development of SEZs by establishing the Ghana Trade and Investment Gateway Project and the Ghana Free zones Board, which guides the EPZs. The goal of the Free zones Board is to have an independent institution to regulate the operations without any outside political interferences.

*Source:* Author’s compilation

## 4.6 SYNOPSIS

Evaluating the international case studies and the best practice principles of SEZs show that these zones will only be effective if there is a level of good governance, management and strategic planning. The developed countries such as the USA do not label EZs as “special zones” but rather “foreign-trade zones”, which focuses more on the geographical bounded regions where goods are managed, reserved, processes and used without paying any added custom duty costs on the products, which creates specific trade advantages for organisations. The specific regions are therefore utilised only as a region to facilitate free trade, rather than physically manufacturing or producing products before being distributed.

The FTZs in the USA were not implemented for reasons such as employment or economic development but instead these FTZs were established as a method for global competitive price competition and cost efficiency by means of technological improvements for production techniques. In 2017 it was publicised that there are 277 FTZs and 545 subzones, which contributed significantly towards exportation, especially petroleum refining. The firms enjoy numerous benefits such as duty exemptions, reduced taxes and levies and supply chain efficiencies. The FTZs in this country is networked, which makes transport more efficient and reduces all unnecessary costs involved in the distribution process. For the organisations and firms operating within the FTZs there are several benefits such as duty rescheduling, quota influence and exhibition advantages as well as reversed tariff and local tax relief. The foreign-trade zones management include parties such as the US Foreign-trade Zones Board, the CBP, grantee and the operators, which all fills a very important role in the trade zones.

The reasons why FTZs in America are so successful is due to their efficiency in transportation, networking between zones and the strategic location of these FTZs (near other subzones). The efficiency in distribution contributes largely towards the success of these zones and the overall management, governance, administration and the political influence from leaders. In the same way that Porter’s theory of clusters and its value in modern economics it is also necessary to look at the success factors of tech clusters and their integral role in the promotion of regional economic development within various firms operating within the SEZs.

In Europe there is a limited amount of only 105 SEZs of which 5 of these SEZs are under-developed, however, the majority of SEZs in Europe are controlled by the government. The term “free economic zones” are used in Europe, which are based on the same principle as “foreign-trade zones”, which focuses on goods and commodities that are positioned in areas free from VAT and other duties. The number of SEZs are limited due to the significant role of the EU and their influence on trade policies within the union.

Poland is regarded as the only country with significant success with SEZs. First established in 1995, Poland now have 21 SEZs of which 14 of these zones are SEZs and the other 7 zones are FTZs, and all of them are privately owned. The Polish administration applied SEZs as an instrument for position-centred policy, which focussed specifically on employment and new investments. The success factors of SEZs in a country such as Poland is the excellent governance and leadership from government and administration, as an example, the firms must declare the amount of new jobs they intend to create and the investment expenses they want to accomplish, only then financial support will be allowed.

The Polish government focuses a major part on the promotion of new business development and the promotion of local and regional support in the form of providing incentives to the firms and organisations. The Polish government provide different incentives to the different sizes of businesses, for example, 25-50% tax exemptions for large organisations, 35-60% for medium-sized businesses and 45-70% for small businesses. There are various benefits for organisations situated in SEZs such as infrastructure development, tax exemptions, legal assistance and creating effective partnership formations. The government support is excellent by means of their business support for SMEs training assistance and plans for investing in the current SEZs. The government focuses more on expanding their current EZs rather than limiting the development of SEZs.

Other countries in Europe such as Bulgaria and Lithuania experienced small success in terms of SEZs. The reason why these countries found limited success were due to the red tape and regulations from the European Union and most of the SEZs are controlled by government, which illustrated little success.

Lithuania in the same sense also found limited success due to the limited funding from the EU to implement and establish SEZs in the country. The country does enjoy some success since it is ranked 3<sup>rd</sup> in terms of operations, just falling behind Poland and the USA. The one FEZ that enjoyed major success is the Klapeda FEZ in Lithuania because it is located on the coast of Lithuania, which makes trade easier and more efficient. Bulgaria found significant success in only one of their SEZs namely the Rakovski IDZ situated near Plovdic city due its strategic location since 5 out of 10 trans-European corridors pass through the nation and 3 out of the 5 passes through the Rakovski IDZ.

The Lithuanian government is very stringent and organisations should get certification from the FEZ management company to create activities. The Lithuanian government offers various incentives that are very important such as a fixed corporate income tax of 0% for the first 6 years and then 7.5 % over the following next 10 years. Investors tend to invest in Lithuania due to its significant infrastructure quality, business-friendly atmosphere and the offering of financial incentives. The drawback of investing in Lithuania is the insignificant amount of land space available.

Within the ASEAN countries it is indicated that the economic union situated in Southeast Asia is one of the most successful intergovernmental organisations in the world and a key influence in world trade. The countries focus a lot on attracting foreign investments to improve production and manufacturing while improving economic development.

The ASEAN countries focuses a lot on technological parks and high-tech zones such as Hao Lac Hi-Tech Park, which contribute significantly towards innovation and production. One such an example is the company Samsung that invested more than \$11 billion in Vietnam to produce their products. Most countries of the ASEAN group have insignificant environmental resources, which is a major obstacle for the economic development of the countries.

The government play a significant role on export promotion and import substitution as a strategy for economic growth. The growth of sector-specific growth is vital to the growth and sustainability which include sectors such as environmental sustainability, agriculture, renewable energy, education and sports and culture, so whenever new investments are allowed then organisations will have to invest in these sectors of the economy.

Service delivery and infrastructure development is still a major concern in some regions, which hampers economic development. The countries invest largely in machinery and equipment all of which plays a critical role in the manufacturing process. The success of the ASEAN countries' high economic growth can also be influenced by the flexible labour laws in which both parties are free to discuss the terms and conditions of the contracts. The value chains and interregional trade are all aspects that are excellent between the SEZs and the local firms.

Countries like Thailand that are part of the ASEAN group focuses significantly on manufacturing, for example Thailand has the largest car manufacturing companies in south-east of Asia and ranked 12<sup>th</sup> internationally in the year of 2016. Tax incentives provided to organisations are mostly the exclusion of duties on machinery and equipment, initial capital exclusions and the provision of non-skilled labour. The positive implementation of Thailand 4.0 is an excellent example of maintaining the development of the country as a regional hub.

In countries like Malaysia there are significant attention towards the E&E industry. The country had some difficulties in the past with regard to inadequate policy, management and ineffective labour regimes. Nonetheless, by the year 2009 the E&E reported for 56% of total manufacturing exportation and 91% in electronics, which had significant multiplier effects on the broader economy. The Penang FTZ is the most prominent SEZs in Malaysia, which has proved to be a significant processing zone for tech companies like Intel, Dell, AMD, IBM and Sony.

Natural resources are a constant problem for countries in the ASEAN countries and therefore the countries focus on manufacturing of automobiles and the E&E industry to create a competitive edge over the other countries. The funding is somehow very vague and the authority can only obtain finances by means of proposing a budget to the minister of finance in order to establish how the funding will be allocated, meaning there is a lot of red tape involved.

The government has a major influence on the establishment and functioning of the FTZs and the private sector only has 20% of all the SEZs. The ASEAN countries focuses a lot on MNEs and other types of investments, it also offers excellent customs regimes and pro-business policies with the focus of private sector development.

China can be considered as the country with the most successful SEZs. The country invests large amounts of capital on SEZs to attract technological and organisational proficiency, improving international trade, achieving positive economic growth, promote regional economic development, increase employment and produce more land rent. China invests a large portion of their capital on physical infrastructure and the local government plays a vital role in subsidising its comparative advantage. The government plays an active role and strongly support the SEZs by means of capital investments and creating linkages to the formal markets.

The success of the SEZs in China can also be contributed towards the effective PPP to address the capital limitations. The country is also successful in attracting sufficient foreign investments including low-cost land, tax breaks, instant customs clearance and duty-free imports. The management style of the SEZs in China are effective due to the fact that it includes aspects such as (a) administrative supervision, (b) administrative group and (c) dual management by partners of SEZs and government selected groups. The management and operations of Chinese SEZs are therefore very effective and efficient which contributes largely towards the success of the SEZs in the country.

Innovation plays a critical role in all the industries and markets of the country and the government emphasises the importance of R&D infrastructure and exclusive incentives to attract high-tech companies. The labour laws are very effective and it is a very labour-intensive workforce and focuses on the attraction of skilled labour, which contribute largely towards the success of the Chinese SEZs. The location of SEZs in China are situated near the coastal lines of the country, which creates political connections and better linkages with neighbouring countries and reduces other costs such as transportation and distribution related costs.

The SEZs in China are very competitive among themselves and create important value chains between the different regions. The country focuses a lot on “open-door” policies to avoid political interference. The success of Chinas SEZs are highly underwritten by its gradualist approach towards reform, meaning

that policy is implemented in a step-to-step approach as supposed to changing all policies at once. The local economy plays a significant role in the success of SEZs and some elements include efficient administrative and regulatory systems and the provision of adequate infrastructure development.

SEZs or “FTZs” in Africa have experienced little success over the past few decades. In general, the African countries have not integrated into the world markets, however, over the past few decades the continent experienced a major structural shift. Most of the zones were established in the 1990s, which are relatively late in comparison to other developing countries.

The government of Ghana decided to implement FEZs as a method to improve competitiveness and to achieve objectives such as export promotion and economic growth. The government plays a significant role in the establishment of the EPZs, which may be seen as an obstacle for the effective operation of EZs.

Ghana received a large amount of capital to establish EPZs in the country, however, limited success was acknowledged. The IDA and the Investment Gateway Project financed more than USD 50 million for the development of hard and soft infrastructure. With the significant number of investments, the EPZs struggled to operate because of water and electricity restrictions.

The benefits of establishing EPZs on a continent such as Africa are that the continent has major land availability and significant natural resources, however, the infrastructure and political influence has a negative impact on the successful implementation of EZs. Despite the fact that the country provides both fiscal and non-fiscal incentives for the zones in order to encourage investments, there are limited investments to the continent.

Studying the success factors for most of the developed countries and the developing countries, it is crucial to point out some aspects that will have a positive effect on established zones. Good governance, adequate management and strategic planning are needed to implement a successful zone. From the case study of the USA, the researcher noticed that networks play a significant role to make transportation more efficient. From the European SEZs the researcher noticed that business support, infrastructure development, strategic locations and excellent governance are needed for any successful SEZ.

The ASEAN countries focussed more on innovation in their production, the key role that export promotion and import substitution plays in the trade environment. Sector-specific growth is very important and should be clarified before a SEZ is established. Excellent value chains and interregional trade plays a significant role in the creation of adequate forward and backward linkages. Flexible labour laws are needed to successfully operate as an entity in order to create the best cost-effective operations.

From the Chinese SEZs it is noticed that large investments of capital are needed to attract technology and organisational proficiency. The local government plays a significant role in the administration and management of the SEZs by creating an enabling environment. Effective PPP are needed to create a synergy between the public and private sector in terms of business operations and governance. An “open-door” policy is needed to accommodate new organisations and firms who want to start a business and are able to indicate their strengths and opportunities to authority. Innovation plays a significant role in China and can be seen as one of the most important aspects that creates opportunities and assist the organisations in finding efficient production techniques.

## CHAPTER 5

### RESEARCH DESIGN AND METHODOLOGY

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#### 5.1 INTRODUCTION

Chapter 4 focussed comprehensively on international case studies and best practice principles of SEZs. The chapter described the types of EZs used in various parts of the world and the success factors of each country. Chapter 4 focussed on the types of EZs used in various parts of the world, the history of EZs, the different terms used for zones, the location of the SEZs, the number of SEZs in the country as well as the effectiveness of government to manage and operate these zones. The chapter showed the competitive advantages and industry strengths of each country as well as the incentives presented by the respective governments and zone management.

Each country was assessed based on 12 success factors on a micro-, meso- and macrolevel. The microclimate success factors included aspects such as infrastructure, operations, incentives, management and organisation, financial capabilities as well as innovation. The meso (region specific) success factors included the features of the labour markets, land availability, location advantages, regional economic development advancement and value chains such as forward and backward linkages and local sourcing. The macroclimate included the governments policies for establishing SEZs, which include aspects such as the standards of the customs regime, the enabling environment, business policies and government support.

Chapter 4 showed that most of the countries in the developed world does not necessarily use SEZs to create employment or to increase productivity with a specific region but a rather a trade zone where goods are managed, reserved and processed without having to pay any custom duties. The specific regions are used as territory to facilitate free trade rather than physical manufacturing or production. Some countries in Europe such as Poland do have moderate success with SEZs since they have 14 SEZs and 7 FTZs with an estimate €32 billion in accumulated investments. The common success factors in the developed countries include excellent leadership and governance from authority, as well as the management and oversight of SEZs in the countries.

The chapter also shown that countries in the developing world tend to have adequate success, however, in most of these countries the zones are still in the developmental phase as supposed to the operational level. The ASEAN countries have a significant amount of high-tech zones and technological parks, which focuses specifically on digital development.

The objective of these zones is to promote exportation and to substitute imports by means of product and service development in order to attain economic growth. Infrastructure development and service

delivery by government continues to be a major adverse factor for effective operations and adequate economic development. The success of the ASEAN countries' high economic growth can also be influenced by the flexible labour laws in which both parties are free to discuss the terms and conditions of the contracts. The value chains and interregional trade are well-established between the SEZs and the local firms.

The only country that had the most success is China. Its substantial amounts of capital investments are used to draw organisational and technological proficiency, increasing international trade, achieve positive economic growth and lastly, to promote regional economic development. The country invests a substantial fraction of capital and investments on physical infrastructure to enhance its comparative advantages and creating linkages with the formal markets. Another contributing factor for the success of SEZs in China is the effective partnership between the public and the private sector as well as its open-door policy to avoid political interferences.

Countries in Africa enjoyed insufficient success in terms of the establishment and operations of SEZs. The major problem faced by countries situated in Africa is its deficient infrastructure developments and the political influences. Except for the lack of infrastructure and influence from government its also eminent to employ adequate management and good governance so that the long-term planning is executed.

The goal of Chapter 5 is to explore the research approach of the study. Section 5.2 assesses the several types of research paradigms. As this study follows a a mixed-method study approach i.e., qualitative and quantitative, it uses both the interpretivism and positivist research paradigm approach. Section 5.3 and 5.4 focus on the research approach and methodology, which signifies the data collection method for both the qualitative and quantitative approach. The qualitative data collection method is structured interviews, which includes the questioning and listening to the recorded material from the individual and finding relative themes and premises to the questions asked.

The quantitative approach focuses on the secondary data analyses methods, which include techniques such as the economic baseline studies (i.e., input-output tables analyses) as well as economic dynamic analysis (i.e., shift-share analysis that are derived from the location quotient). The data are acquired from Quantec Easy Data (RSA standardised regional data), however, the results are calculated separately on Excel. The Excel spreadsheet are used to calculate the industry mix share (to evaluate whether employment in the industry and region grew above the national average) and the competitive effect (which measures the share of employment in that specific industry of the region).

The final calculation for the shift-share analysis is the national effect, which calculates the total employment in the industry and region by the percentage growth in employment for that specific area.

The shift-share analysis then shows in which industries did the overall competitiveness improve in the specific region compared to that of South Africa. The final calculations was to acquire the input-output tables by means of the SLQ, CILQ as well as the RegioFLQ, which ultimately estimated the regional input-output tables for both the Nelson Mandela Bay Metro as well as the Buffalo City Metropolitan Municipality. The regional input-output tables are utilised to calculate the technical coefficients, the effects of forward and backward linkages as well as the final demand multipliers (Type I and Type II).

## **5.2 EXPLAINING RESEARCH**

The purpose or aim of research is based on two underlying factors including (i) the ability to expand one's knowledge within the field of study and (ii) to enhance the understanding of the subject to assess any new expansions within a specific field (Morgan, Gliner & Harmon, 1999:217). Research can be described as the action of examining a research topic in a systematic and organised manner in order to increase one's knowledge of a specific field or subject (Amarantunga *et al.*, 2002:17, Tress *et al.*, 2006:13).

Research is the art of scientific exploration or the progress of moving from the known to the unknown (Çaparlar & Dönmez, 2016:212). In academics, research is the action of defining, redefining difficulties, creating hypothesis, co-ordinating and assessing data to make worthy conclusions and suggestions. The significance in research can be described as a tool to find solutions on current theory and adding information by the results obtained in the study itself (Bhattacharjee, 2012:1).

The research design and methodology are an imperative part of any study (Baker, 2017:155). The design and methodology can be regarded as a design for a research project and includes some very essential aspects such as the research question, the intervention needed to measure the specific data, the data collection measurements and overall background of the study (Baker, 2017:155). There are several ways of pursuing the research objective, some studies require qualitative data collection methods or quantitative research collection methods or a mixture of both (Schoonenboom & Johnson, 2017:108).

In this study, a mixed-method approach was followed. As suggested by Turner, Cardinal and Burton (2017:246) the use of a mixed-method approach needs to achieve a few objectives such as (i) its proficiency to amplify generalisation with the regard to the population, (ii) its accuracy in measurement and influence of the variables related to performance of interest and (iii) its capability to supply legitimacy of the framework for the perceived behaviours.

### **5.2.1 Types of research**

Figure 5.1 illustrates types of research that may be used in any research study. The research objectives are divided into two categories, namely pure research and applied research.

### 5.2.1.1 *Pure research*

Pure research can be described as a type of research aiming at the scholarly standards of the higher institution rather than the business or governmental plans of immediately achieving social change (Castañeda, 2005:96).

### 5.2.1.2 *Applied research*

Applied research on the other hand, shows the practicality and fieldwork that arises from and works within the forceful frictions between the verbalisation of pure and applied research and the subject-object contrasts (Castañeda, 2005:98). Applied research, therefore, focuses more on the objective of gaining new information from a study that were not utilised in any other institution or organisation before (Aspers & Corte, 2019:146). The goal of the applied research is therefore not to seek the unanswered questions but rather to unravel common problems that exists and using the proof as evidence of the initial problem statement (Baimyrzaeya, 2018:6).

## 5.2.2 **Research applications**

The types of research applications include descriptive research, explanatory research, correlation research as well as exploratory research.

### 5.2.2.1 *Descriptive research*

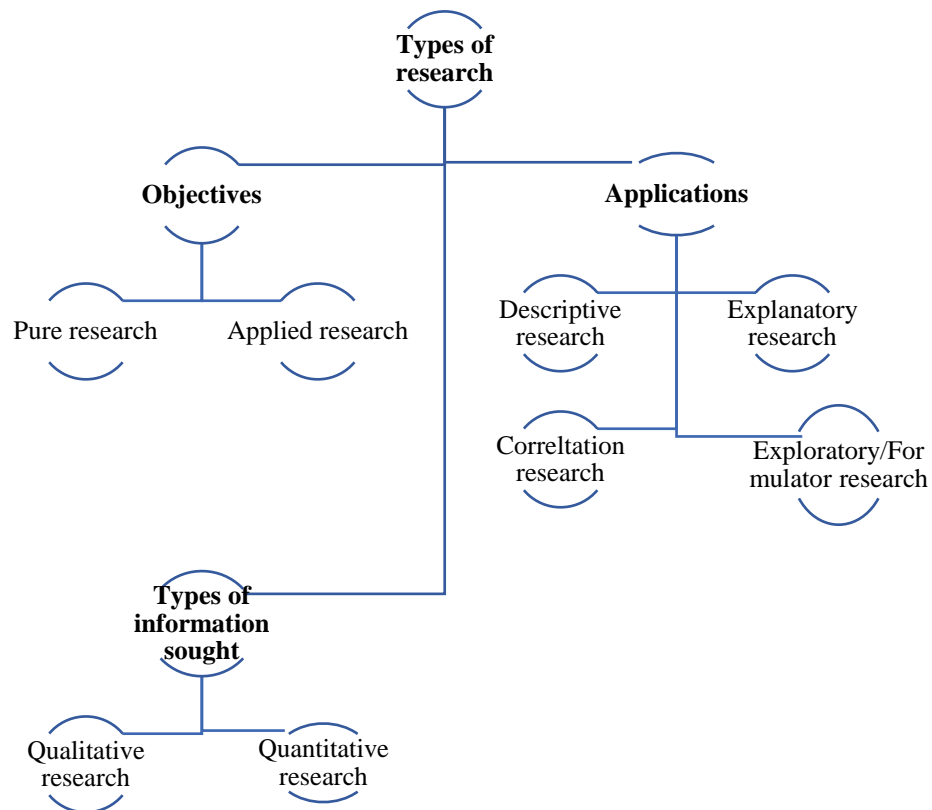
Descriptive research is the uninterrupted assessment, description and investigation of the specific research problem, as free as possible from inexplicable assumptions, aiming at supreme instinctive presentations (Streubert & Carpenter. 1999:49).

### 5.2.2.2 *Exploratory research*

Exploratory research is the research design aimed at finding new creation in the study field. In other words, this type of research has not been done in a specific field and may sometimes be riskier than other types of research (Swedberg, 2018:2).

### 5.2.2.3 *Correlation research*

Correlation research is a type of research whereby the researcher evaluates the relationship between variables, for example the relationship between inflation and economic growth (Williams, 2007:66).



**Figure 5.1: Types of research**

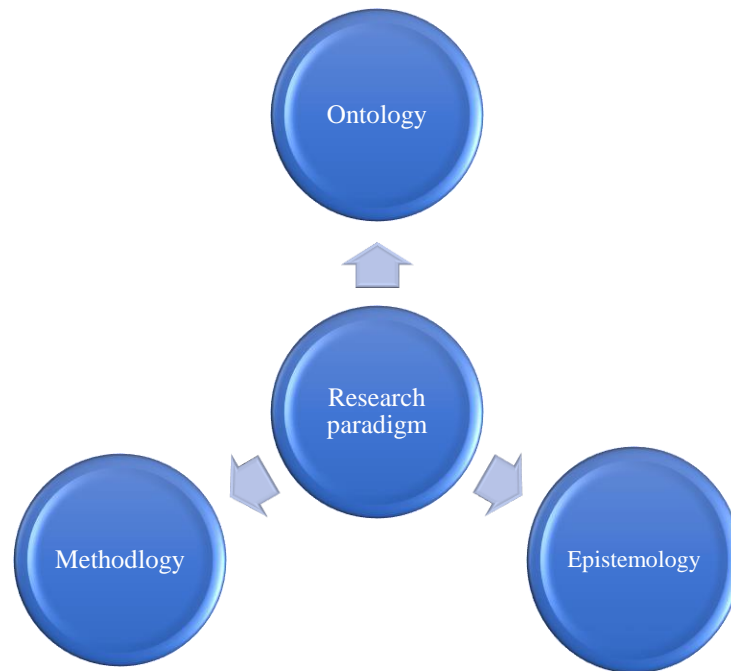
*Source:* Maree (2016:104)

### 5.3 RESEARCH PARADIGMS

A research paradigm describes the researchers' thinking and opinions about their world or worldview (Lather, 1986:259). It signifies the conceptual principles, beliefs and viewpoints that influence how the researcher understands the world and the way in which he or she functions and sees the world, and the way they act within that environment (Kivunja & Kuyini, 2017:26).

The research paradigm on the other hand refers to “the set of mutual agreements and beliefs shared between researchers and scientists about how challenges should be directed and apprehended” (Kivunja & Kuyini, 2017:26).

According to Thomas (2010:1), there are three main dimensions of a research paradigm, which include the ontology, epistemology and the methodology as illustrated in Figure 5.2. These dimensions are all-covering schemes of interconnected thinking and repetition that define the character along these three proportions.



**Figure 5.2: Components of a research paradigm**

Source: Bangura *et al.*, (2019:41).

Ontology is based on the universal suppositions created to distinguish the real nature of civilisation (Žukauskas, Vveinhardt & Andriukaitienė, 2018:124). It studies the fundamental idea system of the researcher, about the landscape of being and the existence (Kivunja & Kuyini, 2017:27). Epistemology refers to the theory of knowledge and the way in which the knowledge is gathered, from which resources (Tennis, 2008:103).

Wu (2011:1) explains that epistemology focuses on sources of people’s cognitive capability, cognitive quality, the cognitive structure and the relationship between factual truth and cognition. Epistemology therefore is the researchers’ view of the world and their knowledge powerfully affects your understanding of the data and therefore your philosophical perspective should be certain from the start (Ahmed, 2008:3). Epistemology explains the broad assumptions and limitations that are related in a tremendous way to investigate the real world (Žukauskas *et al.*, 2018:124). While methodology defines the various methods used by the researcher to investigate the various status quo (Ahmed, 2008:5).

In academics, there are three various methods used in educational research, which include interpretivism, critical theory and positivism (Rehman & Alharthi, 2016:52). The study is based on the measurement of regional economic development and the evaluation of stakeholder’s perceptions within SEZs, both positivist and interpretivism. The data analysed involves empiricism and realism whereby the researcher has factual knowledge (data) and interpretivism, which include the qualitative enquiry and constructivism.

### **5.3.1 Post-positivism**

Post-positivism is an approach whereby the researcher bases their study on a principle in universal principles, neutrality and objectivity (Seltman, 2015:4). The positivism phenomena are evaluated and verified by actual evidence (Pham, 2018:2). This paradigm focuses on the “*scientific*” research paradigm, which tries to examine, forecast and confirm law-corresponding designs of conduct and are most often used in graduate research to evaluate hypotheses and theories (Taylor & Medina, 2011:3).

This paradigm most often uses experimental approaches, quantitative methodology and experimental management of pre- and post-test to determine gain scores (Taylor & Medina, 2011:3). The post positivist approach can sometimes be undependable since the researcher’s belief is that the world forms of definite and unaltered actuality which can empirically be measured (Rahman, 2017:102).

### **5.3.2 Interpretivism**

Interpretivism researchers focus more on the human nature of research and that research should be analysed and defined in a subjective way rather than in an objective way (Rahman, 2017:102). The interpretivist epistemology is based on the exact opposite approach of the positivism research paradigm and grounded on intersubjective knowledge comprehension (Taylor & Medina, 2011:5). This research paradigm is the sustained activity of interface started by ethnographers who engage themselves with the civilisation that they are studying (Taylor & Medina, 2011:5).

Interpretivists see intentions and implications behind people’s activities such as relations and conducts with other parties in civilisation (Chowdhury, 2014:433). Chowdhury (2014:433) further explains that the researchers do not only look at the relationship of the context, but on ways in which it is proven and the framework in which it happens.

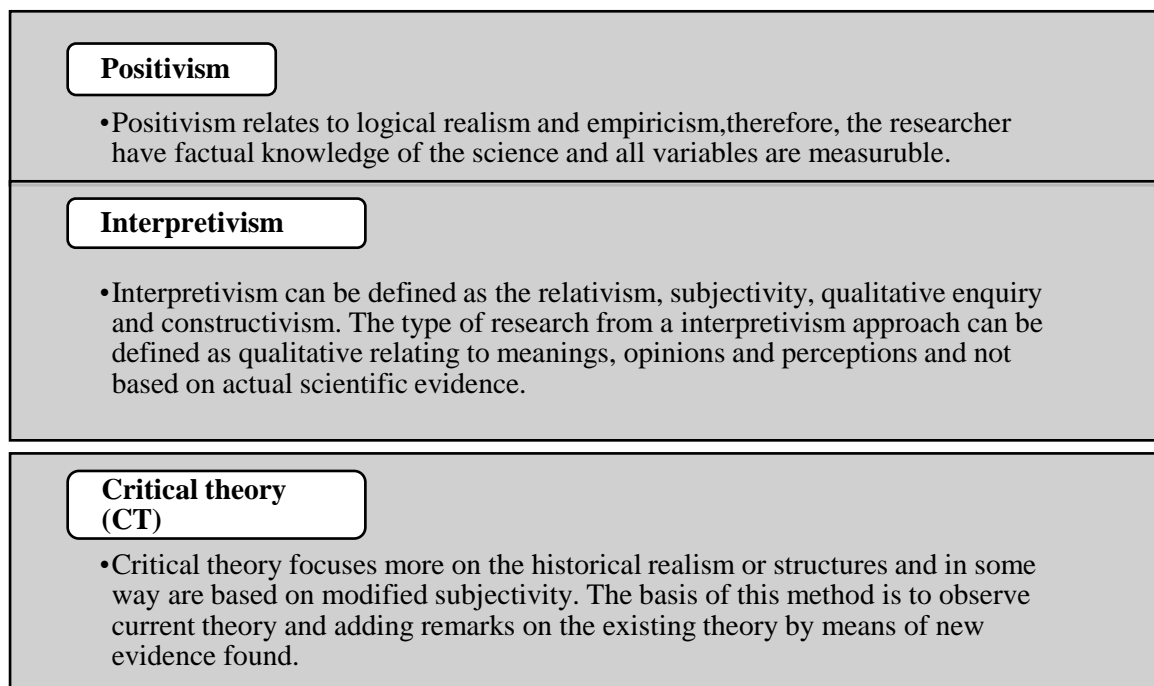
There are limitations with the use of the interpretivism research paradigm. One of these constraints are the fact that the complexity of the phenomena makes it difficult to simplify the results to other researchers in the same framework to confirm the rationality and practicality of research results with using scientific methods (Pham, 2018:4). Pham (2018:4) further states that the limitation associated with interpretivism is the deficiency of adopting the conceptual influence on knowledge and social authenticity.

### **5.3.3 Critical theory**

The critical theory paradigm or also known as the *transformative paradigm* seeks to focus on the economic, political and social issues, which lead to contradiction, struggle and social subjugation as well as power compositions at whatever stages these may happen (Kivunja & Kuyini, 2017:35). Within this paradigm, it is presumed that a realism occurs, however, it has been formed by gender, political,

cultural religious and ethnic elements that interrelate with one another to produce a social structure (Rehman & Alharthi, 2016:57).

The premises within the critical theory paradigm is a method for taking charge and the theory justifies the way that things could be (Weaver & Olson, 2006:461). Weaver and Olson (2006:461) point out that critical research appears deficient due to the fragile empirical basis and sophisticated theories and can often be described as a substitute to the original paradigms. The critical theory paradigm primarily uses qualitative methods as a basis for statistical exploration and rarely uses quantitative data as a technique and are critiqued for a lack of quality.



**Figure 5.3: Philosophical paradigms used in educational research**

Source: Own compilation, Gemma (2018:1); Pawlikowski *et al.*, (2018:1), Dean (2018:2)

### 5.3 RESEARCH APPROACH

The research design is the visibly outlined compositions within which the study applied (Mabuda, 2011:17). The research design is therefore an outline of the research strategy and the implementation of the design, the research development or methodology is the “*creation process using tools and systems*” (Sileyew, 2019:2). The research design is as a result used as a strategy to pursue and the methodology of the research is selected to verify the importance and outcome of the results (Kohlbacher, 2005:2).

The fundamental philosophical beliefs and postulations of the methodology, research, plan and research design comprehended in the research need to be reviewed (Kohlbacher, 2005:2). The research design

is a systematic reflection because it is directed by definite research questions and a research design (Blanche *et al.*, 2006:34). Therefore, the researcher focuses to draw reasonable and probable inferences or assumptions from their explanations and for this reason plans observation to safeguard that it will accomplish the overall intention of the research (Blanche *et al.*, 2006:34).

According to Moissenko *et al.*, (2016:32) there are three distinct types of research designs in quantitative studies namely: comparative, correlational and experimental, which mostly describe the relationship between the variables used in the study. Moissenko *et al.*, (2016:33) further explain that the research design for qualitative research is primarily phenomenological, which evaluates the opinions, beliefs and feelings of participants in a specific field of study.

The research design is based on three broad categories namely descriptive research, explanatory and exploratory research. The aim of using descriptive research is to provide precise features and facts of a certain population, situation or group, meaning that these studies explain, see and verify facets of a situation as it transpires (Dulock, 1993:154). The explanatory research designs are used as a method whereby the quantitative data are accumulated and then analysed to direct, refine and contextualise questions that ascend from the quantitative results (Cooke, 2020:40).

Exploratory research designs are the qualitative method towards research, rather than the quantitative approach (Hearn, 2012:38). Exploratory research is especially important for researchers with open-minded ideas on how to address the study by collecting a wide collection of different academic perspectives and forming a research approach that is flexible (Brown, 2016:27).

The research design chosen for this study is a mixed-method approach, which is the equidistant between the most popular research methods namely qualitative and quantitative research (Johnson *et al.*, 2007:112).

As explained further by Johnson *et al.*, (2007:123) the mixed-method approach is “*the kind of research in which an academic combines the elements of qualitative and quantitative research tactics (e.g., data collection, exploration and inference systems) for the distinctive objective of width and complexity of validation and understanding*”.

The collection and analyses of both quantitative and qualitative data in a chronological and/or synchronised and thorough manner that aims to incorporate both types of methods (Creswell & Clark, 2011). Almalki (2016:290) explains that the approach in which the data is linked will differ upon the characteristics of the analysis and the philosophical viewpoint of the researcher. Overall, collectively qualitative and quantitative techniques aid to investigate more multifaceted associations of the social and human world (Grafton *et al.*, 2011:6). One of the most significant advantages of a mixed-method

research plan is that throughout the assignment, a researcher can easily revisit content of the overall manuscript (Grafton *et al.*, 2011:9).

**Table 5.1: The advantages and disadvantages of a mixed-method study design**

Advantages	Disadvantages
Both qualitative and quantitative data are progressively obtainable for use in the field of social sciences.	The mixed-method strategy may be very intimidated to researchers such as time, assets and information.
The application of all techniques of data collection has restrictions, however, the use of numerous techniques can withdraw some of the disadvantages of either qualitative or quantitative methods and thereby improve the study.	Other than operative concerns, there are critique on the philosophical foundation and research method typologies.
Qualitative research plays an integral role in social sciences by finding value in the contextualised material. Due to the multifaceted occurrences of social sciences, a mixed-method approach will help researchers understand the deeper meaning of the problem.	

Source: Creswell *et al.*, (2003:164), Hafsa, (2019:46)

The mixed-method approach of this study have attributes of both the convergent parallel mixed-method and the explanatory sequential mixed-method study approach (Hafsa, 2019:45). The study therefore “integrated” or “merged” both quantitative and qualitative data to an all-inclusive investigation of the research question by the convergent parallel mixed-method approach.

The researcher will firstly evaluated the quantitative approach of the study followed by a qualitative approach towards the study, which helps to explain the results more decoratively (Hafsa, 2019:46). The qualitative research method involves the use of structured interviews with various stakeholders from the various IDZs in South Africa as seen in ANNEXURE A.

## **5.4 RESEARCH DESIGN**

Research design entails the methodical techniques by which the researcher starts from the preliminary detection of the problem to its final closing stages (Soiferman, 2010:2). The aim of the methodology is to conduct the research work in a justifiable and scientific approach (Singh, 2006:79). The methodology focuses on the way in which the researcher conducts research and the way in which the researcher will deal with the approach (Jonker & Pennink, 2010:17).

The methodology presents the systems and tools by which the researcher will direct the research problem, however, the researcher should use the most suitable technique to analyse the data in the most precise manner (Singh, 2006:79). The most basic actions of the research methodology include elements

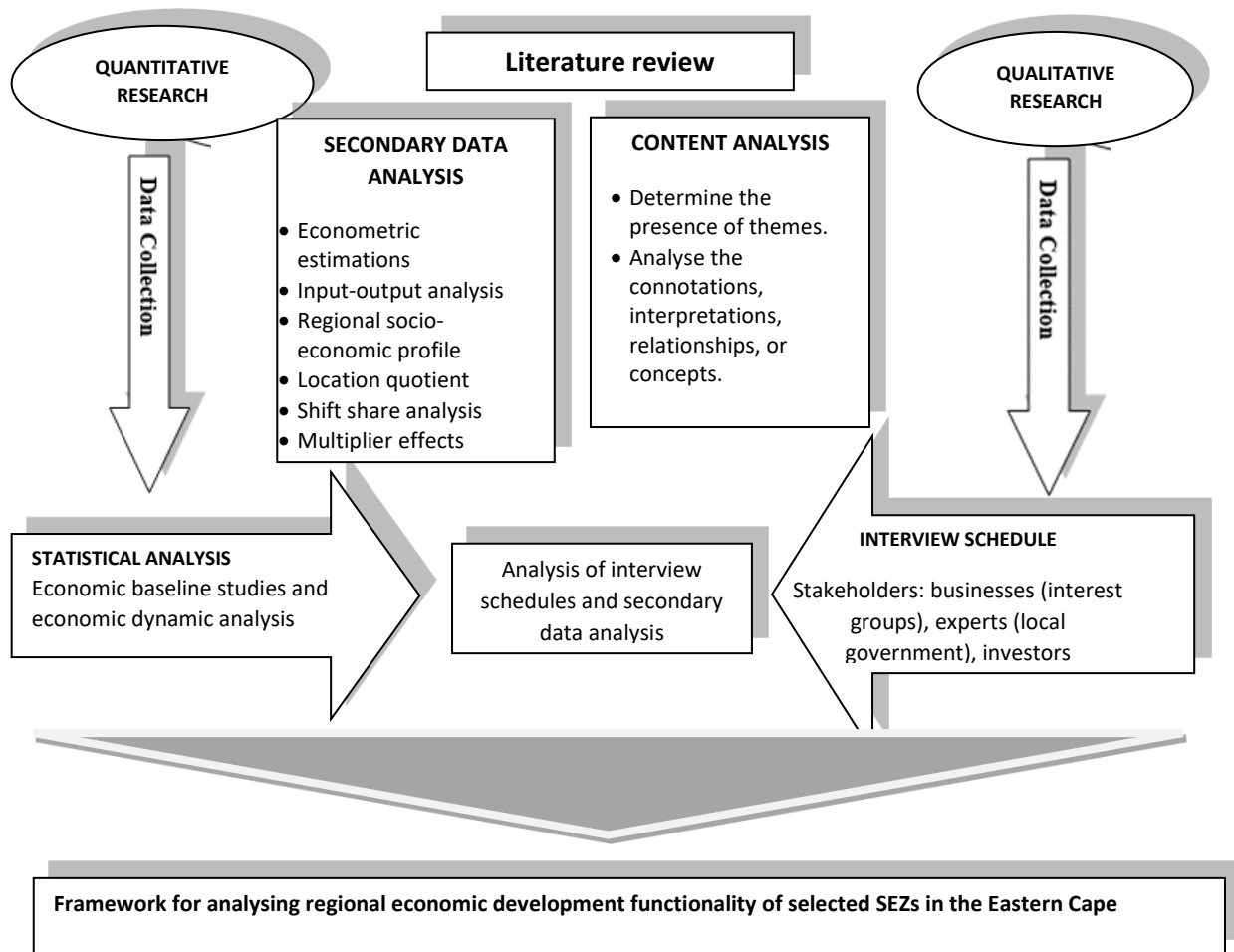
such as reviewing literature, conveying propositions, measurement, data compilation, exploration of data, decoding results and outlining conclusions (Singh, 2006:79).

The research methodology explains the theory of methods used to conduct the research with reference to the title and problem statement (El-Gohary, 2010:2). The methodology therefore refers to the method of choice to undertake the research, and the most predominant methodologies used in social sciences are qualitative and quantitative research methods (Wahyuni, 2012:72). The selection of the specific research methodology for this research are mixed-method research, which is regarded as new and embryonic type of research paradigm (Johnson, Onwuegbuzie & Turner, 2007:112).

The mixed-method strategy is the equidistant between the most popular research methods namely qualitative and quantitative research (Johnson *et al.*, 2007:113). Mixed-method types of research can be regarded as an approach to gaining existing knowledge of both theory and practice and tries to reflect on opinions, perceptions and standpoints (Johnson *et al.*, 2007:113). Understanding the research methodology unwavering improves understanding of the research undertakings, therefore it can be concluded that the methodology and design have the same objective, which is to demonstrate the mapping plan of research (Sileyew, 2019:2)

The primary objective of this study is to evaluate the regional economic development functionality of selected SEZs in the Eastern Cape of South Africa. Secondary data will firstly be collected to get a descriptive profile of South African SEZs related to business and commercial information. The data were also used as a measurement of evaluating the level of regional economic development within the municipal boundaries of the SEZs followed by in-depth interviews with various stakeholders within these SEZs, which is a qualitative method towards the study.

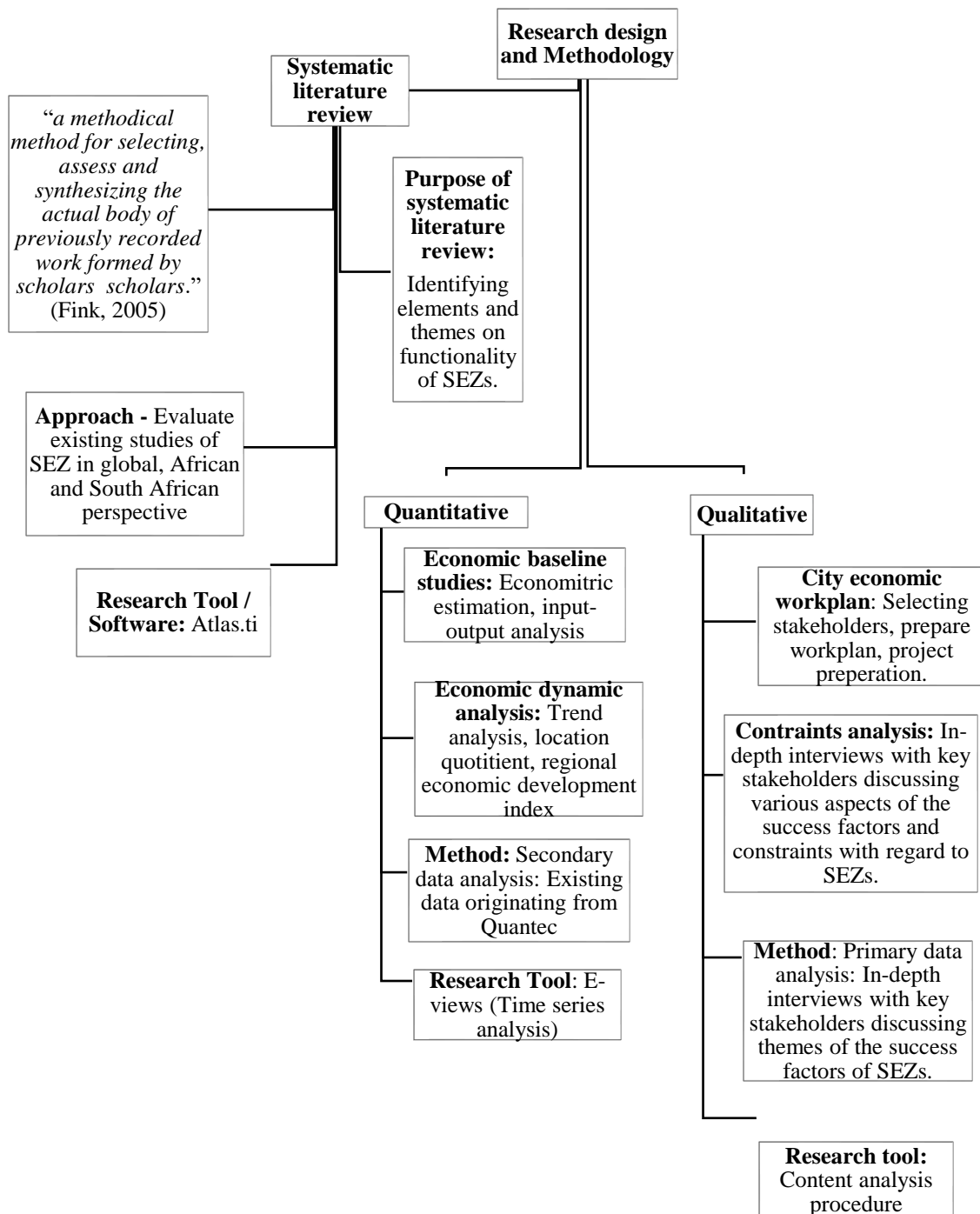
Figure 5.4 is an illustration of the research design and methodology used in the study. The first part of the study “SLR” focuses on the existing literature with regard to SEZs and the analysis of how the different SEZs in different regions were evaluated. The ultimate purpose of the SLR was to find themes and elements relating to the functionality of SEZs.



**Figure 5.4: Workflow diagram of research methodology**

*Source:* Own compilation

The research design and methodology incorporate a mixed-method approach of both quantitative and qualitative research methods. The quantitative approach focussed more on economic baseline studies such as input-output analysis, shift-share analysis and intersectoral linkages (multiplier effects). The economic dynamic analysis was also followed, which include the trend analysis, location quotient and the regional economic development index for the various metropolitan municipalities where the SEZs are situated.



**Figure 5.5: An illustration of research design and methodology applied in this study**

Source: Own compilation, Sileyew, (2019)

### 5.4.1 Qualitative method

Qualitative research includes phenomenology (describing the structures of experience), ethnography (systematic study of individual cultures), inductive thematic analysis (identifying, studying and decoding blueprints of meaning), grounded theory (constructing theory from data), case study

approaches, narrative analysis as well as discourse-dialogue analysis (Guest, Namey & Mitchell, 2013:2).

The purpose of qualitative data research is therefore to illustrate occurrences and concerns from the point of view of the specific individual or population that are being studied and therefore to create new theories and conceptions (Mohajan, 2018:2). Qualitative research therefore focuses more on the “why” rather than the “what” of modern social occurrences and as a result depends on the understandings of human beings as the “meaning-making” representatives in their daily lives (DiCicco-Bloom & Crabtree, 2006:340).

The qualitative data collection methods include a wide range of procedures including focus group discussions, observations, interviews and other methods such as rapid assessment procedure (RAP), pile sort and life history (Nyumba *et al.*, 2018:24).

**Table 5.2: Qualitative data collection methods**

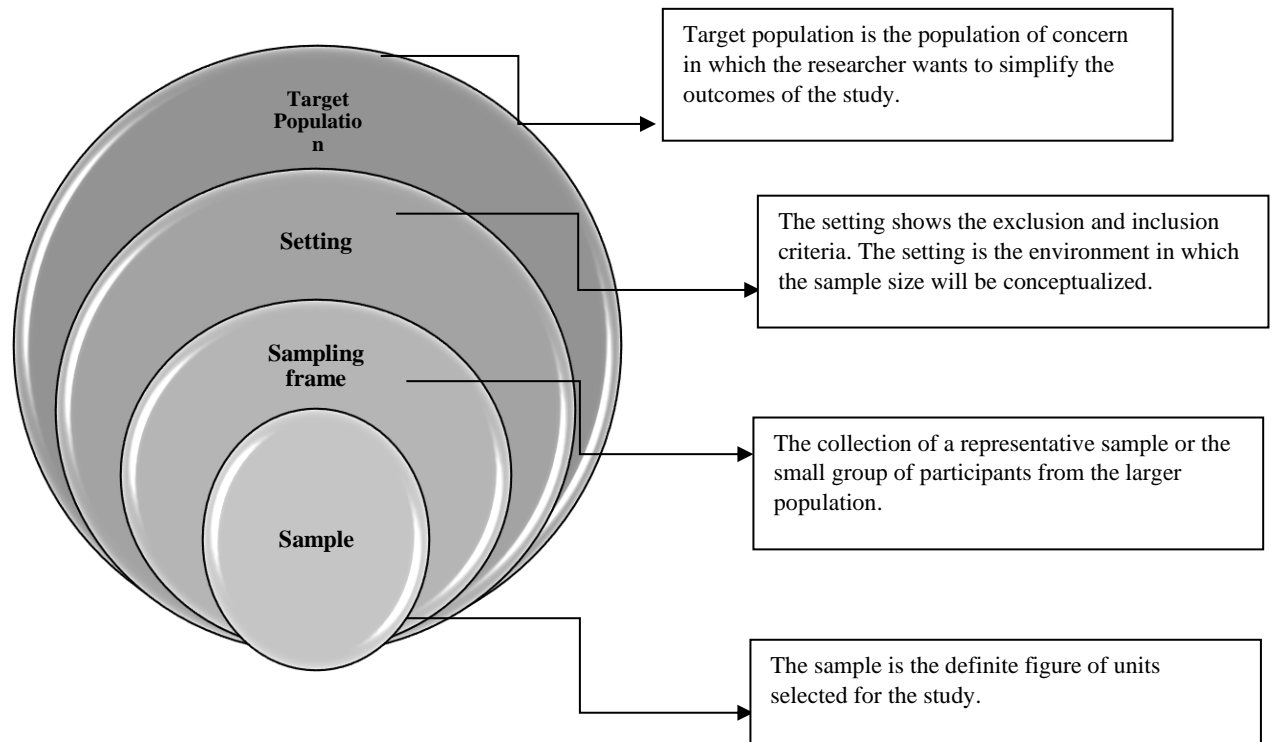
<b>Method</b>	<b>Brief description</b>
<b>Focus group discussions</b>	Focus group discussions can be portrayed as a collaborative gathering with a small group of people while each partaker can talk and provide their own thoughts and ideas.
<b>Interviews</b>	The interview encompasses the questioning, attending to and recording answers from an individual or group in either unstructured, semi-structured or structured layout in an in-depth approach.
<b>Observations</b>	The researcher gets close by to study subjects to view either with or without involvement to understand and retrieve tactic information of subjects.
<b>Other methods</b>	Other methods of qualitative data collection include RAP, pile sorting, ranking, free listing and life history (biography).

Source: Nigatu, (2009:18)

The qualitative data collection method used in this study is the interview approach that focus on the questioning, recording and listening to the recordings while identifying specific themes of the questions and answered between the interviewer (researcher) and the interviewee (participant).

#### 5.4.1.1 *Sampling strategy*

Sampling is the mixture of a subgroup of the population of interest in a research study (Turner & Deng, 2020:826). There are several types of techniques used in sampling methods, which include probability random sampling and non-probability sampling methods (Etikan & Bala, 2017:215).



**Figure 5.6: Sampling methods and techniques**

Source: Muhammad and Ahmad (2017:101)

#### 5.4.1.2 Non-probability sampling

The non-probability sampling is often related to qualitative research and case study research design meaning that the non-probability sampling technique will lean towards small samples and are planned to observe a real life spectacle with the objective not to make arithmetical implications in relation to the broader population (Palinkas *et al.*, 2015:534).

A sample of contributors or situations does not need to be demonstrative or unsystematic, but a transparent validation is needed for the presence of some individuals or circumstances rather than others (Taherdoost, 2016:22).

The goal of non-probability sampling is not to simplify to a population, however, the aim is to get meaningful comprehensions into a prodigy, the individuals or proceedings whereby the researcher then carefully select the groups, individuals and regulation that are to be exploited (Omona, 2013:179).

Purposeful sampling can be portrayed as the most universal technique of sampling and can be outlined as “information rich” (Benoot, Hannes & Bilsen, 2016:2). There are several types of non-probability sampling methods used in qualitative research, some of which include the following:

**Table 5.4: Non-probability sampling techniques**

Technique	Definition	Strengths	Weaknesses
Convenience sampling	Convenience sampling is a non-probability sampling method where participants of the target population based on geographical immediacy, ease of access and availability. Some examples of convenience sampling include data taken instinctively near parking areas and camps where population density is remarkably high.	Least costly, most accessible and least time-consuming.	Sample not very representative and not recommended for descriptive or causal research.
Quota sampling	Quota sampling is a non-random sampling method in which individuals are selected based on pre-arranged features for the entire sample to have the similar allocation of features than the broader population.	Sample can be controlled for specific features.	Collection preference and no reassurance.
Snowball sampling	The design method of selection done by utilising networks and as a result the networks will guide the researcher to the specific group.	It is possible to estimate rare features within the networks.	Tend to be very time-consuming.
Judgemental / purposive sampling	The purposive sampling method is a form of non-probability sampling that is most efficient when the cultural field of knowledgeable professionals need to be evaluated.	Not very time-consuming, low-cost and perfect for exploratory research.	Does not allow for generalisation and mostly focussed groups are being evaluated.
Heterogeneity sampling	The heterogeneity sampling technique is mostly used to incorporate all the opinions or viewpoints from a diverse group rather than a specific group of participants.	Can intensify representativeness and much easier to apply than simple random sampling.	Can decrease the representatives.

*Source:* Own compilation, Taherdoost, (2016:22-23), Etikan and Bala, (2017:216), Etikan, Musa and Alkassim, (2016:2), Tongco, (2007:152)

#### 5.4.1.3 Probability sampling

Probability sampling postulates to the researcher that every division of a recognised population will be used in the sample (Adwok, 2015:95). This means that each piece in the population has an identical chance of being used in the sample, however, this type of sampling method may be the most expensive sample in terms of energy and time (Taherdoost, 2016:20). Probability sampling is the foundation of the modern survey research since it allows the researcher to influence the margin of error (Martin, 2005:732).

**Table 5.5: Probability sampling techniques**

Technique	Definition	Strengths	Weaknesses
Stratified sampling	Stratified sampling is a technique formed on three different portions – sample allocation, sampling and stratification. Stratification is a division of the world into several separate strata.	Includes the subpopulation	Hard to choose right stratification variables.
Systematic sampling	The systematic sampling design can be described as only the first unit as casually being selected and the rest being routinely chosen according to a predetermined outline known as systematic sampling.	Able to amplify representativeness and sampling frame not always essential.	Can also reduce representativeness.
Multi-stage sampling	The multi-stage sampling designs normally represents sampling sites as key units. This stage involves the practice of moving from a very expansive to a restricted sample with the use of a step-by-step method.	Gaining a more comprehensive overview of the research sampling method.	Can be very time-consuming for the researcher to move through different sample units.
Cluster sampling	Cluster sampling is where the entire population is split into groups or clusters. A random sample is derived from these clusters, all of which are used in the concluding sample. Cluster sampling is beneficial for researchers whose themes are disintegrated over a wide geographical region.	Easy to execute and very cost-effective.	Vague, challenging to calculate and translate results.

Source: Etikan and Bala, (2017:216), Taherdoost, (2016:23), Nguyen *et al.*, (2020:2), Sayed and Ibrahim (2018:290)

#### 5.4.1.4 *Data collection method*

The study followed both a qualitative and a quantitative research method, meaning that this study used a mixed-method approach. The qualitative data collection method in this study focussed on in-depth interviews with various stakeholders in the SEZs, as depicted in ANNEXURE A. The stakeholders included participants such as businesses (special interest groups and microenterprises), experts (business, professionals and local government) and the investor’s assessment (private and public investors, non-profit organisations and developers).

The study is based on an analysis of SEZs in two of the biggest SEZs in South Africa namely the Coega IDZ near Port Elizabeth and the East London IDZ situated in East London. The respondents are selected stakeholders from the different IDZs in South Africa, meaning the method utilised within the study is a non-probability sampling method whereby the snowball sampling method were utilised and as a result the networks guided the researcher to the specific group as necessary. Since the study only uses specific

samples from the population, which include specific stakeholders within the IDZs rather than randomisation selection of chance, the probability sampling technique was the most suitable method.

Respondents were contacted preceding the interviews in order to explain the reason for the interview and what the interview entails. Due to health protocols and the Covid-19 pandemic, most of the respondents were interviewed telephonically or via satellite (Zoom, Teams, Skype etc). All the interviews were recorded on the specific device i.e., mobile phone or computer and the interviewer analysed the transcripts by playing back the recordings and evaluated the answers given by the respondents.

The depicted recordings of the interviews were analysed using a content analysis method, once data saturation was reached the researcher then addressed the recordings whereby particular themes were identified. The themes are based on the best on the numerous factors, which enables the success of EZs, these factors will then be coded by giving them titles, which are represented by the success factors in the previous segments of the study.

#### 5.4.1.5 *Sampling size*

The sample size is one part of research design that researchers need to consider as they organise their study (Burmeister & Aitken, 2012:271). Even though sample size is a factor in qualitative research, the values that influence the determination of sample sizes are unique to those that are measured in quantitative research studies (Burmeister & Aitken, 2018:2).

Factors that influence the size of the sample include attributes such as the homogeneity of the sample, the risk error reflected suitable for the question being studied as well as the expected abrasion and the effect size (Burmeister & Aitken, 2018:3). These factors would help the qualitative researchers to choose sample designs and sample sizes that are most congruent with the specific research goal (Omona, 2013:169).

There are a few problems with selecting a suitable sample size since one must consider the respondents' truthfulness, then the sampling error related with the researcher simplifying the sample of words will be significant (Omona, 2013:170). Omona (2013:170) further suggests that the circumstances to abridge the findings, both the sample design and the sampling size used are very critical.

Sampling therefore plays a significant role in every qualitative study, irrespective of research aim and purpose (Bengtsson, 2016:10). A stated determinant for regulating sample size in a qualitative study is that the total responses should be appropriately significant and diverse to interpret the purpose of the study (Malterud, Siersma & Guassora, 2016:1).

This theory postulates no regulation for planning, since experienced researchers tend to follow their own ideas about the most proper number of responses that were crucial in preceding similar studies to attain at an accountable inquiry (Malterud *et al.*, 2016:1). For the qualitative interview analyses, there are no comparable criteria for valuation of sample size that occur (Malterud *et al.*, 2016:1). According to Vasileiou *et al.* (2018:7), it is suggested that qualitative studies need a minimum of at least 12 sample sizes to reach data saturation.

Selecting the most proper sample size differs from one study to another since there are several factors that influence the exact number of units to attain the perfect sample size in qualitative studies (Vasileiou *et al.*, 2018:7). According to Moser and Korstjens (2018:2), the first and most crucial step is to choose conditions and locations where the researcher can have admission to the prospective partakers. The next approach is to employ partakers who can supply the best data for the study and conclusively the sampling plan should be reassessed often and adjusted accordingly (Moser & Korstjens, 2018:10).

The researcher obtained 12 interviews from stakeholders within the East London IDZ and the Coega IDZ situated in Port Elizabeth. The interview schedule as seen in Appendix A included a total of 9 subheadings and a total of 24 questions. Some of the subheadings included the basic information, the physical features of the IDZ, policy framework perceptions, policy framework constraints, incentives perceptions, enabling environment perceptions, economic leverage perceptions and the role of government.

#### 5.4.1.6 *Method of data collection*

The type of data collection method that was used in the qualitative section of this study was interviews as data gathering procedure involving verbal interaction between the subject and the researcher. Interviews are mostly used in descriptive and exploratory studies and survey designs, however, the structures of the interviews vary from structured, semi-structured and unstructured approaches (Mathers, Fox & Hunn, 1998:1). The three distinct types of interviews can be expressed as follows:

- Standardised/Structured interviews — In the structured interview, the interviewer poses a set of predetermined, standard questions about certain issues in a particular order. The respondents then must choose their answers only from the list of choices (Easwaramoorthy & Zarinpoush, 2006:1).
- Unstructured/In-depth interviews — Unstructured or also known as in-depth interviews are used as a qualitative research method that includes performing thorough individual interviews with a small sample of respondents to study their views on a certain situation, concept and programme (Boyce & Neale, 2006:3).
- Semi-structured interviews — Semi-structured interviews are a type of interview where the interviewer has a combination of open- and closed-ended questions, often complemented by why,

how or follow-up questions (Newcomer, Hatry & Wholey, 2015:493). This type of interviews provides trustworthy and comparable data. The benefits of using semi-structured interviews are so that the interviewer can be prepared during the interview while allowing informers the openness to convey their assessments in their own terms (Cohen & Crabtree, 2006:1).

The standardised/structured interviews have closed-ended questions meaning that all the respondents have the same questions in the same frequency. Various stakeholders and workers within the Coega IDZs situated near Port Elizabeth and the Eastern Cape IDZs situated in East London were interviewed.

Respondents were contacted preceding the interview to explain the reason for the interview and what the interview entails. Due to health protocols and the Covid-19 pandemic, most of the respondents were interviewed telephonically or via satellite (Zoom, Teams, Skype etc). All the interviews were recorded on the specific device i.e., mobile phone or computer and the interviewer analysed the transcripts by playing back the recordings and evaluating the answers given by the respondents.

The depicted recordings of the interviews were analysed using a content analysis method, once data saturation was reached, the researcher then addressed the recordings whereby particular themes were identified. The themes are based on the best on the numerous factors, which enables the success of EZs, these factors were then coded by giving them titles that are represented by the success factors in the previous segments of the study.

The first stage of qualitative exploration is to assess the recording from all the interviews and the interviews should be transcribed. According to McLellan, MacQueen and Neidig (2003:70), in both large- and small-scale qualitative research situations, the transcription practice is beneficial for two reasons: (1) it reduces the possibility that a researcher will have dissenting transcript “products” to work with, and (2) it lowers the likelihood that analysed data will be rescheduled or conceded.

**Table 5.6: Sampling strategies of qualitative data research**

<b>Sampling type</b>	<b>Definition</b>
<b>Criterion sampling</b>	Assortment of respondents who meet predetermined norms of significance.
<b>Theoretical sampling</b>	Choice of partakers based on the arising findings to certify sufficient representation of theoretical concepts.
<b>Purposive sampling</b>	The purposive sampling method is a form of non-probability sampling that is most efficient when the cultural field of knowledgeable professionals need to be evaluated.
<b>Snowball sampling</b>	The design method of selection done by using networks and as a result the networks will guide the researcher to the specific group.

<b>Sampling type</b>	<b>Definition</b>
<b>Typical case sampling</b>	The typical case sampling method are used to choose the most representative or average respondents.
<b>Extreme case sampling</b>	Determined choice of the most uncommon cases.
<b>Maximum variation sampling</b>	The selection of participants based on a wide variety of differences in backgrounds.
<b>Convenience sampling</b>	Convenience sampling is a non-probability sampling method where participants of the target population based on geographical immediacy, ease of access and availability. Examples of convenience sampling include data taken instinctively near parking areas and camps where population density is remarkably high.
<b>Confirming and disconfirming sampling</b>	This type of sampling supplies supports challenging or checking emerging development trends or blueprints in the data.

Source: Etikan and Bala, (2017:216), Moser and Korstjens, (2018:2)

#### 5.4.1.7 *Ethical considerations*

The ethical standards were followed during the entirety of the research period. The major ethical issues that the researcher wihad to keep in mind includes aspects such as (a) informed consent, (b) beneficence (not to harm), (c) respect for confidentiality and anatomy and the respect for privacy (Fouka & Mantzorou, 2011:4-6).

The researcher had to keep to technical and strict guidelines in order to avoid the plagiarism, even when the researcher utilises information from another writer, the researcher had to acknowledge each aspect of the study utilised. The researcher obtained an ethical clearance form from the Faculty of Economic and Management Sciences Research Ethics Committee (EMS-REC) with a valid ethics application number: NWU-00981-21-A4.

#### 5.4.2 **Quantitative method**

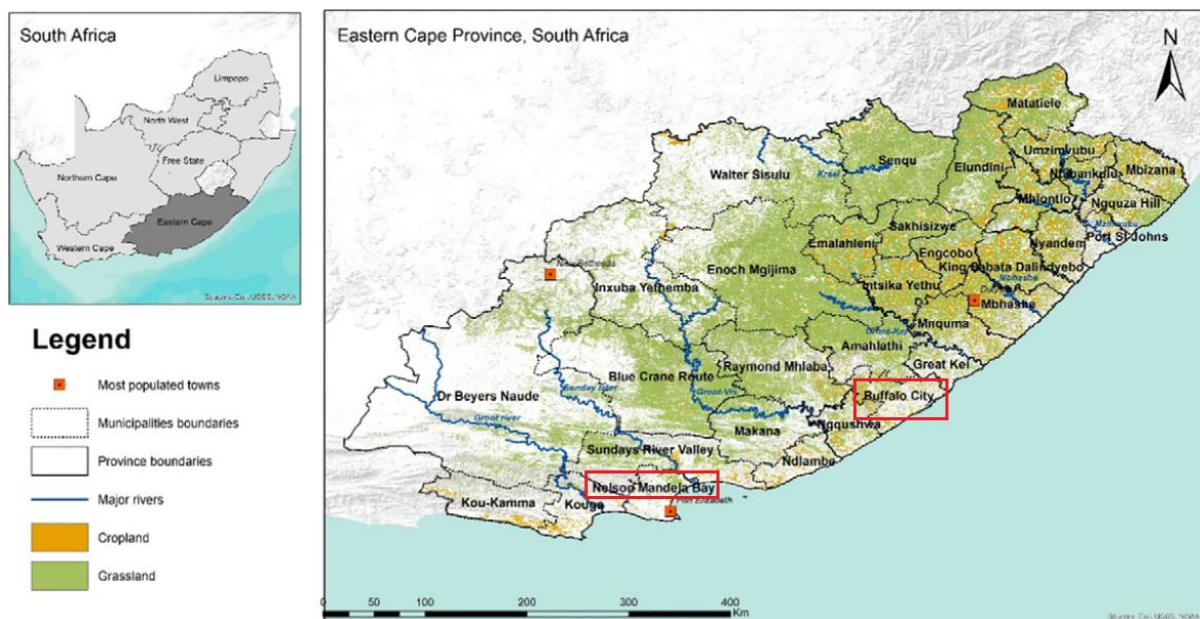
Quantitative research is the technique that deals with quantifying and investigating variables to get findings (Apuke, 2017:2). Quantitative research therefore entails the utilisation and analysis of mathematical data using particular statistical methods to answer the research question (Apuke, 2017:2). Therefore, quantitative research methods focus on the analyses of numerical data sets and the data are instantly available, which saves the researcher time and resources (Eyisi, 2016:94).

##### 5.4.2.1 *Sampling strategy*

The study is conducted in the Eastern Cape at the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality.

The specific region was chosen due to the following reasons: firstly, the Coega IDZ is the largest IDZ in Southern Africa, and it is located in the Eastern Cape at the Nelson Mandela Bay Metropolitan Municipality, which was also one of the first cities in South Africa to institute a fully integrated democratic local government (Municipalities of South Africa, 2019).

Secondly, due to the proximity of Port Elizabeth and East London, the intention was to do a primary research study with another SEZ, which is the East London IDZ, which are found in the Eastern Cape at the Buffalo City (Buffalo City, 2014:99). The Eastern Cape is a thoroughly under-developed region and the economic interest is well below its true potentiality (Buffalo City, 2014:99).



**Figure 5.7: Geographical map of Buffalo City Metropolitan Municipality and the Nelson Mandela Bay Metropolitan Municipality**

Source: Walz *et al.* (2020:3)

#### 5.4.2.2 Method of data collection

As part of the secondary data pertaining this study, there was also an economic development assessment technique and tool that is named an analytical composition for immediate economic assessment, which was used as a tool for examining the key details of the specific region (Asian Development Bank, 2015:10).

Since IDZs can be termed as industrial clusters, there are a few techniques that were utilised to evaluate industrial clusters. The techniques included the economic dynamic analyses and economic baseline studies, which uses a wide variety of methods such as the location quotient, shift-share analysis and network analyses as used in a similar study by Pisa *et al.* (2015:505).

The data collection and analysis focussed specifically on a comparative analysis between the two metropolitan municipalities (Nelson Mandela Metropolitan Municipality and Buffalo City Metropolitan Municipality) and how they vary in terms of regional economic development.

The performance of the regional economic development analyses helped to get a comprehensible outcome of how well a region is performing and which indicators give a valuable solution for regional economic development.

**Table 5.7: Framework for secondary data collection and analysis**

Steps	Actions	Tools	Actions	Outputs
(1) <b>Economic baseline study</b>	Gather all secondary data, prepare data audit, analyse data gaps, economic analysis	Input-output analysis, shift-share analysis	Input-output analysis, shift-share analysis	<ul style="list-style-type: none"> <li>• Spatial planning and cluster maps</li> <li>• Economic flows, GDP, exports and consumption</li> </ul>
(2) <b>Economic dynamic analysis</b>	Analyse dynamics of businesses, economy, linkages, competitiveness	Cluster analyses and location quotient	Socio-economic trends, city competitiveness, industry clusters	<ul style="list-style-type: none"> <li>• Industry changes to structure of the economy.</li> </ul>

Source: Asian Development Bank, (2015:12), Own compilation

#### 5.4.2.2.1 *Location quotient*

The location quotient is utilised as an indicator to classify the clustering of industries (Strotebeck, 2010:1). This quotient is useful in understanding how the employment of an industry within a region is performing in relation to the national employment levels for the same industry (Crawley, Beynon & Munday, 2013:1854). Strotebeck (2010:1) further suggests that the location quotient is useful to see if the employment is below or over the national average.

This indicator therefore illustrates the contribution of employment that a specific industry such as the manufacturing industry has in a particular region in relationship to the employment levels of the manufacturing industry in a nation. The location quotient offers the chance to associate industries that differ in size since the estimation uses the employment portions on the national level as base weights to calculate the estimations on a regional level (Strotebeck, 2010:20). The location quotient for a region *i* can be presented in Equation 5.1:

$$L\sigma_i = \frac{E_{i,r}}{E_r} / \frac{E_{i,n}}{E_n} \dots\dots\dots (5.1)$$

where:

$E_{i,r}$  = Industry employment  $i$  in subregion  $r$

$E_r$  = Overall employment in subregion  $r$

$E_{i,n}$  = Industry employment  $i$  in region  $n$

$E_n$  = Overall employment in region  $n$

The assessment criteria for assessing the location quotient can be described as follows:

- If the LQ is larger than 1, it means that the sector of the municipality has a higher degree of specialisation level than that of the region (province).
- If the LQ is equal to 1, it means that the magnitude of specialisation of the municipality is equal than that of the region (province).
- If the LQ is smaller than 1, it means that the sector of the municipality has a lower degree of specialisation level than that of the region (province).

The objective to use this tool is to analyse the sectors in which the Eastern Cape are highly specialised in. These results were used to interpret in which sectors these regions has a relatively higher competitive advantage in comparison with other regions. The location quotient was utilised in the study as follows:

Nelson Mandela Bay Metro:

$$L\sigma_i = \frac{E_{i,NMB}}{E_{NMB}} / \frac{E_{i,EC}}{E_{EC}},$$

Buffalo City Metro:

$$L\sigma_i = \frac{E_{i,BC}}{E_{BC}} / \frac{E_{i,EC}}{E_{EC}},$$

#### 5.4.2.2.2 *Shift-share analyses*

The shift-share analysis is a standard applied model for regional analyses to determine growth rates into a fundamental, economical and operational element (Khusaini, 2015:741). The analysis is a basic model for regional economic evaluation that establishes how much the growth of a region can be ascribed to the national economic growth movements and which proportions can be ascribed to the regional economic development factors (Herath, Gebremedhin & Maumbe, 2010:8).

The shift-share analyses calculates the variations in a region's operations comparative to the country over a certain period. It is a very well-known and prevalent indicator since the data are moderately easy and reasonable to acquire, yet it offers academics, policymakers and researcher with valuable info (Sirakaya, Uysal & Toepper, 1995:55).

Income and employment figures are frequently used to measure economic development statistics, however, employment data are most often used since its more promptly available and appropriate data for the shift-share analyses (Sirakaya *et al.*, 1995:55). Equation 5.2 represents the equation for the

national share, Equation 5.3 represents the industry mix equation and lastly, Equation 5.4 represents the regional share analysis.

The shift-share analyses can be presented as follows:

$$e_{i,t} = e_{i,t-1} + (NS_i + IM_i + RS_i)$$

$$\Delta e_i = e_{i,t} - e_{i,t-1} = NS_i + IM_i + RS_i$$

$$NS_i = e_{i,t-1} (E_t / E_{t-1} - 1) \dots \dots \dots (5.2)$$

$$IM_i = e_{i,t-1} (E_t / E_{i,t-1} - E_t / E_{i,t-1} - 1) \dots \dots \dots (5.3)$$

$$RS_i = e_{i,t-1} (e_{i,t} / e_{i,t-1} - E_{i,t} / E_{i,t-1}) \dots \dots \dots (5.4)$$

Where:

- |  |                                 |
|--|---------------------------------|
| $e_i$ = regional employment in $i^{th}$ sector | $E$ = national total employment |
| $E_i$ = national employment in $i^{th}$ sector | $t-1$ = initial year of period  |
| $E$ = regional total employment                | $t$ = finish year of period     |

The adjustment of employment in a region is viewed as the outcome of three factors namely (i) the national growth (NG), (ii) the industrial mix (IM) and (iii) the competitive share (CS).

**National share (NS):** The national share is the part of change accountable to general national trends (Elburz & Gezici, 2012:4). According to Rupasingha and Patrick (2009:3), the NS signifies the part of local employment growth that can be credited to the growth of the national economy. The hypothesis regarding this component is that if the national economy is experiencing employment progression, it is sensible to anticipate that this growth will affect employment growth in a local region as illustrated in Equation 5.5 (Rupasingha & Patrick, 2009:3). When the national economy goes through severe busts and booms, regional economies are occasionally uninformed and the way it may influence them as a local economy, as a result, shift-share analyses are utilised to calculate this impact (Nachani & Swaminathan, 2017:86).

$$\text{National share} = NS_{ir}^t = E_{ir}^{t-1} \times ((E_{SA}^t) / E_{SA}^{t-1} - 1) \dots \dots \dots (5.5)$$

Where: t = current time, I = specific industry, t-1 = one year ago and r = specific region

In other words, the NS calculates the employment in the locality in relation to the average growth rate for all all sectors of the country. This, therefore, indicates the share of regional job growth attributable to the national economic growth.

The NS in the study was calculated as follows:

$$\text{Nelson Mandela Bay Metro} = NS_{iNMB}^t = E_{iNMB}^{t-1} \times ((E_{SA}^t) / E_{SA}^{t-1} - 1)$$

$$\text{Buffalo City Metro} = NS_{iBC}^t = E_{iBC}^{t-1} \times ((E_{SA}^t) / E_{SA}^{t-1} - 1)$$

**Industrial mix (IM):** The industry mix (IM) focuses specifically on the outcomes that certain industry trends at the national level have had on the transformation in employment within the region (Rupasingha & Patrick, 2009:3). The common purpose of the IM is to examine the effects that national sectoral incline or decline growth have on the regional industry structure and therefore measures the comparative alteration due to changes in industry growth between the country and the region, as seen in Equation 5.6 (Elburz & Gezici, 2012:5). Elburz and Gezici (2012:5) further explain that a region that comprises a huge share of industries that are slow or fast growing nationally will either have a positive or negative industry mix effect. A negative industry mix indicates that the employment in the region grew beyond the general national average, while a positive IM signifies the contrary.

$$\text{Industry Mix} = IM_{ir}^t = E_{ir}^{t-1} \times ((E_{iSA}^t) / E_{iSA}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1} \dots \dots \dots (5.6)$$

The IM in the study was calculated as follows:

$$\text{Nelson Mandela Bay Metro} = IM_{iNMB}^t = E_{iNMB}^{t-1} \times ((E_{iSA}^t) / E_{iSA}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1}$$

$$\text{Buffalo City Metro} = IM_{iBC}^t = E_{iBC}^{t-1} \times ((E_{iSA}^t) / E_{iSA}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1}$$

The industry mix component is rather useful since it illustrates the significance of growth that are attributed to the localities mix of industries and therefore also illustrates the job losses or gains due to the changes in industry and total national growth rates.

**Regional Shift (RS):** The regional shift or otherwise known as the competitive effect measures the part of adjustment attributable to regional competitiveness and advantages (Selting & Loveridge, 1992:5). This analysis focuses specifically on how the industrial groups within a region function comparative to those groups at national norms (Rupasingha & Patrick, 2009:3). The regional share is utilised to indicate how sectors or industrial groups in the region function in relation to the national averages as illustrated in Equation 5.7.

The RS indicator, therefore, shows that the industry groups may be the same, however, the region may follow separate trends than those of the national averages (Rupasingha & Patrick, 2009:3). The regional share indicates or calculates the variance shift due to changes in rates of growth of an identical sector between the region and the nation, because of several elements such as entrepreneurship activities, regional economic policy and national resources, as a result, the growth rates between the region and nation may differ (Elburz and Gezici, 2012:5). The regional share element is utilised to distinguish a region's comparative advantages and economic strengths.

$$\text{Regional Shift} = RS_{ir}^t = E_{ir}^{t-1} \times ((E_{ir}^t) / E_{ir}^{t-1} - 1) - (E_{iSA}^t) / E_{iSA}^{t-1} \dots \dots \dots (5.7)$$

The RS (or competitive effect) can be calculated as follow:

$$\text{Nelson Mandela Bay Metro} = IM_{iNMB}^t = E_{iNMB}^{t-1} \times ((E_{iNMB}^t) / E_{iNMB}^{t-1} - 1) - (E_{iSA}^t) / E_{iSA}^{t-1}$$

$$\text{Buffalo City Metro} = IM_{iBC}^t = E_{iBC}^{t-1} \times ((E_{iBC}^t) / E_{iBC}^{t-1} - 1) - (E_{iSA}^t) / E_{iSA}^{t-1}$$

The RS focuses extensively on the number of jobs created or not created because of the competitiveness within the region and can be seen as one of the most principal factors of the shift-share analyses since it categorises the lagging and leading industries within a specific region.

#### 5.4.2.2.3 *Input-output table*

The input-output evaluation is an analytical structure with the primary aim to evaluate the linkages of industries in a national economy (Cameron, 2003:1). It can be explained as a technique of calculating employment and income multipliers that takes account of various alterations in technology changes between industries as well as the linkages between industries (Lindberg, 2010:1). The highest disadvantage of depending entirely on national exploration is that these numbers withhold regional deviations and therefore consider the whole economy as a spatial object (Szabó, 2015:44).

It is possible to compare the national and regional outputs by employment data to find the demands for their product within that region. Furthermore, whenever the measurement shows the industry is comparatively less significant at regional level than the national one, the national coefficient is diminished correspondingly along the row that signifies the industry of attention (Boero, Edwards & Rivera, 2018:227).

Equilibrium and symmetry are an essential prerequisite of the input-output table, meaning that total sectoral output must be identical (Szabó, 2015:45). As illustrated in Figure 5.7, the outline of an input-output table presented by the mixture of well-adjusted columns and rows. The input-output table illustrates the structure of GVA expenses (inputs, columns, supply sector) and the product-sale targets (outputs, rows, demand sector).

All the industries linked to the national economy related to the manufacturing actions are linked with the supply of goods and services in the industries for the final demand. This means that one industry purchases (inputs, such as resources, fuel) from other industries and then manage them to supply goods and services. Additionally, these industries then sell (output) these services and goods to added industries as raw materials for the production process. This circular purchase-production-sale chains generate highly administered goods progressively and supply final demand sectors such as businesses, consumers and trade (exportation).

This means that the totals for the national production (gross inputs) (D+E) should be equal to the total output (A+B+C). The input-output table illustrates that the industry structure of a regional economy can be derived from the national economy, which illustrates the linkages between sectors and illustrate the procurement and sale association between the consumer and producer within an economy (OECD, 2021).

		Demand sector (buyer)	Endogenous sectors			Exogenous sectors								
		Supply sector (seller)	Intermediate demand			Final demand					Total Output (A) + (B) + (C)			
			1	2	3									
			Agriculture, forestry and fishing	Mining	Manufacturing	(Goods and services produced)	(A) Total	Household	General Government	Capital Formation		Changes in inventories	Consumption	Exports
Endogenous sectors	Intermediate input	1 Agriculture, forestry and fishing	↓ Columns	Composition of raw materials and gross value added expense (inputs)										
		2 Mining												
		3 Manufacturing												
		(Supplied goods and services)	→ Rows				Composition of product destination (outputs)							
		Total (D)												
Exogenous sectors	Gross value added	Net taxes on products												
		Compensation of employees												
		Other taxes (less subsidies)												
		Gross operating surplus												
		Total (E)												
National production (gross inputs) (D+E)														

**Figure 5.8: The structure of the input-output tables**

Source: Own compilation, Japanese Ministry of economy, trade, and industry, (2016)

Figure 5.8 is a representation of the structure of the input-output table, however, it does not illustrate the production functions for each industry and the way in which the coefficients are calculated. The Leontief model can be explained as an input-output model series of accounting characteristics whereby every row is a linear equivalence with as many coefficients and variables as there are sectors (Stilwell & Minnitt, 2000:456).

Table 5.8 illustrates the flow of goods and services within an economy, whereby the rows illustrate output of the industry while the columns represent the total inputs within the industries. Representing  $x_{ij}$  as the volume of product delivered from industry  $i$  to industry  $j$  whereby  $X_i$  illustrate the total output from industry  $i$ . When the final demand  $Y$  is incorporated, the basic input-output model, expressed in the form of a matrix can be illustrated in Equation 5.8:

$$AX + Y = X \quad \text{or} \quad (I - A)X = Y \dots \dots \dots (5.8)$$

For this equation to be correct, it is essential not only for the inverse  $(I - A)$  to be present, but also to be non-negative. Both the final demand  $Y$  and the total output  $X$  are positive, so the basic requirement is for the  $(I - A)$  inverse to also be negative.

**Table 5.8: A skeletal input-output transaction table**

	Intermediate consumption			Net final demand	Total output
	Industry 1	Industry 2	Industry 3		
Industry 1	$x_{11}$	$x_{12}$	$x_{13}$	$Y_1$	$X_1$
Industry 2	$x_{21}$	$x_{22}$	$x_{23}$	$Y_2$	$X_2$
Industry 3	$x_{31}$	$x_{32}$	$x_{33}$	$Y_3$	$X_3$
Value-added	$V_1$	$V_2$	$V_3$		
Total input	$X_1$	$X_2$	$X_3$		

Source: Soto (2008:3)

The following equations can be drawn from the above input-output transaction table:

$$X_1 = \boxed{x_{11} + x_{12} + x_{13}} + Y_1$$

$$X_2 = \boxed{x_{21} + x_{22} + x_{23}} + Y_2$$

$$X_3 = \boxed{x_{31} + x_{32} + x_{33}} + Y_3$$

Intermediate sales

What Sector 1 sells to Sectors 1, 2 and 3 and alters on the level of output of the buying Sectors 1, 2 and 3:

$$X_{11}=a_{11}x_1$$

$$X_{12}=a_{12}x_2$$

$$X_{13}=a_{13}x_3$$

Whereby:  $a_{11} = x_{11}/x_1$ ;  $a_{12} = x_{12}/x_2$ ;  $a_{13} = x_{13}/x_3$

Source: Slabbert, (2005:52)

The symbols  $a_{11}$ ,  $a_{12}$  and  $a_{13}$  exemplify the technical coefficients that are calculated based on how much inputs are needed to produce R1 worth of output (Sorgento, 2009:17).

**Table 5.9: Practical example of the input-output Table**

	Intermediate demand		Final demand (Purchases by consumers)	Total output
	Manufacturing	Agriculture		
Manufacturing	150( $x_{11}$ )	500( $x_{12}$ )	250( $Y_1$ )	900( $X_1$ )
Agriculture	200( $x_{11}$ )	100( $x_{11}$ )	700( $Y_2$ )	1000( $X_2$ )
Value-added	550( $V_1$ )	400( $V_2$ )		950
Total input	900( $X_1$ )	1000( $X_2$ )	950	

Source: Sorgento (2009:17)

**Table 5.10: Technical coefficients (A-Matrix)**

	Intermediate demand	
	Manufacturing	Agriculture
Manufacturing	$150/900=0.17$	$500/1000=0.50$
Agriculture	$200/900=0.22$	$100/1000=0.10$
Value-added	$550/900=0.61$	$400/1000=0.40$
Total input	<b>1.00</b>	<b>1.00</b>

Source: Sorgento (2009:17)

Table 5.10 illustrates the coefficients that are used, for example, one unit of manufacturing requires 0.17 units of input from manufacturing, 0.22 units of input from agriculture and 0.61 units of value-added in terms of employee compensation and income. Similarly, one unit of agriculture requires 0.50 units of input from manufacturing, 0.10 units from agriculture and 0.40 units of value-added.

The next step of the input-output analyses is to find the Leontief inverse. Seneta (2006) shows that if the  $(I - A)$  matrix is positive and non-singular, then the non-negative explanation to the method can be exemplified as follows:

The simple model to satisfy consumer demand can be represented in Equation 5.9 as follows:

$$Y = (X - AX) \dots \dots \dots (5.6)$$

However, the Leontief inverse exemplifies that  $(I - A)^{-1}$  is the Leontief inverse which is also known as the multiplier matrix, matrix of multipliers or the non-negative solution of the input-output model and can be presented in Equation 5.10:

$$X = (I - A)^{-1}Y \dots \dots \dots (5.7)$$

$X$  stands for the output vector,  $Y$  is the final demand,  $A$  exemplifies the technical coefficient matrix and  $(I - A)^{-1}$  is the Leontief inverse matrix (Mun-Heng, 1998:1). Mun-Heng (1998:1) states that the Leontief inverse are interpreted as coefficients, which signify the impact of one unit change in the exogenic final demand on the total output of the industry. The inverse matrix is calculated by subtracting the technical coefficient matrix from the identity matrix to construct the  $I - A$  matrix which are then utilised to assemble the Type I Leontief inverse matrix (D'Hernoncourt, Cordier & Hadley, 2011:10). According to D'Hernoncourt *et al.* (2011:10), the Type I inverse matrix illustrates how many of each sector's output is needed in terms of both the indirect and direct requirements to manufacture one unit of a sector's output and can be illustrated in Equation 5.11:

$$L = (I - A)^{-1} \dots \dots \dots (5.8)$$

where:

$L$  = Leontief inverse matrix,  $I$  = identity matrix and  $A$  = technical coefficient matrix

**Table 5.11: Identity matrix and Type I multiplier Leontief inverse**

<b>1</b>	0	0	0	0	0	<b>0.875</b>	0.000	-0.03	-0.02	-0.01	-0.01
0	<b>1</b>	0	0	0	0	0.000	<b>0.977</b>	-0.01	-0.21	-0.03	0.00
0	0	<b>1</b>	0	0	0	-0.15	-0.02	<b>0.809</b>	-0.02	-0.13	-0.03
0	0	0	<b>1</b>	0	0	-0.04	-0.00	-0.01	<b>0.759</b>	-0.01	-0.08
0	0	0	0	<b>1</b>	0	-0.06	-0.06	-0.03	-0.07	<b>0.766</b>	-0.22
0	0	0	0	0	<b>1</b>	-1.32	-0.08	-0.13	-0.07	-0.15	<b>0.75</b>

Source: D’Hernoncourt, Cordier & Hadley (2011:10)

The following inverse matrix is the Type II matrix which is obtained in the same method as the Type I inverse matrix, however, they do not only incorporate the direct and indirect impacts, but they also represent the induced impacts based on final expenditure by households as well as compensation of employees (Bess & Ambargis, 2011:7). This means that the Type II inverse matrix is the same as the Type I inverse matrix, however, a new column will be added to calculate the coefficients for household expenditure as well as the income paid to households per industry as shown in Equation 5.12.

$$\text{Type II: Direct Requirements matrix) } A = \begin{bmatrix} A_{II} & A_{IH} \\ A_{HI} & A_{HH} \end{bmatrix} \dots\dots\dots(5.12)$$

Where:  $(A_{II})_{ij}$  – technical coefficient matrix (used in Type I inverse matrix),  $(A_{IH})_i$  – the amount of Industry 1 require per unit of total household income,  $(A_{HI})_j$  – income paid to households per industry and  $(A_{HH})$  – household expenditure per unit of exogenous household income. After calculating the technical coefficients, the I Matrix (identity matrix) and the Leontief matrix it is possible to calculate the final demand multipliers.

**Table 5.12: Final demand multipliers**

<b>Multiplier</b>	<b>Definition</b>	<b>Application</b>
<b>Output</b>	Total industry output per R1 change in final demand	Final demand output × final demand multiplier = total gross output impact
<b>Value-added</b>	Total value-added per R1 change in final demand	Final demand output × final demand value-added multiplier = total value-added impact
<b>Earnings</b>	Total household earnings per R1 change in final demand	Final demand output × final demand earnings multiplier = total earnings impact
<b>Employment</b>	Total number of jobs per R1 million change in final demand	Final demand output × final demand employment multiplier = total jobs impact

Source: D’Hernoncourt *et al.*, (2011:11)

The Leontief inverse play a significant role in the exploration for both the direct and indirect outcomes ascending from the interrelationship of industries in the production of services and goods to meet the final demand (Acemoglu, Akcigit & Kerr, 2016:29). The Leontief inverse nonetheless plays a significant role in determining the effects of impact multipliers such as forward and backward linkages and employment and income multipliers, which aims at deciding the industry impacts in terms of employment, income and value-added (Mun-Heng, 1998:1).

This model was used in the study to measure both the negative (e.g., external shocks and disinvestments) and positive (a new established industry) changes in both the Buffalo City Metropolitan Municipality and the Nelson Mandela Bay Metropolitan Municipality on income, employment, value-added and tax multipliers (Slabbert, 2005:46). As well as to depict various economic relations (intra-regional and inter-regional) between the Buffalo City Metropolitan Municipality and the Nelson Mandela Bay Metropolitan Municipality and other regions to assess the indirect and direct impact of any change in the final demand for both the metros in terms of employment and income.

With more focus and attention towards regional level in the later development of the literature, the research has been altered for the national level to a more focussed regional level (Szabó, 2015:44). With a significant attentiveness towards the evaluation and analyses of regional development, combined with other distinguished methods of data availability, the attention towards regional development methods and evaluations gained more attentiveness towards multi-regional, inter-regional and regional input-output tables and analyses. (Lindberg, 2010:1).

The availability of data on the internet made it feasible to use the Leontief's input-output evaluation, a broadly used instrument for economic studies at all levels of government (Miller & Blair, 2009:2). The input-output table can illustrate the relationship between various industries of the national economy as well as the fundamental correlation of production and final demand in a reliable method (Szabó, 2015:45). Szabó (2015:45) further propose that the fundamental condition of the table is equilibrium, which indicates that all sectoral output must be equal. The input-output model in its simplest usage comprises an approach of linear equivalences, each of which depicts the division of an industry's product throughout the whole economy (Cameron, 2003:1).

The regionalised input-output tables utilised in this study for the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality are ready-made input-output tables, which mean they have collective characteristics such as: (i) they rely on national input-output tables and regional level employment and labour data, (ii) the customers are assumed to have comparable preferences and (iii) they are applied using a parallel technique (Boero, Edwards & Rivera, 2018:227).

Regionalising the input-output tables are based on two principles as suggested by Szabó (2015): The first point is that the coefficients from the national input-output table can be clarified as the average of the regional

technical coefficients, meaning that the structures of the tables can either be identical or totally dissimilar. Secondly, the smaller that a specific region is, the more it is subjected on changes of the external environment.

The non-survey method was used in this study by direct coefficients of the most current national input-output table at disposal that are calculated or otherwise known as the social accounting matrix (SAM) (Boero, Edwards & Rivera, 2018:227). Furthermore, using the many deviations of the tactic of LQ's for each industry and includes various location quotients such as the simple location quotient (SLQ), the flegg location quotient (FLQ) as well as the semilogarithmic location quotient (RLQ) (Bonfoglio & Chelli, 2008:245).

#### 5.4.2.3 *Method of acquiring the input-output table per region*

The non-survey method of the input-output tables are derived from the South African national input-output table. The methods of calculations are based on a single region non-survey method, which are based on the calculation of the location quotient (Szabó, 2015:50).

##### 5.4.2.3.1 *The standard location quotient*

The SLQ is utilised as an indicator to classify the clustering of industries (Strotebeck, 2010:1). This SLQ is useful in understanding how the employment of an industry within a region is performing in relation to the national employment levels for the same industry (Crawley, Beynon & Munday, 2013:1854). Strotebeck, (2010:1) further suggests that the SLQ is useful to see if the employment is below or above the national average.

This indicator therefore illustrates the contribution of employment that a specific industry such as the manufacturing industry has in a particular region in relationship to the employment levels of the manufacturing industry in a nation. The location quotient offers the chance to associate industries that differ in size since the estimation uses the employment portions on the national level as base weights to calculate the estimations on a regional level (Strotebeck, 2010:20). The location quotient is represented in Section 5.4.2.2.1.

##### 5.4.2.3.2 *The cross-industry location quotient*

Following the calculation of the SLQ the next step is to calculate the CILQ, which adjusts the coefficients only by the rows. The CILQ therefore takes into consideration both the producer  $i$  and the purchaser  $j$ , which can affect an ability to individually supply within the region (Schaffer & Chu, 1969).

The CILQ function are represented in Equation 5.13:

$$CILQ_{ij} = \frac{SLQ_{-i}}{SLQ_j} \dots\dots\dots (5.13)$$

The CILQ function are based on two vectors of similar elements in which are the GVA (a) and the country (b), which replaces an array  $n * n$ . The lucidity of the CILQ can be reasoned as follows: If the share of sector (i) within the area is greater than the share of sector (j) in the similar region, then the area can reassure industry j's input requirement in industry i ( $CILQ_{ij}^r > 1$ ).

#### 5.4.3.2.4.3 The FLQ (a, b, c function)

Derived from the CILQ the FLQ are utilised as a modification of the both the SLQ and the CILQ. The FLQ provides the practical application of a location quotient whereby the size of the region is reflected in the calculation (Bakhtiari & Dehghanizadeh, 2012:6905). The FLQ can be illustrated in Equation 5.14.

$$FLQ_{ij} = CILQ_{ij} [\log_2(1 - \frac{x^R}{x^N})]^\varphi \dots\dots\dots(5.14)$$

The symbol  $\varphi$  represents the size of the area or region, however, the FLQ does not rely too much on the relative size of the region but rather on the the size of the producer and purchasing sector and the comparative specialisation within the region (Szabó, 2015:52). However, the region does play a significant role in the calculation of the FLQ, since the larger the value of  $\varphi$  the greater the value of the FLQ will be. In simple terms, the FLQ can be illustrated in Equation 5.15:

$$FLQ_{ij} = \log 1 + \frac{GDP \text{ at basic prices (Region)}}{GDP \text{ at basic prices (SA)}} \times \text{Regional share of GDP in \%} \dots\dots\dots (5.15)$$

As illustrated in the equation above, the FLQ is a basic calculation of a SLQ multiplied by the regional share of GDP in percentage (%).

#### 5.4.2.3.3 Regio FLQ

The following step is to calculate the regional FLQ and are illustrated in Equation 5.16:

$$RegioFLQ = (A_N \times CILQ_0 + A_N * FLQ_1 * CILQ_1) \dots\dots\dots (5.16)$$

The *RegioFLQ* function are obtained by means of obtaining the regional coefficients from the national coefficients  $A_N$  by utilising the *FLQ* coefficients. The *RegioFLQ* perform on two vectors of the same measurement in which are the value-added for the region (a) and the country (b), the delta coefficient (c) and the matrix  $A_N$  is the national technical coefficient.

#### 5.4.2.3.4 Regional intermediate use / sales matrix

The following step is to calculate the regional intermediate use/sales matrix that are based on the coefficients obtained from the *Regio FLQ*, multiplied by the region's intermediate costs/use. The

intermediate costs are calculated as follows: *Regional intermediate use or sales matrix* = *RegioFLQ* \* *Intermediate use or sales*. The regional intermediate use/sale matrix will show the numerical values for all the ten sectors. After the regional intermediate use/sales matrix has been calculated, the next step is to add all the other data such as the total demand and value-added variables within the input-output table.

#### 5.4.2.3.5 Regional input-output table (Balanced)

After calculating the regional intermediate use/sales matrix, the next step is to determine the regional input-output table (Balanced). The input-output table for the region are estimated and all the cells within the table must be estimated, however, by means of obtaining the relevant data for the area, the input-output table for the region is fairly accurate (Szabó, 2015:54). The RAS method are utilised to develop the input-output matrices by means of calculating the method of automatic adjusted of a matrix by columns and rows (Trinh & Phong, 2013:133).

### 5.4.3 Data selection, sample period and variable description

For the secondary data analysis, most data are obtained from Quantec Easy Data, which includes the regional services data i.e. (standardised regional data). The first section is basic descriptive statistics obtained from Quantec Easy Data and no model specifications or econometric models were utilised.

The first set of data that was employed was development indicators and total output for the nine provinces of South Africa, the data include the population size, the tress index, the Gini coefficient and HDI for 2021.

The provincial output and GVA for the Eastern Cape and South Africa for 22 sectors were also utilised. The GVA at current prices, the sectors share of provincial GVA and the sectors ranking in terms of total GVA were also utilised for the year 2021. The two metro's Nelson Mandela Bay Metro and Buffalo City were also utilised in the study whereby the GVA at current prices, the sectors share of the metros GVA as well as the sectors ranking in terms of total GVA were utilised.

The next section is to analyse the location quotient for the Eastern Cape (compared to the national location quotient), for Buffalo City and the Nelson Mandela Bay Metropolitan Municipality (relative to provincial) for all 22 sectors in order to identify the level of specialisation in all sectors. The data used to evaluate the shift-share analysis for Nelson Mandela Bay Metropolitan Municipality and Buffalo City were also obtained from Quantec Easy Data. The shift-share analyses employed regional data, which include the total employment number data for 22 sectors in South Africa, the Eastern Cape, Buffalo City as well as the Nelson Mandela Metropolitan Municipality for the years 2014 and 2019,

since the shift-share need a growth rate of five years in order to calculate the employment growth rates for each region.

The concluding section was the evaluation of the input-output tables for both the Nelson Mandela Bay Metropolitan Municipality as well as the Buffalo City Metropolitan Municipality that were acquired by the non-survey method of the input-output tables derived from the South African national input-output table. The methods of calculations are based on a single region non-survey method, which are based on the calculation of the location quotient statistics obtained from Quantec Easy Data.

All the data to calculate the specific input-output tables for the two regions were obtained from Quantec Easy Data by means of the control totals for both the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality, which included variables such as the intermediate use/sales (including output at basic prices and total output), value-added (GDP at factor costs, GDP at basic prices and GDP at market prices) as well as final demand (Households, government, capital formation and trade (imports and exports)). The control variables used permitted the national data to be derived to data on a local level (municipality).

The control variables were then utilised to acquire the input-output tables by means of the SLQ, CILQ as well as the RegioFLQ which ultimately estimated the regional input-output tables for both the Nelson Mandela Bay Metro as well as the Buffalo City Metropolitan Municipality.

## **5.5 SYNOPSIS**

The goal of Chapter 5 was to explore the mixed-method study approach used within the study, which included both qualitative and quantitative research methods and as a result it used both the interpretivism and positivist research paradigm approach. Section 5.4 focussed on the research approach and methodology that signifies the data collection method for both the qualitative and quantitative approach. The qualitative data collection method is structured interviews that include the questioning and listening to the recorded material from the individual and finding relative themes and premises to the questions asked.

The quantitative approach focuses on the secondary data analyses methods, which include techniques such as the economic baseline studies (i.e., input-output tables analyses) as well as economic dynamic analysis (i.e., shift-share analysis which were derived from the location quotient). The data are acquired from Quantec Easy Data (RSA standardised regional data), however, the results are calculated separately on MS Excel. The Excel spreadsheet are used to calculate the industry mix share (to evaluate whether employment in the industry and region grew above the national average) and the competitive effect (which measures the share of employment in that specific industry of the region).

The final calculation is the national effect, which calculates the total employment in the industry and region by the percentage growth in employment for that specific area. The shift-share analysis then shows in which industries did the overall competitiveness improve in the specific region compared to all the data to calculate the specific input-output tables for the two regions were obtained from Quantec Easy Data by means of the control totals for both the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality, which included variables such as the intermediate use/sales (including output at basic prices and total output), value-added (GDP at factor costs, GDP at basic prices and GDP at market prices) as well as final demand (Households, government, capital formation and trade (imports and exports)). The control variables used permitted the national data to be derived to data on a local level (municipality).

The control variables were then utilised to acquire the input-output tables by means of the SLQ, CILQ as well as the RegioFLQ, which ultimately estimated the regional input-output tables for both the Nelson Mandela Bay Metro as well as the Buffalo City Metropolitan Municipality. The regional input-output tables are utilised to calculate the technical coefficients, the effects of forward and backward linkages as well as the final demand multipliers (Type I and Type II).

## CHAPTER 6

### RESULTS AND DISCUSSION

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#### 6.1 INTRODUCTION

The goal of Chapter 5 was to establish the research approach of the study. The methodology of Chapter 5 indicated that the study followed a mixed-method study approach, which include both quantitative and qualitative research approaches. Chapter 5 also showed the research approach and methodology of the study and the fact that both an interpretivism and positivist approach were followed.

The quantitative approach focuses on the secondary data analyses methods, which include techniques such as the economic baseline studies (i.e., input-output tables analyses) as well as economic dynamic analysis (i.e., shift-share analysis which were derived from the location quotient). The data were acquired from Quantec Easy Data (RSA standardised regional data), however, the results are calculated separately on Excel. The Excel spreadsheet are used to calculate the industry mix share (to evaluate whether employment in the industry and region grew above the national average) and the competitive effect (which measures the share of employment in that specific industry of the region).

The final calculation is the national effect, which calculates the total employment in the industry and region by the percentage growth in employment for that specific area. The shift-share analysis then shows in which industries did the overall competitiveness improve in the specific region compared to the national data. All the data to calculate the specific input-output tables for the two regions were obtained from Quantec Easy Data by means of the control totals for both the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality, which included variables such as the intermediate use/sales (including output at basic prices and total output), value-added (GDP at factor costs, GDP at basic prices and GDP at market prices) as well as final demand (Households, government, capital formation and trade (imports and exports)). The control variables used permitted the national data to be derived to data on a local level (municipality).

The control variables were then utilised to acquire the input-output tables by means of the SLQ, CILQ as well as the RegioFLQ, which ultimately estimated the regional input-output tables for both the Nelson Mandela Bay Metro as well as the Buffalo City Metropolitan Municipality. The regional input-output tables are utilised to calculate the technical coefficients, the effects of forward and backward linkages as well as the final demand multipliers (Type I and TypeII).

The qualitative data collection method is a structured interview with various stakeholder within the IDZ with regard to the functionality of IDZs. The interview was recorded and after the researcher listened to the recorded material relative themes related to the question were identified.

## **6.2 OVERVIEW OF THE EASTERN CAPE AND THE OPERATIONAL IDZ'S**

The Eastern Cape is situated on the East Coast of South Africa and border the Free State and Lesotho (Municipalities South Africa, 2021). It covers an area of 168 965km<sup>2</sup> with a population of 6,734,001 people, which means it is the third largest province in terms of population size and second largest in terms of surface area, while contributing nearly 7% of the total economy of South Africa (Quantec, 2021). The capital is Bhisho and other major cities and towns include Gqeberha (previously Port Elizabeth), East London, Makhanda (previously Grahamstown), Mthatha (previously Umtata), Graaf Reinet, Cradock and Port St. Johns.

The economy of the Eastern Cape has a lower influence towards the primary sector than most other provinces due to absenteeism of the primary mining sector, which are found in other parts of South Africa. Nonetheless, the manufacturing sector and the trade sector contribute significantly to the economic growth of the Eastern Cape (Siyaongwana & Chanza, 2017:19). The Eastern Cape has potential in terms of forestry and agriculture with the vast landscape of fruit orchards in the Langkloof Valley and dairy products and pineapples, while Magwa are known for their tea and coffee cultivation (Global Africa Network, 2018:10)

The two metropolitan municipalities named the Nelson Mandela Bay Metropolitan Municipality, which hosts the Coega IDZ situated in Port Elizabeth and Buffalo City, which hosts the East London IDZ situated in East London and contribute significantly towards the manufacturing industry. The province itself is known as the automotive industry hub of South Africa (ECSECC, 2015:14). Besides the two metros of the province there are also 31 local municipalities and six district municipalities. The Eastern Cape is the fourth largest province in South Africa and it is slightly behind the Western Cape in terms of population size.

## **6.3 DEVELOPMENT INDICATORS AND TOTAL OUTPUT FOR SOUTH AFRICA AND THE NINE PROVINCES**

Table 6.1 shows the development indicators for the nine provinces in South Africa. The first indicator is the population size, which shows the number of people residing within the province. The Eastern Cape is the fourth largest province in South Africa with regard to total population size. The tress index specifies the sectoral structure within a region and are used as an indicator of the total level of concentration or variation of the region's economy.

The closer the numerical value is to zero the more varied the economy, while a high score (closer to 100) the more focussed or exposed the region's economy is to exogenic variables such as severe commodity price variations. (Meilvidiri, Ulita & Alzarliani, 2019:5). This means that a higher tress

index indicates that the region relies only on a few sectors for economic growth, which can sometimes have a severe impact if there are severe economic shocks within the region (Meilvidiri *et al.*, 2019:5).

The Eastern Cape has a tress index of 75.3, which is the fourth highest tress index of all the provinces, which means that this province is much more specialised in certain industries or sectors and therefore only rely on a few industries for job creation and economic growth, which leaves the province in a rather peculiar position in terms of external factors and shocks that may influence the overall economic vulnerability of the province.

The next variable is the Gini coefficient that is obtained from the Lorenz curve, which is an instrument used to signify income divisions and it shows us which quantity of the total income is represented by a specified percentage of the population (Bellù & Liberati, 2005:2). The Gini coefficient can be illustrated as follow in Equation 6.1:

$$G = 1 - 2 \int_0^1 l(z) dz \dots\dots\dots (6.1)$$

Where  $z$  represents the cumulative fraction of income recipients and  $i$  is the subsequent cumulative proportion of income obtained (Abounoori & McCloughan, 2003:505). The Gini coefficient measures income inequality through a positive indicator whereby  $G = 1$  is perfect inequality (all income is obtained from a few individuals) and  $G = 0$  indicates perfect equality (all income is evenly distributed among the population) (Abounoori & McCloughan, 2003:505).

The Eastern Cape has the third highest Gini coefficient of 0.697, which is closely behind the North West and Limpopo. This suggest that the overall income inequality in this province is very high in this region and that the province has a lot of poverty and unemployment since it is also higher than the national average of 0.677.

The following indicator is the HDI, which are utilised as a measurement of human development that are based on three important aspects (a) *knowledge*: education index (mean years of schooling and expected years of schooling); (b) *standard of living*: GNI index (GNI per capita); (c) *long and healthy life*: Education index (Life expectancy at birth) (Kovacevic, 2019:7).

The HDI is a numerical value between the numbers 0 and 1 whereby the closer the numerical value gets to 1, the higher the overall economic development will be (Roser, 2019). The Eastern Cape has the sixth highest HDI of 0.675, which is low in comparison to other provinces such as Gauteng, North West and the Western Cape. The Nelson Mandela Bay Metropolitan region has a HDI value of 0.757, which is high in comparison to the other metro, which is Buffalo City with a HDI value of 0.692.

**Table 6.1: Development indicators for South Africa and Provinces in 2020**

Province	Population size	Tress index	Gini coefficient	HDI (Human development index)
Western Cape	7,005,741	71,2	0,597	0,764
Eastern Cape	6,734,001	75,3	0,697	0,675
<i>Nelson Mandela Bay Metro</i>	1,213,060	71,5	0,763	0,757
<i>Buffalo City Metro</i>	800,874	75,4	0,755	0,692
Northern Cape	1,292,786	78,6	0,647	0,655
Free State	2,928,903	71,6	0,664	0,613
Kwa-Zulu Natal	11,531,628	67,4	0,672	0,650
North West	4,108,816	77,5	0,722	0,726
Gauteng	15,488,137	72,1	0,627	0,727
Mpumalanga	4,679,786	73,3	0,683	0,696
Limpopo	5,852,553	81	0,698	0,701
<b>South Africa</b>	<b>59622350</b>	<b>69</b>	<b>0,677</b>	<b>0.701</b>
<b>Eastern Cape Rank (According to province)</b>	<b>4<sup>th</sup> largest province</b>	<b>4<sup>th</sup> highest Tress index</b>	<b>3<sup>rd</sup> highest Gini coefficient</b>	<b>6<sup>th</sup> highest HDI</b>

Source: Quantec Easy Data (2021), Author's compilation.

When observing Table 6.2 it reveals the total share of GVA for each province in South Africa and ranks each province according to its total share in terms of contribution towards total GVA. The GVA has the comparatively same meaning as GDP, the only variation between GDP and GVA is that the GDP is measured after subtracting the non-deductible VAT, other taxes and excise duties (CSO, 2017).

The Eastern Cape has a GVA ranking of 5<sup>th</sup> and total share of GVA total% of 7.75% for the total of South Africa, which is just behind Mpumalanga with 7.76%. From the year 2010 until 2020 the GVA (at current prices) grew significantly by around 78.58%, which is the fifth highest growing province in South Africa.

**Table 6.2: Total output for South Africa and provinces in 2020**

Province	GVA at current prices; ZAR (2010)	GVA at current prices; ZAR	Average growth in GVA from 2010 to 2020	Share of total GVA (%)	Ranking of province's contribution to GVA
Western Cape	338,568	595,257	75.82%	13,44%	(3)
Eastern Cape	192,148	343,135	<b>78.58%</b>	7.75%	<b>(5)</b>
Northern Cape	54,503	96,889	<b>77.77%</b>	2.19%	(9)
Free State	133,625	221,914	66.07%	5.01%	(8)
Kwa-Zulu Natal	394,488	706,813	<b>79.17%</b>	15.96%	(2)
North West	163,171	284,419	74.31%	6.42%	(7)
Gauteng	851,220	1,497,594	75.94%	33.81%	(1)
Mpumalanga	183,963	343,940	<b>86.96%</b>	7.76%	(4)
Limpopo	183,165	339,738	<b>85.48%</b>	7.67%	(6)
<b>South Africa</b>	<b>2,494,855</b>	<b>4,429,702</b>	<b>77.55%</b>	<b>100%</b>	

Source: Quantec Easy Data (2021a), Author's compilation

### 6.3 TOTAL OUTPUT AND GVA FOR SOUTH AFRICA AND THE EASTERN CAPE

Table 6.3 is an illustration of the total output per sector for South Africa and for the Eastern Cape. The sectors that have the highest ranking in terms of provincial GVA include wholesale and retail trade (19.25%), business services (13.52%), community, social and personal services (7.40%), transport and storage (7.15%), finance and insurance (5.01%), food beverages and tobacco (4.09%), construction (3.24%), electricity gas and water (2.57%) and transport equipment (2.31%).

The table therefore illustrates that the region itself is competitive in terms of its secondary sector and the tertiary sector, while it lacks adequate output in the primary sector, which include the agriculture and the mining sector. This illustrate that the region is focussed highly on the manufacturing process of goods while its primary aim is not to focus on the primary sector since it lacks the adequate resources.

**Table 6.3: Total output per sector for South Africa and the Eastern Cape in 2020**

Sector (22 Sectors)	South Africa			Eastern Cape		
	GVA (current prices: ZAR)	Sectors share of national GVA	Sectors ranking in national GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA
Agriculture, forestry, and fishing	119,588	2,69%	11	6,732	1,96%	11
Mining and quarrying	372,936	8,41%	4	537	0,15%	21
Total primary sector	492524	11.1%		7269	2.11%	
Food, beverages, and tobacco	175,183	3,95%	8	14,039	4,09%	7
Textiles, clothing, and leather goods	13,913	0,31%	20	1,151	0,33%	19
Wood and paper; publishing and printing	57,621	1,30%	15	3,614	1,05%	16
Petroleum products, chemicals, rubber, and plastic	114,129	2,57%	12	6,347	1,84%	12
Other non-metal mineral products	14,944	0,33%	19	1,191	0,34%	18
Metals, metal products, machinery, and equipment	98,931	2,23%	13	4,190	1,22%	14
Electrical machinery and apparatus	8,285	0,18%	21	769	0,22%	20
Radio, TV, instruments, watches, and clocks	7,121	0,16%	22	292	0,08%	22
Transport equipment	41,948	0,94%	16	7,952	2,31%	10
Furniture; other manufacturing	41,288	0,93%	17	2,503	0,72%	17
Total secondary sector	573368	12,96%		4205	12,2%	
Electricity, gas and water	167,195	3,77%	9	8,828	2,57%	9
Construction	140,171	3,16%	10	11,129	3,24%	8
Wholesale and retail trade	617,038	13,9%	2	66,069	19,25%	2
Catering and accommodation services	38,183	0,86%	18	4,056	1,18%	15

Sector (22 Sectors)	South Africa			Eastern Cape		
	GVA (current prices: ZAR)	Sectors share of national GVA	Sectors ranking in national GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA
Transport and storage	322,192	7,27%	5	24,564	7,15%	5
Communication	74,239	1,67%	14	4,367	1,27%	13
Finance and insurance	286,834	6,47%	6	17,219	5,01%	6
Business services	592,674	13,37%	3	46,405	13,52%	3
General government	859,229	19,39%	1	85,758	24,99%	1
Community, social and personal services	266,051	6,00%	7	25,413	7,40%	4
Total tertiary sector	3363810	75.86%		29381	85,58%	
Total GVA	8859404	100%		343134	100%	

Source: Quantec Easy Data (2021a), Author's compilation

When evaluating the total output per sector for the Eastern Cape, the Nelson Mandela Bay and the Buffalo City its very obvious that the sectors which contribute the largest towards each of the metropolitan municipalities are the secondary and tertiary sectors. The general government, community and social services, business services and wholesale and retail trade contribute the most towards the overall sectoral share of the GVA. Construction, electricity gas and water and transport equipment also contribute significantly towards the region's overall GVA. In terms of the primary sector, the industries that have a relatively highly competitive advantage in terms of production are food, beverages, and tobacco as well as petroleum products, chemicals, rubbers, and plastic.

**Table 6.4: Total output per sector for Eastern Cape, the Nelson Mandela Bay Metropolitan Municipality and Buffalo City Metropolitan Municipality in 2020**

Sector (22 Sectors)	Eastern Cape			Nelson Mandela Bay			Buffalo City		
	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA
Agriculture, forestry, and fishing	6,732	1,96%	11	864	0,675	17	780	1,171	14

	Eastern Cape			Nelson Mandela Bay			Buffalo City		
Sector (22 Sectors)	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA
Mining and quarrying	537	0,15%	21	61	0,047	22	51	0,076	21
Total primary sector	7269	2.11%		926,28	0.723%		831,69	1,248%	
Food, beverages, and tobacco	14,039	4,09%	7	5,811	4,53	8	3,338	5,012	7
Textiles, clothing, and leather goods	1,151	0,33%	19	716	0,55	18	262	0,393	18
Wood and paper; publishing and printing	3,614	1,05%	16	1,437	1,122	14	801	1,203	13
Petroleum products, chemicals, rubber, and plastic	6,347	1,84%	12	4,528	3,53	9	1,067	1,603	10
Other non-metal mineral products	1,191	0,34%	18	641	0,501	19	223	0,335	19
Metals, metal products, machinery, and equipment	4,190	1,22%	14	2,732	2,133	11	749	1,125	16
Electrical machinery and apparatus	769	0,22%	20	581	0,453	20	151	0,227	20
Radio, TV, instruments, watches, and clocks	292	0,08%	22	218	0,170	21	50	0,075	22
Transport equipment	7,952	2,31%	10	6,298	4,918	7	955	1,434	11
Furniture; other manufacturing	2,503	0,72%	17	1,264	0,987	16	609	0,91546	17
Electricity, gas, and water	8,828	2,57%	9	2,393	1,869	13	1,976	2,967	9
Construction	11,129	3,24%	8	3,661	2,859	10	2,398	3,602	8
Total secondary sector	62,005	18,0%		30,283	23,64%		12,584	18,88%	
Wholesale and retail trade	66,069	19,25%	2	24,768	19,34	1	14,614	21,944	1

Sector (22 Sectors)	Eastern Cape			Nelson Mandela Bay			Buffalo City		
	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA	GVA (Current prices: ZAR)	Sectors share of provincial GVA (%)	Sectors ranking in provincial GVA
Catering and accommodation services	4,056	1,18%	15	1,285	1,003	15	860	1,292	12
Transport and storage	24,564	7,15%	5	11,426	8,923	4	4,419	6,636	5
Communication	4,367	1,27%	13	2,608	2,036	12	756	1,135	15
Finance and insurance	17,219	5,01%	6	8,226	6,424	5	3,477	5,222	6
Business services	46,405	13,52%	3	19,652	15,347	3	9,825	14,750	3
General government	85,758	24,99%	1	22,164	17,309	2	14,121	21,204	2
Community, social and personal services	25,413	7,40%	4	6,703	5,235	6	5,102	7,662	4
Total tertiary sector	273,851	79,89%		96,836	75,64%		53,181	79,87%	
Total output	343,125	100%		128,045	100%		66596	100%	

Source: Quantec Easy Data (2021a), Author's compilation

#### 6.4 LOCATION QUOTIENT PER SECTOR FOR THE EASTERN CAPE, NELSON MANDELA BAY METRO AND BUFFALO CITY IN 2020.

The next step is to evaluate the location quotient for the two metros including the province of the Eastern Cape. The location quotient is utilised as an indicator to classify the clustering of industries (Strotebeck, 2010:1). This quotient is useful in understanding how the employment of an industry within a region is performing in relation to the national employment levels for the same industry (Crawley, Beynon & Munday, 2013:1854). Strotebeck, (2010:1) further suggests that the location quotient is useful to see if the employment is below or over the national average.

Therefore, this indicator illustrates the contribution of employment that a specific industry such as the manufacturing industry has in a particular region in relation to the employment levels of the manufacturing industry in a nation. The location quotient offers the chance to associate industries that differ in magnitude since the estimation uses the employment portions on the national level as base weights to calculate the estimations on a regional level (Strotebeck, 2010:20). The location quotient for a region *i* can be presented as follow:

$$L\sigma_i = \frac{E_{i,r}}{E_r} / \frac{E_{i,n}}{E_n}, \text{ where:}$$

$E_{i,r}$  = Industry employment  $i$  in subregion  $r$

$E_r$  = Overall employment in subregion  $r$

$E_{i,n}$  = Industry employment  $i$  in region  $n$

$E_n$  = Overall employment in region  $n$

The assessment criteria for assessing the location quotient can be described as follows:

- If the LQ is larger than 1, it means that the sector of the municipality has a higher degree of specialisation level than that of the region (province).
- If the LQ is equal to 1, it means that the magnitude of specialisation of the municipality is equal than that of the region (province).
- If the LQ is smaller than 1, it means that the sector of the municipality has a lower degree of specialisation level than that of the region (province).

The objective to use this tool is to analyse the sectors in which the Eastern Cape are highly specialised in. The results were used to interpret in which sectors these regions have a relatively higher competitive advantage in comparison with other regions. The location quotient was utilised in the study as follows:

Nelson Mandela Bay Metro:

$$L\sigma_i = \frac{E_{i,NMB}}{E_{NMB}} / \frac{E_{i,EC}}{E_{EC}},$$

Buffalo City Metro:

$$L\sigma_i = \frac{E_{i,BC}}{E_{BC}} / \frac{E_{i,EC}}{E_{EC}},$$

Table 6.5 illustrates the location quotient per sector for the Eastern Cape province, the Nelson Mandela Bay Metropolitan Municipality as well as Buffalo City Metropolitan Municipality. The Eastern Cape province has a large location quotient (relative to the national) in terms of its agriculture, forestry, and fishing (1.16), transport equipment (2.22) which include motor vehicle parts and accessories as well as other transport equipment. The province also has relatively high location quotients in the wholesale and retail trade (1.07), general government (1.41) as well as community social and personal services (1.17). When evaluating the location quotient for the Eastern Cape, it is also evident that there are some of the sectors in which the province is specialising in sectors that are close to the national average (i.e., location quotient is close to 1 or equal to 1). The sectors that are relatively close to the national average include food and beverages (0.91), electrical machinery and apparatus (0.98), construction (0.96) as well as catering and accommodation services (0.99).

When investigating the Nelson Mandela Bay Metro and the Buffalo City Metropolitan Municipality in terms of its location quotients its apparent that the Nelson Mandela Bay metro provides the highest

specialisation in predominantly all the sectors which includes transport equipment (2.044), electrical machinery and apparatus (1.959), radio, TV, instruments, watches and clocks (1.905), petroleum products, chemicals, rubber and plastic (1.791), metals, metal products, machinery and equipment (1.682), communication (1.557), textiles clothing and leather goods (1.503), food, beverages and tobacco (1.112) as well as wood and paper (1.027), transport and storage (1.205), finance and insurance (1.237), business services (1.099) and other non-metal mineral products (1.316).

The Nelson Mandela Bay offer a wide range of economic activities for the Eastern Cape and can be seen as the economic hub for the province. In some sectors the metro provides relatively average specialisation in comparison to the whole province which includes the wholesale and retail trade (0.974), construction (0.8562) as well as catering and accommodation services (0.824). The Buffalo City Metropolitan Municipality have relatively high specialisation in some of its industries, however, it is not as specialised as the Nelson Mandela Bay Metro and these industries include sectors such as textiles, clothing and leather goods (1.296), furniture (1.265), food beverages and tobacco (1.199), wood and paper (1.142), wholesale and retail trade (1.130), electricity gas and water (1.180), construction (1.100), finance and insurance (1.047), business services (1.091) and community, social and personal services (1.041). In some of the sectors the metro provides relatively average specialisation such as other non-metal mineral products (0.985), radio, TV, instrument watches and clocks (0.963), petroleum products, chemicals, rubber and plastics (0.943) as well as transport and storage (0.931).

**Table 6.5: Location quotient per sector for the Eastern Cape, Nelson Mandela Bay Metro and Buffalo City Metropolitan Municipality in 2020**

Sector (22 Sectors)	Eastern Cape		Nelson Mandela Bay		Buffalo City	
	Employment (Total)	Location quotient (Relative to National)	Employment (Total)	Location quotient (Relative to Provincial)	Employment (Total)	Location quotient (Relative to Provincial)
Agriculture, forestry and fishing	101,188	<b>1,16</b>	9,008	0,282	10,046	0,601
Mining and quarrying	1,842	0,05	144	0,294	129	0,479
<b>Total Primary Sector</b>	<b>103,030</b>		<b>9,152</b>		<b>10,175</b>	
Food, beverages, and tobacco	21,243	0,91	8,130	<b>1,112</b>	4,344	<b>1,199</b>
Textiles, clothing, and leather goods	6,560	0,83	3,510	<b>1,503</b>	1,549	<b>1,296</b>
Wood and paper; publishing and printing	9,621	0,75	3,210	<b>1,027</b>	1,790	<b>1,142</b>

Sector (22 Sectors)	Eastern Cape		Nelson Mandela Bay		Buffalo City	
	Employment (Total)	Location quotient (Relative to National)	Employment (Total)	Location quotient (Relative to Provincial)	Employment (Total)	Location quotient (Relative to Provincial)
Petroleum products, chemicals, rubber and plastic	11,147	0,70	7,683	<b>1,791</b>	1,895	0,943
Other non-metal mineral products	5,072	0,85	1,995	<b>1,316</b>	847	0,985
Metals, metal products, machinery and equipment	13,989	0,55	8,516	<b>1,682</b>	2,421	0,926
Electrical machinery and apparatus	4,329	0,98	3,092	<b>1,959</b>	952	<b>1,024</b>
Radio, TV, instruments, watches, and clocks	921	0,53	647	<b>1,905</b>	177	0,963
Transport equipment	21,526	<b>2,22</b>	16,708	<b>2,044</b>	2,638	0,640
Furniture; other manufacturing	4,877	0,67	1,967	<b>1,292</b>	1,034	<b>1,265</b>
Electricity, gas and water	3,753	0,72	848	0,689	806	<b>1,180</b>
Construction	68,045	0,96	18,520	0,8562	11,348	<b>1,100</b>
<b>Total Secondary sector</b>	<b>171,083</b>		<b>75,832</b>		<b>29,801</b>	
Wholesale and retail trade	260,993	<b>1,07</b>	83,616	0,974	47,979	<b>1,130</b>
Catering and accommodation services	41,952	0,99	11,466	0,824	7,629	<b>1,086</b>
Transport and storage	40,724	0,84	15,805	<b>1,205</b>	7,381	0,931
Communication	5,966	0,66	3095	<b>1,557</b>	1,136	0,892
Finance and insurance	17,807	0,57	7,734	<b>1,237</b>	3,780	<b>1,047</b>
Business services	138,386	0,75	52,263	<b>1,099</b>	27,564	<b>1,091</b>
General government	224,016	<b>1,41</b>	53,084	0,667	37,215	0,848
Community, social and personal services	229,990	<b>1,17</b>	55,835	0,682	40,955	<b>1,041</b>
<b>Total tertiary sector</b>	<b>959,834</b>		<b>282,898</b>		<b>173,639</b>	
<b>TOTAL</b>	<b>1,233,947</b>		<b>366,876</b>		<b>213,615</b>	

Source: Quantec Easy Data (2021a), Own compilation

## 6.5 THE SHIFT-SHARE ANALYSES FOR THE NELSON MANDELA BAY METRO AND BUFFALO CITY METROPOLITAN MUNICIPALITY

The shift-share analysis is a standard applied model for regional analyses to determine growth rates into a fundamental, economical and operational element (Khusaini, 2015:741). The analysis is a basic model for regional economic evaluation that establish how much the growth of a region can be ascribed to the national economic growth movements and which proportions can be ascribed to the regional economic development factors (Herath, Gebremedhin & Maumbe, 2010:8).

The shift-share analyses calculates the variations in a region's operations comparative to the country over a certain period. It is a very well-known and prevalent indicator since the data is moderately easy and reasonable to acquire, yet it offers academics, policymakers and researchers with valuable info (Sirakaya, Uysal & Toepper, 1995:55). Income and employment figures are frequently used to measure economic development statistics, however, employment data are most often used since its more promptly available and appropriate data for the shift-share analyses (Sirakaya *et al.*, 1995:55).

**The shift-share analyses can be presented as follows:**

$$e_{i,t} = e_{i,t-1} + (NS_i + IM_i + RS_i)$$

$$\Delta e_i = e_{i,t} - e_{i,t-1} = NS_i + IM_i + RS_i$$

$$NS_i = e_{i,t-1} (E_t / E_{t-1} - 1)$$

$$IM_i = e_{i,t-1} (E_t / E_{i,t-1} - E_t / E_{i,t-1} - 1)$$

$$RS_i = e_{i,t-1} (e_{i,t} / e_{i,t-1} - E_{i,t} / E_{i,t-1}),$$

Where:

$e_i$  = regional employment in  $i^{th}$  sector

$E$  = national total employment

$E_i$  = national employment in  $i^{th}$  sector

$t-1$  = initial year of period

$E$  = regional total employment

$t$  = finish year of period

The adjustment of employment in a region is viewed as the outcome of three factors namely (i) the NS, (ii) the IM and (iii) the CS.

**National share (NS):** The national share represents the part of change accountable to general national trends (Elburz & Gezici, 2012:4). According to Rupasingha and Patrick (2009:3) the NS signifies the part of local employment growth that can be credited to the growth of the national economy. The

hypothesis regarding this component is that if the national economy is experiencing employment progression, it is sensible to anticipate that this growth will affect employment growth in a local region (Rupasingha & Patrick, 2009:3). When the national economy goes through severe busts and booms, regional economies are occasionally uninformed and the way it may influence them as a local economy, hence shift-share analyses are utilised to calculate this impact (Nachani & Swaminathan, 2017:86).

$$\text{National share} = NS_{ir}^t = E_{ir}^{t-1} \times ((E_{SA}^t) / E_{SA}^{t-1} - 1)$$

Where: t = current time, i = specific industry, t-1 = one year ago and r = specific region

In other words, the NS calculates the employment in the locality in relation to the average growth rate for all sectors of the country. This therefore indicates the share of regional job growth attributable to the national economic growth.

The national share in the study will be calculated as follows:

$$\text{Nelson Mandela Bay Metro} = NS_{iNMB}^t = E_{iNMB}^{t-1} \times ((E_{SA}^t) / E_{SA}^{t-1} - 1)$$

$$\text{Buffalo City Metro} = NS_{iBC}^t = E_{iBC}^{t-1} \times ((E_{SA}^t) / E_{SA}^{t-1} - 1)$$

As seen in Table 6.6 it indicates the growth rate percentage of employment in all the 22 sectors for both South Africa and the Eastern Cape. The objective of the table is to establish the different growth rates for the different sectors in South Africa and the Eastern Cape over a period of five years. The table illustrates that the industries with the most employment growth in South Africa include the catering and accommodation services (33%), agriculture, forestry and fishing (12,7%), business services (12,5%), transport and storage (11,6%) as well as food and beverages (9,6%). The sectors that had a negative growth rate in the various sectors include the textile, clothing and leather goods (-11,2%), mining and quarrying (-9,3%), wood and paper products (-8%) as well as furniture and other manufactures goods (-7,8%). The average percentage in employment growth rate for the South African economy grew by 5,8% in the last five years.

The province of the Eastern Cape illustrated similar growth patterns of employment in the different sectors. The sectors that grew the most significant in a period of five years include the catering and accommodation services (35,3%), agriculture, forestry and fishing (14,2%), transport and storage (13%), business services (10,2%) as well as food, beverages, and tobacco products manufacturing (8,5%). There were some drastic negative growths in other sectors, some of which include the textiles, clothing, and leather goods (-18,8%), communication (-15,3%), furniture and other manufacturing (-14,4%), finance and insurance (-9,5%) as well as transport equipment (-7,2%). The average

employment growth rate for the Eastern Cape was 4.9% from 2014 to 2019, which is relatively lower than the growth rate of South Africa.

**Table 6.6: Growth rate (%) of employment in economic sector in South Africa and the Eastern Cape from 2014 to 2019**

Sector (22 Sectors)	South Africa		Eastern Cape	
	Change in jobs from 2014–2019	%age change in jobs 2014–2019	Change in jobs from 2014–2019	%age change in jobs 2014–2019
Agriculture, forestry, and fishing (Primary)	130462	12,7%	12590	14,2%
Mining and quarrying	-52111	-9,3%	-145	-7,2%
Food, beverages and tobacco	27079	9,6%	1676	8,5%
Textiles, clothing and leather goods	-13085	-11,2%	-1525	-18,8%
Wood and paper, publishing and printing	-14784	-8%	-265	-2,6%
Petroleum products, chemicals, rubber and plastic	14846	7,5%	551	5,2%
Other non-metal mineral products	1311	1,6%	-104	-2%
Metals, metal products, machinery and equipment	-16840	-4,8%	-739	-5%
Electrical machinery and apparatus	5041	9,4%	49	1,1%
Radio, TV, instruments, watches and clocks	1253	5,8%	-18	-1,9%
Transport equipment	-201	-0,15%	-1673	-7,2%
Furniture; other manufacturing	-8261	-7,8%	-825	-14,4%
Electricity, gas and water	388	0,56%	98	2,6%
Construction	7081	0,76%	-14	-0,02%
Wholesale and retail trade	246444	8,2%	18572	7,6%
Catering and accommodation services	138299	33%	10952	35,3%
Transport and storage	66806	11,6%	4686	13%
Communication	-9171	-7,1%	-1082	-15,3%

Sector (22 Sectors)	South Africa		Eastern Cape	
	Change in jobs from 2014–2019	%age change in jobs 2014–2019	Change in jobs from 2014–2019	%age change in jobs 2014–2019
Finance and insurance	-20120	-4,6%	-1889	-9,5%
Business services	272228	12,5%	12889	10,2%
General government	-1824	-0,08%	-2921	-1,2%
Community, social and personal services	118846	4,7%	7405	3,3%
Total	893687	<b>5,815%</b>	58268	<b>4,9%</b>

Source: Quantec Easy Data (2021a), Author's compilation.

Table 6.7 illustrates the employment growth rate for both the Nelson Mandela Bay Metropolitan region and the Buffalo City Metropolitan Municipality from 2014 to 2019. Firstly, looking at the Nelson Mandela Bay Metropolitan Municipality it shows that the sectors that grew significantly include catering and accommodation services (33%), agriculture, forestry and fishing (14,3%), food, beverages and tobacco (15%), transport and storage (14,2%), business services (11,3%) and wholesale and retail trade (10,5%). The employment percentage declined significantly in the communication industry (-13,5%), textiles and clothing (-13%), furniture and other manufacturing (-11,9%), mining and quarrying (-8,2%) as well as wood, paper, publishing and printing (-6,9%). The overall growth rate for the Nelson Mandela Bay Metropolitan Municipality is 4,98%, which is marginally better than that of the Eastern Cape.

The Buffalo City Metropolitan Municipality employment growth percentage grew at a smaller percentage than that of the Nelson Mandela Bay Metropolitan Municipality. The sectors in which the city grew significantly in terms of employment include the catering and accommodation services (35,4%), agriculture, forestry and fishing (22,9%), wholesale and retail trade (8,6%) as well as transport and storage (5,2%). The sectors with the most negative growth in the municipality include the textile and clothing sector (-32,9%), radio, TV and instruments (-26,8%), transport equipment (-23,2%) as well as furniture and other manufacturing (-23,2%). The overall growth rate in terms of employment is only (2,7%), which is significantly lower than the national and provincial average.

Table 6.7 also illustrates the employment percentage per sector for both the Nelson Mandela Bay Metropolitan Municipality and Buffalo City Metropolitan Municipality. The sectors that contribute towards employment for both municipalities include the wholesale and retail trade, community, social and personal services, business services, general government, agriculture, forestry and fishing as well

as construction. The sectors that provide major potential for employment growth for both metros include catering and accommodation services, agriculture, forestry and fishing, food beverages and tobacco as well as wholesale and retail trade.

**Table 6.7: Growth rate (percentage) of employment in economic sector in Nelson Mandela Bay and Buffalo City from 2014 to 2019**

Sector (22 Sectors)	Nelson Mandela Bay			Buffalo City		
	Employment number	Employment percentage per sector	Percentage change in jobs 2014–2019	Employment number	Employment percentage per sector	%age change in jobs 2014–2019
Agriculture, forestry and fishing	9008	2,455%	14,3%	10046	4,70%	22,9%
Mining and quarrying	144	0,039%	-8,2%	129	0,06%	0
Primary sector	9152	2,49%	6,06%	10175	4,76%	22,9%
Food, beverages and tobacco	8130	2,216%	15%	4344	2,03%	2,38%
Textiles, clothing and leather goods	3510	0,957%	-13%	1549	0,73%	-32,8%
Wood and paper publishing and printing	3210	0,875%	-6,9%	1790	0,84%	-4,2%
Petroleum products, chemicals, rubber and plastic	7683	2,094%	7,8%	1895	0,88%	-7,1%
Other non-metal mineral products	1995	0,544%	0,2%	847	0,39%	0
Metals, metal products, machinery, and equipment	8516	2,321%	-3,1%	2421	1,13%	-13,9%
Electrical machinery and apparatus	3092	0,843%	1,5%	952	0,44%	-6,9%
Radio, TV, instruments, watches and clocks	647	0,176%	6,5%	177	0,08%	-26,8%
Transport equipment	16708	4,554%	-5,7%	2638	1,23%	-23,2%
Furniture; other manufacturing	1967	0,536%	-11,9%	1034	0,48%	-23,2%
Electricity, gas and water	848	0,231%	2,5%	806	0,37%	-5,1%
Construction	18520	5,048%	-2,1%	11348	5,31%	2%

Sector (22 Sectors)	Nelson Mandela Bay			Buffalo City		
	Employment number	Employment percentage per sector	Percentage change in jobs 2014–2019	Employment number	Employment percentage per sector	%age change in jobs 2014–2019
Secondary sector	75832	20,395%	48,55%	29801	13,95%	-139,20%
Wholesale and retail trade	83616	22,791%	10,5%	47979	22,46%	8,6%
Catering and accommodation services	11466	3,125%	33%	7629	3,57%	35,4%
Transport and storage	15805	4,308%	14,2%	7381	3,45%	5,2%
Communication	3095	0,844%	-13,5%	1136	0,53%	-17%
Finance and insurance	7734	2,108%	-9%	3780	1,76%	-13%
Business services	52263	14,245%	11,3%	27564	12,90%	4,8%
General government	53084	14,469%	-1,2%	37215	17,42%	-3,8%
Community, social and personal services	55835	15,219%	2%	40955	19,17%	2,6%
Tertiary sector	282898	77,11%	47,38%	173639	81,29%	21,74%
<b>Total</b>	<b>366876</b>	<b>100%</b>	<b>4,98%</b>	<b>213615</b>	<b>100%</b>	<b>2,7%</b>

Source: Quantec (2021); Author's own compilation

**Industrial mix (IM):** The IM focuses specifically on the outcomes that certain industry trends at the national level have had on the transformation in employment within the region (Rupasingha & Patrick, 2009:3). The common purpose of the IM is to examine the effects that national sectoral incline or decline growth have on the regional industry structure and therefore measures the comparative alteration due to changes in industry growth between the country and the region (Elburz & Gezici, 2012:5).

$$\text{Industry Mix} = IM_{ir}^t = E_{ir}^{t-1} \times ((E_{iSA}^t) / E_{iSA}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1})$$

The industrial mix in the study will be calculated as follows:

$$\text{Nelson Mandela Bay Metro} = IM_{iNMB}^t = E_{iNMB}^{t-1} \times ((E_{iSA}^t) / E_{iSA}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1})$$

$$\text{Buffalo City Metro} = IM_{iBC}^t = E_{iBC}^{t-1} \times ((E_{iSA}^t) / E_{iSA}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1})$$

The industry mix component is rather useful since it illustrates the significance of growth that are attributed to the localities mix of industries and therefore also illustrates the job losses or gains due to the changes in industry and total national growth rates.

The industry mix are utilised to see the effects that the national sectoral increase or decline growth have on a specific regions industry structure. It measures the comparative advantage that the industry has in comparison to that of the country. Table 6.8 illustrates the industry mix effect for the Nelson Mandela Bay Metropolitan Municipality. The first column is the total number of jobs in 2014 (a) (base year) for each industry in the Nelson Mandela Bay Metro, the second column indicates the industry growth rate of South Africa (b) and the third column represents the overall job growth rate for all industries in the South African economy (c). The next step was to calculate the industry mix for the region, which equals the total number of jobs in Nelson Mandela Bay multiplied by the industry growth rate for South Africa (IMREG).

The following step was to calculate the industry mix for South Africa, which equals the total number of jobs in the Nelson Mandela Bay region multiplied by the South African average growth rate (IMSA). The industry mix share is calculated based on the regional industry mix (IMREG – IMSA). The result shows that the employment within the region grew more in some industries than others, such as agriculture, forestry and fishing, food, beverages and tobacco, petroleum products, chemicals rubber and plastic, electrical and machinery, wholesale and retail trade, catering and accommodation, transport, and storage as well as business services.

**Table 6.8: Industry mix effect for the Nelson Mandela Bay Metropolitan Municipality**

Industry (Sector)	No of jobs in 2014 in NMB (a)	SA industry growth rate (b)	SA (overall) job growth rate (c)	Industry mix (NMB) = jobs NMB × SA Ind growth rate IMREG (a × b)	Industry mix (SA) = jobs NMB * SA job growth rate IMSA (a × c)	Industry mix share = (IMREG – IMSA)	Result
Agriculture, forestry and fishing	7878	12,76	5,815	1005,165	458,181	546,983	Employment in NMB grew above national average
Mining and quarrying	157	-9,32	5,815	-14,634	9,131	-23,765	
Food, beverages and tobacco	7065	9,61	5,815	678,766	410,897	267,868	Employment in NMB grew above national average
Textiles, clothing, and leather goods	4039	-11,22	5,815	-453,086	234,906	-687,993	

Industry (Sector)	No of jobs in 2014 in NMB (a)	SA industry growth rate (b)	SA (overall) job growth rate (c)	Industry mix (NMB) = jobs NMB × SA Ind growth rate IMREG (a × b)	Industry mix (SA) = jobs NMB * SA job growth rate IMSA (a × c)	Industry mix share = (IMREG – IMSA)	Result
Wood and paper; publishing and printing	3448	-8,07	5,815	-278,153	200,534	-478,687	
Petroleum products, chemicals, rubber and plastic	7127	7,56	5,815	539,017	414,503	124,513	Employment in NMB grew above national average
Other non-metal mineral products	1990	1,70	5,815	33,778	115,737	-81,959	
Metals, metal products, machinery and equipment	8797	-4,81	5,815	-423,343	511,630	-934,974	
Electrical machinery and apparatus	3046	9,43	5,815	287,334	177,154	110,180	Employment in NMB grew above national average
Radio, TV, instruments, watches and clocks	607	5,80	5,815	35,218	35,302	-0,0847	
Transport equipment	17723	-0,16	5,815	-27,813	1030,763	-1058,57	
Furniture; other manufacturing	2234	-7,89	5,815	-176,311	129,928	-306,240	
Electricity, gas and water	827	0,57	5,815	4,679	48,098	-43,418	
Construction	18929	0,76	5,815	144,077	1100,904	-956,826	
Wholesale and retail trade	75638	8,30	5,815	6277,835	4399,079	1878,755	Employment in NMB grew above national average
Catering and accommodation services	8618	33,05	5,815	2847,866	501,219	2346,647	Employment in NMB grew above national average
Transport and storage	13837	11,68	5,815	1616,388	804,755	811,633	Employment in NMB grew above national average
Communication	3579	-7,11	5,815	-254,451	208,153	-462,605	
Finance and insurance	8499	-4,67	5,815	-397,136	494,298	-891,435	

Industry (Sector)	No of jobs in 2014 in NMB (a)	SA industry growth rate (b)	SA (overall) job growth rate (c)	Industry mix (NMB) = jobs NMB × SA Ind growth rate IMREG (a × b)	Industry mix (SA) = jobs NMB * SA job growth rate IMSA (a × c)	Industry mix share = (IMREG – IMSA)	Result
Business services	46947	12,54	5,815	5884,999	2730,421	3154,578	Employment in NMB grew above national average
General government	53776	-0,09	5,815	-46,685	3127,593	-3174,27	
Community, social and personal services	54711	4,79	5,815	2621,081	3181,972	-560,890	
Total	349472	5,82	5,815				

Source: Quantec (2021); Authors own compilation

Similarly, to the Nelson Mandela Bay Metro the Buffalo City Metropolitan Municipality indicated similar results in terms of employment growth within the various sectors.

The industries within the Buffalo City Metropolitan Municipality that grew significantly include the agriculture, forestry and fishing, food, beverages and tobacco, petroleum products, chemicals, rubber and plastic, electrical and machinery, wholesale and retail trade, catering and accommodation services, transport, and storage as well as business services as illustrated in Table 6.9

**Table 6.9: Industry mix effect for Buffalo City Metropolitan Municipality**

Industry (Sector)	No of jobs in 2014 (a)	SA industry growth rate (b)	SA (overall) job growth rate (c)	Industry Mix (BFC) = jobs BFC × SA Ind growth rate IMREG (a×b)	Industry Mix (SA) = jobs BFC * SA job growth rate IMSA (a×c)	Industry mix share (IMREG – IMSA)	Result
Agriculture, forestry, and fishing	8171	12,76	5,815	1042,54	475,22	567,32	Employment in BFC grew above national average
Mining and quarrying	129	-9,32	5,815	-12,02	7,50	-19,52	
Food, beverages, and tobacco	4243	9,61	5,815	407,64	246,77	160,87	Employment in BFC grew above national average
Textiles, clothing, and leather goods	2307	-11,22	5,815	-258,79	134,17	-392,96	

Industry (Sector)	No of jobs in 2014 (a)	SA industry growth rate (b)	SA (overall) job growth rate (c)	Industry Mix (BFC) = jobs BFC × SA Ind growth rate IMREG (a×b)	Industry Mix (SA) = jobs BFC * SA job growth rate IMSA (a×c)	Industry mix share (IMREG -IMSA)	Result
Wood and paper; publishing and printing	1869	-8,07	5,815	-150,77	108,70	-259,47	
Petroleum products, chemicals, rubber, and plastic	2040	7,56	5,815	154,28	118,64	35,64	Employment in BFC grew above national average
Other non-metal mineral products	847	1,70	5,815	14,37	49,26	-34,88	
Metals, metal products, machinery, and equipment	2812	-4,81	5,815	-135,32	163,54	-298,86	
Electrical machinery and apparatus	1023	9,43	5,815	96,50	59,49	37,00	Employment in BFC grew above national average
Radio, TV, instruments, watches and clocks	242	5,80	5,815	14,04	14,07	-0,03	
Transport equipment	3438	-0,16	5,815	-5,39	199,95	-205,34	
Furniture; other manufacturing	1348	-7,89	5,815	-106,38	78,39	-184,78	
Electricity, gas and water	850	0,57	5,815	4,80	49,43	-44,626	
Construction	11120	0,76	5,815	84,63	646,73	-562,095	
Wholesale and retail trade	44171	8,30	5,815	3666,12	2568,96	1097,153	Employment in BFC grew above national average
Catering and accommodation services	5634	33,05	5,815	1861,78	327,67	1534,11	Employment in BFC grew above national average
Transport and storage	7015	11,68	5,815	819,46	407,98	411,47	Employment in BFC grew above national average
Communication	1379	-7,11	5,815	-98,04	80,20	-178,24	
Finance and insurance	4376	-4,67	5,815	-204,47	254,506629	-458,98	

Industry (Sector)	No of jobs in 2014 (a)	SA industry growth rate (b)	SA (overall) job growth rate (c)	Industry Mix (BFC) = jobs BFC × SA Ind growth rate IMREG (a×b)	Industry Mix (SA) = jobs BFC * SA job growth rate IMSA (a×c)	Industry mix share (IMREG -IMSA)	Result
Business services	26286	12,54	5,815	3295,05	1528,784564	1766,27	Employment in BFC grew above national average
General government	38696	-0,09	5,815	-33,59	2250,545822	-2284,13	
Community, social and personal services	39885	4,79	5,815	1910,80	2319,697646	-408,89	
Total	207881	5,82	5,815	12367,27	12090,28	276,99	

Source: Quantec (2021); Authors own compilation

**Regional shift (RS):** The regional shift or otherwise known as the competitive effect measures the part of adjustment attributable to regional competitiveness and advantages (Selting & Loveridge, 1992:5). This analysis focuses specifically on how the industrial groups within a region function comparative to those groups at national norms (Rupasingha & Patrick, 2009:3). The regional share is utilised to indicate how sectors or industrial groups in the region function in relation to the national averages.

The RS indicator, therefore, shows that the industry groups may be the same, however, the region may follow separate trends than those of the national averages (Rupasingha & Patrick, 2009:3). The regional share indicates or calculates the variance shift due to changes in rates of growth of an identical sector between the region and the nation, because of several elements such as entrepreneurship activities, regional economic policy and national resources, the growth rates between the region and nation may differ (Elburz and Gezici, 2012:5). The regional share element is utilised to distinguish a region's comparative advantages and economic strengths.

$$\text{Regional shift} = RS_{ir}^t = E_{ir}^{t-1} \times ((E_{ir}^t) / E_{ir}^{t-1} - 1) - (E_{iSA}^t) / E_{iSA}^{t-1}$$

The regional shift (or competitive effect) can be calculated as follows:

$$\text{Nelson Mandela Bay Metro} = IM_{iNMB}^t = E_{iNMB}^{t-1} \times ((E_{iNMB}^t) / E_{iNMB}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1}$$

$$\text{Buffalo City Metro} = IM_{iBC}^t = E_{iBC}^{t-1} \times ((E_{iBC}^t) / E_{iBC}^{t-1} - 1) - (E_{SA}^t) / E_{SA}^{t-1}$$

The RS focuses extensively on the number of jobs created or not created because of the competitiveness within the region and can be seen as one of the most important factors of the shift-share analyses since it categorises the lagging and leading industries within a specific region.

The regional shift, or also known as the competitive effect shows the competitiveness of each industry based on a calculation to illustrate the competitiveness within the area. The first column (a) represents the number of jobs in the base year (2014) for the Nelson Mandela Bay Metropolitan Municipality. Column (b) is the percentage change in jobs in a period of five years i.e., from 2014 until 2019. The following column is the total number of jobs within the base year (2014) multiplied by the percentage change in jobs for a period of five years. The following column is the industry growth rate for South Africa for each of the industries, while column (e) signifies the total job percentage change multiplied by the South African growth rate per industry. The column (f) illustrates the competitive effect which is equal to the jobs multiplied by the industry growth in the region minus the total number of jobs multiplied by the SA industry growth rate.

The competitive effect for the various industries illustrate that the Nelson Mandela Bay Metropolitan Municipality have a competitive advantage in the following sectors as observed in Table 6.10 : agriculture, forestry and fishing, food, beverages and tobacco, petroleum products, other non-metals and mineral products, electrical machinery, radio, TV's and instruments, electricity, gas and water, wholesale and retail, catering and accommodation services, transport and storage as well as business services. The region needs to have an important guideline in which these industries are promoted within the economy to increase the total employment and job opportunities since the region has major competitive advantages in those sectors.

**Table 6.10: Competitive component calculations for Nelson Mandela Bay Metropolitan Municipality**

Industry (Sector)	No of jobs in 2014 (a)	Percentage change in jobs 2014–2019 (b)	Jobs × Industry growth rate (a×b) = (c)	Industry growth rate (SA) (d)	Jobs × SA industry growth rate (c×d) = (e)	Competitive effect. (c-e) = (f)	Result
Agriculture, forestry and fishing	7878	14,34	1130	12,759	144,17	985,82	More competitive, increase share employment in industry
Mining and quarrying	157	-8,28	-13	-9,321	1,21	-14,21	---
Food, beverages, and tobacco	7065	15,07	1065	9,607	102,31	962,68	More competitive, increase share employment in industry

Industry (Sector)	No of jobs in 2014 (a)	Percentage change in jobs 2014–2019 (b)	Jobs × Industry growth rate (a×b) = (c)	Industry growth rate (SA) (d)	Jobs × SA industry growth rate (c×d) = (e)	Competitive effect. (c-e) = (f)	Result
Textiles, clothing, and leather goods	4039	-13,09	-529	-11,217	59,34	-588,34	---
Wood and paper; publishing and printing	3448	-6,90	-238	-8,067	19,19	-257,19	---
Petroleum products, chemicals, rubber and plastic	7127	7,801	556	7,563	42,05	513,94	More competitive, increase share employment in industry
Other non-metal mineral products	1990	0,25	5	1,697	0,084	4,91	More competitive, increase share employment in industry
Metals, metal products, machinery and equipment	8797	-3,19	-281	-4,812	13,52	-294,52	---
Electrical machinery and apparatus	3046	1,510	46	9,433	4,33	41,66	More competitive, increase share employment in industry
Radio, TV, instruments, watches and clocks	607	6,58	40	5,802	2,32	37,67	More competitive, increase share employment in industry
Transport equipment	17723	-5,72	-1015	-0,156	1,59	-1016,59	---
Furniture; other manufacturing	2234	-11,95	-267	-7,892	21,07	-288,07	---
Electricity, gas and water	827	2,53	21	0,565	0,118	20,88	More competitive, increase share employment in industry
Construction	18929	-2,16	-409	0,761	-3,113	-405,886	
Wholesale and retail trade	75638	10,54	7978	8,299	662,16	7315,83	More competitive, increase share employment in industry
Catering and accommodation services	8618	33,04	2848	33,045	941,13	1906,86	More competitive, increase share employment in industry
Transport and storage	13837	14,22	1968	11,681	229,89	1738,10	More competitive, increase share employment in industry
Communication	3579	-13,52	-484	-7,109	34,41	-518,41	---
Finance and insurance	8499	-9,00	-765	-4,672	35,74	-800,74	---

Industry (Sector)	No of jobs in 2014 (a)	Percentage change in jobs 2014–2019 (b)	Jobs × Industry growth rate (a×b) = (c)	Industry growth rate (SA) (d)	Jobs × SA industry growth rate (c×d) = (e)	Competitive effect. (c-e) = (f)	Result
Business services	46947	11,32	5316	12,535	666,38	4649,61	Employment in NMB grew above national average
General government	53776	-1,28	-692	-0,086	0,600	-692,60	---
Community, social and personal services	54711	2,054	1124	4,790	53,848	1070,15	More competitive, increase share employment in industry
Total	349472	4,980	17404	5,815	1012,21	16391	

Source: Authors compilation

Table 6.11 illustrates the competitive component calculations for the Buffalo City Metropolitan region. The region only has a competitive advantage in a small number of industries, which includes agriculture, forestry and fishing, food beverages and tobacco, construction, wholesale and retail trade, catering and accommodation, transport and storage as well as business services.

**Table 6.11: Competitive component calculations for Buffalo City Metropolitan Municipality**

Industry (Sector)	No of jobs in 2014 (a)	%age change in jobs 2014 – 2019 (b)	Jobs × Industry growth rate (a×b) = (c)	Industry Growth Rate (SA) (d)	Jobs × SA Industry growth rate (c×d) = (e)	Competitive effect (c-e) = (f)	Result
Agriculture, forestry and fishing	8171	22,94	1875	12,75	239,23	1635,76	More competitive, increased its share employment in that industry
Mining and quarrying	129	0	0	-9,32	0	0	
Food, beverages and tobacco	4243	2,380	101	9,60	9,70	91,29	More competitive, increased its share employment in that industry
Textiles, clothing and leather goods	2307	-32,856	-758	-11,21	85,03	-843,03	---
Wood and paper; publishing and printing	1869	-4,226	-79	-8,06	6,37	-85,37	---
Petroleum products, chemicals, rubber and plastic	2040	-7,107	-145	7,563	-10,96	-134,03	---

Industry (Sector)	No of jobs in 2014 (a)	% age change in jobs 2014 – 2019 (b)	Jobs × Industry growth rate (a×b) = (c)	Industry Growth Rate (SA) (d)	Jobs × SA Industry growth rate (c×d) = (e)	Competitive effect (c-e) = (f)	Result
Other non-metal mineral products	847	0	0	1,697	0	0	---
Metals, metal products, machinery and equipment	2812	-13,904	-391	-4,812	18,81	-409,81	---
Electrical machinery and apparatus	1023	-6,940	-71	9,433	-6,69	-64,302	---
Radio, TV, instruments, watches and clocks	242	-26,859	-65	5,802	-3,77	-61,228	---
Transport equipment	3438	-23,269	-800	-0,156	1,25	-801,255	---
Furniture; other manufacturing	1348	-23,293	-314	-7,892	24,78	-338,781	---
Electricity, gas and water	850	-5,176	-44	0,565	-0,248	-43,751	---
Construction	11120	2,050	228	0,7611	1,735	226,26	More competitive, increased its share employment in that industry
Wholesale and retail trade	44171	8,62	3808	8,299	316,05	3491,94	More competitive, increased its share employment in that industry
Catering and accommodation services	5634	35,41	1995	33,045	659,25	1335,74	More competitive, increased its share employment in that industry
Transport and storage	7015	5,21	366	11,681	42,75	323,24	More competitive, increased its share employment in that industry
Communication	1379	-17,62	-243	-7,109	17,276	-260,27	---
Finance and insurance	4376	-13,61	-596	-4,672	27,849	-623,84	---
Business services	26286	4,86	1278	12,533	160,202	1117,79	More competitive, increased its share employment in that industry
General government	38696	-3,827	-1481	-0,086	1,285	-1482,28	
Community, social and personal services	39885	2,68	1070	4,790	51,261	1018,73	More competitive, increased its share

Industry (Sector)	No of jobs in 2014 (a)	% age change in jobs 2014 – 2019 (b)	Jobs × Industry growth rate (a×b) = (c)	Industry Growth Rate (SA) (d)	Jobs × SA Industry growth rate (c×d) = (e)	Competitive effect (c-e) = (f)	Result
							employment in that industry
Total	207881	2,758	5734	5,815	333,487	5400,51	

Source: Authors compilation

The last step in calculating the shift-share analyses was to add up all the effects i.e. national, industry and competitive. If the result gives a positive number, then the region has an advantage in that specific sector in terms of employment creation, industry effectiveness and overall competitiveness. Table 6.12 illustrates that the Nelson Mandela Bay Metro has a very effective competitive advantage in the agricultural sector, food, beverages and tobacco, petroleum products, other non-metal products, electrical machinery, radio, TV and instruments, electricity, gas and water, wholesale and retail trade, catering and accommodation services, transport and storage, business services as well as community, social and personal services.

**Table 6.12: Shift-share analysis for the Nelson Mandela Bay Metropolitan Municipality**

Industry	National effect	Industry mix effect	Competitive effect	Total	Result
Agriculture, forestry and fishing	458	547	986	1991	Better than national average
Mining and quarrying	9	-24	-14	-29	---
Food, beverages and tobacco	411	268	963	1641	Better than national average
Textiles, clothing and leather goods	235	-688	-588	-1041	---
Wood and paper; publishing and printing	201	-479	-257	-535	---
Petroleum products, chemicals, rubber, and plastic	415	125	514	1053	Better than national average
Other non-metal mineral products	116	-82	5	39	Better than national average
Metals, metal products, machinery and equipment	512	-935	-295	-718	---

Industry	National effect	Industry mix effect	Competitive effect	Total	Result
Electrical machinery and apparatus	177	110	42	329	Better than national average
Radio, TV, instruments, watches and clocks	35	0	38	73	Better than national average
Transport equipment	1031	-1059	-1017	-1044	---
Furniture; other manufacturing	130	-306	-288	-464	---
Electricity, gas and water	48	-43	21	26	Better than national average
Construction	1101	-957	-406	-262	---
Wholesale and retail trade	4399	1879	7316	13594	Better than national average
Catering and accommodation services	501	2347	1907	4755	Better than national average
Transport and storage	805	812	1738	3354	Better than national average
Communication	208	-463	-518	-773	---
Finance and insurance	494	-891	-801	-1198	---
Business services	2730	3155	4650	10535	Better than national average
General government	3128	-3174	-693	-739	---
Community, social and personal services	3182	-561	1070	3691	Better than national average

*Source:* Authors compilation

Table 6.13 denote the shift-share analysis for the Buffalo City Metropolitan Municipality. The region presented significant competitive advantages within the agriculture, forestry and fishing, food, beverages and tobacco, construction, wholesale and retail, catering and accommodation, transport and storage and business services. The region does not show noteworthy progress in terms of competitiveness, nonetheless the region needs to focus on the industries in which they have a significant advantage to improve its economic growth.

**Table 6.13: Shift-share analysis for the Buffalo City Metropolitan Municipality**

Industry	National effect	Industry Mix effect	Competitive effect	Total	Result
Agriculture, forestry and fishing	475	567	986	1636	Better than national average
Mining and quarrying	8	-20	-14	0	n/a
Food, beverages and tobacco	247	161	963	91	Better than national average
Textiles, clothing, and leather goods	134	-393	-588	-843	---
Wood and paper; publishing and printing	109	-259	-257	-85	---
Petroleum products, chemicals, rubber and plastic	119	36	514	-134	---
Other non-metal mineral products	49	-35	5	0	---
Metals, metal products, machinery and equipment	164	-299	-295	-410	---
Electrical machinery and apparatus	59	37	42	-64	---
Radio, TV, instruments, watches and clocks	14	0	38	-61	---
Transport equipment	200	-205	-1017	-801	---
Furniture; other manufacturing	78	-185	-288	-339	---
Electricity, gas and water	49	-45	21	-44	---
Construction	647	-562	-406	226	Better than national average
Wholesale and retail trade	2569	1097	7316	3492	Better than national average
Catering and accommodation services	328	1534	1907	1336	Better than national average
Transport and storage	408	411	1738	323	Better than national average
Communication	80	-178	-518	-260	---
Finance and insurance	255	-459	-801	-624	---

Industry	National effect	Industry Mix effect	Competitive effect	Total	Result
Business services	1529	1766	4650	1118	Better than national average
General government	2251	-2284	-693	-1482	---
Community, social and personal services	2320	-409	1070	1019	Better than national average

Source: Authors compilation

## 6.6 ACQUIRING THE INPUT-OUTPUT TABLE PER REGION

The non-survey method of the input-output tables are derived from the South African national input-output table. The methods of calculations are based on a single region non-survey method that are based on the calculation of the location quotient (Szabó, 2015:50).

### 6.6.1 The standard location quotient

The location quotient is utilised as an indicator to classify the clustering of industries (Strotebeck, 2010:1). This quotient is rather useful in understanding how the employment of an industry within a region is performing in relation to the national employment levels for the same industry (Crawley, Beynon & Munday, 2013:1854). Strotebeck, (2010:1) further suggests that the location quotient is rather useful to see if the employment is below or over the national average. Therefore, this indicator illustrates the contribution of employment that a specific industry such as the manufacturing industry has in a particular region in relationship to the employment levels of the manufacturing industry in a nation. The location quotient offers the chance to associate industries that differ in magnitude since the estimation uses the employment portions on the national level as base weights to calculate the estimations on a regional level (Strotebeck, 2010:20). The location quotient for a region  $i$  can be presented as follows:

$$L\sigma_i = \frac{E_{i,r}}{E_r} / \frac{E_{i,n}}{E_n}, \text{ where:}$$

$E_{i,r}$  = Industry employment  $i$  in subregion  $r$

$E_r$  = Overall employment in subregion  $r$

$E_{i,n}$  = Industry employment  $i$  in region  $n$

$E_n$  = Overall employment in region  $n$

### 6.6.2 The CILQ (a,b function)

Following the calculation of the SLQ the next step is to calculate the CILQ, which adjusts the coefficients only by the rows. The CILQ therefore takes into consideration both the producer  $i$  and the purchaser  $j$ , which can affect a proficiency to individually supply within the region (Schaffer & Chu, 1969). The CILQ function can be represented as follows:

$$CILQ_{ij} = \frac{SLQ_{-i}}{SLQ_j}$$

The CILQ function are based on two vectors of similar elements in which are the GVA (a) and the country (b), which replaces an array  $n * n$ . The lucidity of the CILQ can be reasoned as follows: If the share of sector ( $i$ ) within the area is greater than the share of sector ( $j$ ) in the similar region, then the area can reassure industry  $j$ 's input requirement in industry  $i$  ( $CILQ_{ij}^r > 1$ ).

### 6.6.3 The FLQ (a,b,c function)

Derived from the CILQ the FLQ are utilised as a modification of the both the SLQ and the CILQ. The FLQ provides the practical application of a location quotient whereby the size of the region is reflected in the calculation (Bakhtiari & Dehghanizadeh, 2012:6905). The FLQ can be illustrated as follows:

$$FLQ_{ij} = CILQ_{ij} [\log_2(1 - \frac{x^R}{x^N})]^\varphi$$

The symbol  $\varphi$  represents the size of the area or region, however, the FLQ does not rely too much on the relative size of the region but rather on the the size of producer and purchasing sector and the comparative specialisation within the region (Szabó, 2015:52). The region does, however, play a significant role in the calculation of the FLQ, since the larger value of  $\varphi$  the greater the value of the FLQ will be. In simple terms, the FLQ can be illustrated as follows:

$$FLQ_{ij} = \log 1 + \frac{GDP \text{ at basic prices (Region)}}{GDP \text{ at basic prices (SA)}} \times \text{Regional share of GDP in\%}$$

As illustrated in the equation above, the FLQ is a basic calculation of a SLQ multiplied by the regional share of GDP in percentage (%).

### 6.6.4 Regio FLQ

The following step is to calculate the regional FLQ and are illustrated as follows:

$$RegioFLQ = (A_N \times CILQ_0 + A_N * FLQ_1 * CILQ_1)$$

The *RegioFLQ* function are obtained by means of obtaining the regional coefficients from the national coefficients  $A_N$  by utilising the *FLQ* coefficients. The *RegioFLQ* perform on two vectors of the same

measurement in which are the value-added for the region (a) and the country (b), the delta coefficient (c) and the matrix  $A_N$  the national technical coefficient.

### **6.6.5 Regional Intermediate use/sales matrix**

The following step was to calculate the regional intermediate use/sales matrix, which are based on the coefficients obtained from the *Regio FLQ* multiplied by the region's intermediate costs/use. The intermediate costs were calculated as follows: *Regional intermediate use or sales matrix* = *RegioFLQ* \* *Intermediate use or sales*. The regional intermediate use/sale matrix shows the numerical values for all of the 10 sectors. After the regional intermediate use/sales matrix had been calculated the next step was to add all the other data such as the total demand and value-added variables within the input-output table.

### **6.6.6 Regional input-output table (Balanced) for the Nelson Mandela Bay Metropolitan Municipality**

After calculating the regional intermediate use/sales matrix, the next step was to determine the regional input-output table (Balanced). The input-output table for the region was estimated and all the cells within the table had to be estimated, however, by obtaining the relevant data for the area, the input-output table for the region is fairly accurate (Szabó, 2015:54). The RAS method are utilised to develop the input-output matrices by means of calculating the method of automatic adjusted of a matrix by columns and rows (Trinh & Phong, 2013:133).

Table 6.14 is an illustration of the input-output table. The columns of the input-output table illustrate the demand sector, which includes both the intermediate demand and the final demand. The intermediate demand illustrates the goods and services produced (inputs) while the final demand represents the total demand by household, government, the capital formation, consumption and exports. The rows of the input-output table represent the supply sector, which shows the intermediate inputs as well as the GVA, all of which equals the national production (gross inputs).

**Table 6.14: The structure of the input-output table**

		Demand sector (buyer)			Endogenous sectors			Exogenous sectors					Total Output (A) + (B) + (C)		
					Intermediate demand			Final demand							
					1	2	3	(A) Total	Household	General Government	Capital Formation	Changes in inventories		Consumption	Exports
Agriculture, forestry and fishing	Mining	Manufacturing	(Goods and services produced)												
			Supply sector (seller)												
Endogenous sectors	Intermediate input	1 Agriculture, forestry and fishing	↓ Columns	Composition of raw materials and gross value added expense (inputs)											
		2 Mining													
		3 Manufacturing													
		(Supplied goods and services)													→ Rows
		Total (D)													
Exogenous sectors	Gross value added	Net taxes on products	Composition of product destination (outputs)												
		Compensation of employees													
		Other taxes (less subsidies)													
		Gross operating surplus													
		Total (E)													
National production (gross inputs) (D+E)															

Source: Author’s compilation, Japanese Ministry of economy, trade, and industry (2016)

Table 6.15 is an illustration of the 2019 input-output table for the Nelson Mandela Bay Metropolitan Municipality. The calculation of the table was utilised by means of the RAS method. The table illustrates the input-output coefficients for the NMB metro for all 10 of the sectors, which includes agriculture, mining, manufacturing, electricity and gas, construction, wholesale and retail trade, transport storage, finance insurance, general government as well as community and social services. The columns represent the demand per sector (intermediate demand and final demand), which equals the total output. The rows represent the total supply per sector (intermediate input and GVA), which equals the total national production (gross inputs).

When having a look at the manufacturing sector [SIC3] the manufacturing sector produced R76306 millions of output in the 2019 fiscal year. The input-output table tells us that it used R13181 millions of products from the wholesale and retail trade (17, 91%), R4116 million in transport and storage (5,39%), and R3618 million in finance and insurance (4,74%). The manufacturing sector also uses R27903 million (36,57%) of the domestic manufacturing sector, this can be in the form of petroleum products, metal products, electrical machinery and textiles. Table 6.15 further illustrates the

intermediate demand as well as the final demand and the intermediate input and GVA. The total demand (columns) should equal the total output (rows) for each of the sectors.

**Table 6.15: 2019 Input-output table of the Nelson Mandela Bay Metropolitan Municipality**

Nelson Mandela Bay 2019 financial year	SIC1	SIC2	SIC3	SIC4	SIC5	SIC6	SIC7	SIC8	SIC9	SIC10	Household	General Government	Capital formation	Changes in inventories	Exports	Imports	Total demand
Agriculture [SIC 1]	0,47	-	689,47	-	0,01	1,31	0,01	0,45	0,24	1,27	62,66	-	17,91	-0,38	36,13	-21,37	788
Mining [SIC 2]	0,08	0,00	90,57	3,20	2,47	-	-	-	0,14	0,66	0,03	-	0,01	-0,00	0,02	-0,01	97,17
Manufacturing [SIC 3]	137	10,13	27 903	126,57	3 651	2 757	2 958	3 224	689,52	1 082	23 946	-	4 320	-145,12	13 810	-8 168	76 306
Electricity, gas [SIC 4]	4,82	1,49	980,07	115,76	13,14	151,63	81,91	372,62	11,25	52,95	558	-	698	-3,38	321,98	-190,44	3 170
Construction [SIC 5]	0,37	0,31	816,51	17,68	335,69	498,03	893,46	636,13	87,16	260,66	5 075	-	549	-30,76	2 926	-1 731	10 336
Wholesale and retail trade [SIC 6]	49,28	3,92	13 181	103,20	1 449	1 147	1 701	1 619	275,10	558,15	9 428	-	1 606	-57,14	5 437	-3 216	33 287
Transport, storage [SIC 7]	42,24	9,92	4 116	33,81	429,15	1 227	1 188	1 782	478,10	308,28	6 988	-	3 746	-42,35	4 030	-2 383	21 955
Finance, insurance [SIC 8]	23,68	4,69	3 618	48,58	840,93	3 333	1 869	7 441	657,34	1 424	14 626	-	4 764	-88,64	8 435	-4 989	42 012
General government [SIC 91]	-	-	-	-	-	-	65,10	-	898,29	420,83	6 630	9 973	2 784	-40,18	3 823	-2 261	22 295
Community, social services [SIC 92-96, 99]	24,29	0,14	430,00	7,16	5,25	89,79	638,64	2 238	283,79	258,93	4 771	-	555	-28,92	2 751	-1 627	10 398
Tax-subs on Products	47,54	6,41	4 127	236,74	527,03	2 109	1 301	2 400	1 431	625,64	4 030	-	1 228,08	-	-	-	18 072
Employees	143	28,12	13 168	764,22	1 567	9 840	4 086	9 781	15 281	3 294	-	-	-	-	-	-	57 956
Tax-subs on production	2,38	0,67	270,92	7,87	32,48	413,06	187,76	1 164	218,23	145,91	-	-	-	-	-	-	2 444
GOS	312	31,37	6 912	1 705	1 481	11 718	6 982	11 349	1 983	1 962	-	-	-	-	-	-	44 440
Total output	788	97,17	76 306	3 170	10 336	33 287	21 955	42 012	22 295	10 398	76 119	9 973,86	20 271	-436	41 574	-24 589	

Source: Author's compilation

Table 6.16 is an illustration of the technical coefficients or also known as the A-matrix. The technical coefficient can be defined as the input requirements (number of commodities) for 1 unit of output (Ten Raa, 2006:14). The technical coefficient is measured by means of the requirements of several input units to produce 1 unit of output – for example, the amount of yeast needed to produce 1 bread.

For example, when looking at Table 6.16 it illustrates that in the manufacturing sector you will need 0.175 units of products within the manufacturing sector to produce 1 unit of goods in the agricultural sector. The table also illustrates that you will need 0,353 units within the manufacturing sector to produce/supply 1 unit of construction. The calculation of these technical coefficients is very broad, however, it indicates how much one industry need to put in (in terms of supply) to acquire 1 unit of output in another industry. Even though the manufacturing sector needs 0,366 units of the manufacturing sector to produce 1 unit of manufacturing unit, the manufacturing sector are dependent on the production of various goods and services to produce 1 unit of output in the manufacturing sector due to the interconnection of value chains within the various sectors of the economy.

As illustrated in Table 6.16 the total output coefficient for transport and storage is 0.428, however, various calculations can be used to calculate the total number of inputs that are needed to obtain an output coefficient of 0.5 or more. In other words, the role of the technical coefficient is to illustrate the numerical values that are needed to produce 1 output for a specific industry or sector. Let us say for instance the Nelson Mandela Bay Metro wants to expand its transport and storage sector then the total inputs required by the sectors including largely the manufacturing, construction and wholesale and retail trade will need to increase to obtain a larger output for the storage and transport sector. The technical coefficients are rather useful in the local economy to determine which industries has the most impact on the local economy in terms of the overall input-output coefficient matrices.

Table 6.16 further shows that the manufacturing sector, the construction, transport and storage as well as community and social services need more inputs from other sectors to increase its total output in terms of the technical coefficients. The impact analyses of the technical coefficients are useful since it can explain what the impact on other industries will be if there is a severe shock in one of the industries. For example, let's say there is a severe shock in the Nelson Mandela Bay Metro and the Coega IDZ needs to shut down (which causes the total manufacturing output to decrease by 50%), it will cause a major downturn and halve the inputs in various sectors, which will cause sectors such as the construction industry's total output to decline by 0.150 and effectively cause major job losses, employment and production for various other industries and sectors of the local economy.

**Table 6.16: 2019 Technical coefficients of the Nelson Mandela Metropolitan Municipality**

		Agriculture [SIC 1]	Mining [SIC 2]	Manufacturing [SIC 3]	Electricity, gas and water [SIC 4]	Construction [SIC 5]	Wholesale and retail trade [SIC 6]	Transport, storage [SIC 7]	Finance, insurance, real estate [SIC 8]	General government [SIC 91]	Community, social services [SIC 92- 96, 99]	Total
<b>A-matrix (Technical coefficients)</b>	Nr	1	2	3	4	5	6	7	8	9	10	
<b>Agriculture [SIC 1]</b>	1	0,001	0,000	0,009	0,000	0,000	0,000	0,000	0,000	0,000	0,000	<b>0,010</b>
<b>Mining and quarrying [SIC 2]</b>	2	0,000	0,000	0,001	0,001	0,000	0,000	0,000	0,000	0,000	0,000	<b>0,003</b>
<b>Manufacturing [SIC 3]</b>	3	0,175	0,104	0,366	0,040	0,353	0,083	0,135	0,077	0,031	0,104	<b>1,468</b>
<b>Electricity, gas and water [SIC 4]</b>	4	0,006	0,015	0,013	0,037	0,001	0,005	0,004	0,009	0,001	0,005	<b>0,095</b>
<b>Construction [SIC 5]</b>	5	0,000	0,003	0,011	0,006	0,032	0,015	0,041	0,015	0,004	0,025	<b>0,152</b>
<b>Wholesale and retail trade [SIC 6]</b>	6	0,063	0,040	0,173	0,033	0,140	0,034	0,077	0,039	0,012	0,054	<b>0,665</b>
<b>Transport and storage [SIC 7]</b>	7	0,054	0,102	0,054	0,011	0,042	0,037	0,054	0,042	0,021	0,030	<b>0,446</b>
<b>Finance, insurance [SIC 8]</b>	8	0,030	0,048	0,047	0,015	0,081	0,100	0,085	0,177	0,029	0,137	<b>0,751</b>
<b>General government [SIC 91]</b>	9	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,000	0,040	0,040	<b>0,084</b>
<b>Community, social services [SIC 92-96, 99]</b>	10	0,031	0,001	0,006	0,002	0,001	0,003	0,029	0,053	0,013	0,025	<b>0,163</b>
<b>Total</b>		<b>0,359</b>	<b>0,315</b>	<b>0,679</b>	<b>0,144</b>	<b>0,651</b>	<b>0,277</b>	<b>0,428</b>	<b>0,412</b>	<b>0,152</b>	<b>0,420</b>	<b>3,837</b>

Source: Author's compilation

The next step of the input-output analyses was to determine the Leontief inverse. Seneta (2006) indicates that if the  $I - A$  matrix is positive and non-singular, then the non-negative explanation to the method can be exemplified as represented in Equation 6.2:

The simple model to satisfy consumer demand can be represented in equation 6.2 as follows:

$$Y = (X - AX) \dots \dots \dots (6.2)$$

However, the Leontief inverse exemplifies that  $I - A^{-1}$  is the Leontief inverse, which is also known as the multiplier matrix, matrix of multipliers or the non-negative solution of the input-output model and can be presented in Equation 6.3:

$$X = (I - A)^{-1}Y \dots \dots \dots (6.3)$$

Where  $X$  represents the output vector,  $Y$  is the final demand,  $A$  exemplifies the technical coefficient matrix and  $I - A^{-1}$  represents the Leontief inverse matrix (Mun-Heng, 1998:1). Mun-Heng (1998:1) states that the Leontief inverse are interpreted as coefficients that signify the impact of one unit change in the exogenic final demand on the total output of the industry. The inverse matrix is calculated by means of the subtracting the technical coefficient matrix from the identity matrix to construct the  $I - A$ , matrix which are then utilised to assemble the Type I Leontief inverse matrix (D’Hernoncourt, Cordier & Hadley, 2011:10). According to D’Hernoncourt et al., (2011:10) the Type I inverse matrix illustrates how many of each sector’s output is required in terms of both the indirect and direct requirements to manufacture one unit of a sector’s output and can be illustrated in Equation 6.4.

$$L = (I - A)^{-1} \dots \dots \dots (6.4)$$

where:

$L$  = Leontief inverse matrix,  $I$  = identity matrix and  $A$ = technical coefficient matrix

**Table 6.17: Identity matrix and Type I multiplier Leontief inverse**

<b>1</b>	0	0	0	0	0	<b>0.875</b>	0.000	-0.03	-0.02	-0.01	-0.01
0	<b>1</b>	0	0	0	0	0.000	<b>0.977</b>	-0.01	-0.21	-0.03	0.00
0	0	<b>1</b>	0	0	0	-0.15	-0.02	<b>0.809</b>	-0.02	-0.13	-0.03
0	0	0	<b>1</b>	0	0	-0.04	-0.00	-0.01	<b>0.759</b>	-0.01	-0.08
0	0	0	0	<b>1</b>	0	-0.06	-0.06	-0.03	-0.07	<b>0.766</b>	-0.22
0	0	0	0	0	<b>1</b>	-1.32	-0.08	-0.13	-0.07	-0.15	<b>0.75</b>

Source: D’Hernoncourt, Cordier & Hadley (2011:10)

The following inverse matrix is the Type II matrix, which is obtained in the same method as the Type I inverse matrix, however, they do not only incorporate the direct and indirect impacts, but they also represent the induced impacts based on final expenditure by households as well as compensation of employees (Bess & Ambargis, 2011:7).

This means that the Type II inverse matrix is the same as the Type I inverse matrix, however, a new column will be added to calculate the coefficients for household expenditure as well as the income paid to households per industry. This can be illustrated in Equation 6.5.

$$\text{Type II: Direct Requirements matrix) } A = \begin{bmatrix} A_{II} & A_{IH} \\ A_{HI} & A_{HH} \end{bmatrix} \dots\dots\dots (6.5)$$

Where:  $(A_{II})_{ij}$  – technical coefficient matrix (used in Type I inverse matrix),  $(A_{IH})_i$  – the amount of industry I require per unit of total household income,  $(A_{HI})_j$  – income paid to households per industry and  $(A_{HH})$  – household expenditure per unit of exogenous household income.

After calculating the technical coefficients, the I matrix (identity matrix) and the Leontief matrix it is possible to calculate the final demand multipliers.

**Table 6.18: Final Demand Multipliers (Type I)**

Multiplier	Definition	Application
Output	Total industry output per R1 change in final demand	Final demand output × final demand multiplier = total gross output impact
Value-added	Total value-added per R1 change in final demand	Final demand output × final demand value-added multiplier = total value-added impact
Earnings	Total household earnings per R1 change in final demand	Final demand output × final demand earnings multiplier = total earnings impact
Employment	Total number of jobs per R1 million change in final demand	Final demand output × final demand employment multiplier = total jobs impact

Source: D’Hernoncourt *et al.*, (2011:11)

The Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

Table 6.19 illustrates the effect on final demand earnings and final demand jobs per R1 change in final demand and per 1 job change in final demand.

**Table 6.19: Final demand multipliers (Type II)**

Multiplier	Definition	Application
Earnings	Total household earnings per R1 change in final demand earnings	Final demand earnings × direct-effect earnings multiplier = total earnings impact
Employment	Total number of jobs per 1 job change in final demand jobs	Final demand jobs × direct-effect earnings multiplier = total jobs impact

Source: D’Hernoncourt *et al.*, (2011:11)

The Leontief inverse play a significant role in the exploration for both the direct and indirect outcomes ascending from the interrelationship of industries in the production of services and goods to meet the final demand (Acemoglu, Akcigit & Kerr, 2016:29). The Leontief inverse nonetheless plays a significant role to determine the effects of impact multipliers such as forward and backward linkages and employment and income multipliers, which aims to determine the industry impacts in terms of employment, income and value-added (Mun-Heng, 1998:1).

This model was utilised in the study to measure both the negative (e.g., external shocks and disinvestments) and positive (a new established industry) changes in both the Buffalo City Metropolitan Municipality and the Nelson Mandela Bay Metropolitan Municipality on income, employment, value-added and tax multipliers (Slabbert, 2005:46). This model was utilised to depict various economic relations (intraregional and interregional) between the Buffalo City Metropolitan Municipality and the Nelson Mandela Bay Metropolitan Municipality and other regions to assess the indirect and direct impacts of any change in the final demand for both the metros in terms of employment and income.

With more focus and attention towards the regional level in the later development of the literature, the focus of the input-output analyses research has been altered for the national level to a more focussed regional level (Szabó, 2015:44). With a significant attentiveness towards the evaluation and analyses of regional development, combined with other distinguished methods of data availability, the attention towards regional development methods and evaluations gained more attentiveness towards multi-regional, interregional and regional input-output tables and analyses (Lindberg, 2010:1).

The availability of data on the internet made it possible to use the Leontief’s input-output evaluation, a broadly used instrument for economic studies at all levels of government (Miller & Blair, 2009:2). The input-output table can illustrate the relationship between various industries of the national economy as well as the fundamental correlation of production and final demand in a reliable method (Szabó, 2015:45). Szabó (2015:45) further proposes that the fundamental condition of the table is equilibrium, which shows that all sectoral output must be equal. The input-output model in its simplest usage comprises an approach of linear equivalences, each of which depicts the division of an industry’s product throughout the whole economy (Cameron, 2003:1).

The regionalised input-output tables utilised in this study for the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality are ready-made input-output tables, which mean they have collective characteristics such as: (i) they rely on national input-output tables and regional level employment and labour data, (ii) the customers are assumed to have comparable preferences and (iii) they are applied using a parallel technique (Boero, Edwards & Rivera, 2018:227).

Regionalising the input-output tables are based on two principles as suggested by Szabó (2015): The first point is that the coefficients from the national input-output table can be clarified as the average of the regional technical coefficients, meaning that the structures of the tables can either be identical or totally dissimilar. Secondly, the smaller that a specific region is, the more its dependent it is on changes of the external environment.

The non-survey method is being utilised in this study by means of direct coefficients of the most current national input-output table at disposal are calculated, or otherwise known as the SAM (Boero, Edwards & Rivera, 2018:227). Secondly, using the many deviations of the tactic of LQ's for each industry and comprises various location quotients such as the SLQ, the FLQ as well as the semilogarithmic location quotient (RLQ) (Bonfoglio & Chelli, 2008:245).

## **6.7 AN ANALYSIS OF EACH SECTOR FOR THE NELSON MANDELA BAY METROPOLITAN MUNICIPALITY USING INPUT-OUTPUT TABLES**

The aim of this study was to evaluate both the economies for the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality. Both the economies were aggregated into 22 main economic sectors/industries, in turn were grouped into ten sectors including agriculture, mining and quiring, manufacturing, electricity gas and water, construction, wholesale and retail trade, transport and storage, finance and insurance, general government as well as community and social services.

Both the input-output tables for the regions were calculated based on the non-survey method of the input-output table derived from the South African national input-output table. The Leontief inverse matrix are represented in Table 6.19, which shows both the output and input multipliers as well as the forward and backward linkages. The final demand multipliers are illustrated in Table 6.20, which include output, income, tax, GVA as well as employment.

In this section, the ten main economic sectors in the Nelson Mandela Bay Metropolitan Municipality are discussed. The multipliers and linkages are based on the derivatives from the input-output tables for both the Nelson Mandela Bay Metropolitan Municipality as well as the Buffalo City Metropolitan Municipality.

## 6.7.1 The primary sector

The primary sector consists of agriculture, forestry and fishing as well as the mining and quarrying sector.

### 6.7.1.1 *Agriculture forestry and fishing*

#### GVA and employment

The agriculture, forestry and fishing industry only share 0.675% of the provincial GVA as illustrated in Table 6.4. The location quotient is 0.282, which is low compared to the other industries within the region and the industry only contributes 9008 towards total employment in the Nelson Mandela Bay Metro, as illustrated in Table 6.5. There is major potential for growth in the sector due to a significant increase of 14.3% in total employment from 2014 to 2019, meaning there is major growth potential in the agricultural, forestry and fishing sector as seen in Table 6.7. The shift-share analysis shows that the employment and competitiveness within the sector has significant potential compared to the rest of South Africa as seen in Table 6.12.

#### Forward and backward linkages

Significant backward linkages show that the production of output entails extensive intermediate inputs from other industries within a region (Ncube & Tregenna, 2021:12). Forward linkages on the other hand are the direct opposite of the backward linkages since a significant amount of its total output is used by other industries as intermediate inputs to their total production (Dine, 2019:310). Table 6.20 is an illustration of the classifications of the backward and forward linkages. The input-output analysis is classified into the following categories as shown by Temursho (2016:12).

- The first classification is the weak linkages (W), meaning they are not strongly connected to the additional industries both in terms of their output supply and input demand, meaning that both their forward and backward linkages are less than 1.
- (B) is the opposite of (W) since a numerical value  $>1$  has strong backward linkages.
- (F) is a representation of industries with strong forward linkages, which are greater than economy-wide average of forward linkages of all sectors, however, it does not have strong backward linkages.
- The key sector (K) is a “leading industry”, which are strongly linked to other industries both from the output supply chains and input demand in which the industry has good forward and backward linkages greater than 1.

**Table 6.20: Classifications of the backward and forward linkages' results**

		Forward linkages	
		Low (<1)	High (>1)
Backward linkages	Low (<1)	Weak linkages sector (W)	Strong forward linkage sector (F)
	High (>1)	Strong backward linkage sector (B)	Key sector (K)

Source: Temursho (2016:12)

The backward linkage for agriculture, forestry and fishing is 0.985, which is strong, however, the numerical value is not higher than one, showing weak sectoral linkages. The forward linkages show that the numerical value is 0.589, which is weak, both the forward and backward linkages are weak (W) for the agricultural sector. Capable value chains are needed within the Nelson Mandela Bay region to improve its overall sectoral linkages with other industries.

### Multiplier effects

#### Final demand multipliers – Type I

According to the Northern Ireland Statistics and Research Agency (NIRSA) (2021) the Type I multipliers or supplier linkage effects include both indirect and direct effects only. The Type I multiplier are used to assess the influence on the supply chain stemming from an increase in the total output to meet demand.

An increase in the final demand of the agricultural sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R340,000.
- The total GVA will increase by R900,000.
- Job opportunities (total number of jobs) will increase by an added 7,92 workers.
- Total output within the region will increase by a significant R1,730,000.

An increase in investments of agriculture will aid the region in terms of employment opportunities, especially since the Eastern Cape has a large unemployment rate. The potential for agriculture is there, especially when considering the significant increase of employment by 14.3% from 2014 to 2019.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect, and household (induced) impact that are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the agricultural sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R810,000.
- Total number of job opportunities will increase 10,44 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the agricultural industry will have an increase in earnings by only R810,000. However, the total number of jobs will increase by 10,44 in final demand jobs meaning that the sector is very dependent on employees to meet the final demand for households.

#### 6.7.1.2 *Mining and quarrying*

##### GVA and employment

The mining and quarrying industry only share 0,047% of the total provincial GVA as illustrated in Table 6.4. The location quotient is at 0.294, which is exceptionally low, meaning the region does not have sufficient employment opportunities within this sector and only contributes 144 towards the total employment within the metro and the age of job creation fell with -8.2% from 2014 to 2019. According to the shift-share analysis for mining and quarrying it shows that this industry does not have a competitive advantage within the Nelson Mandela Metropolitan Municipality.

##### Forward and backward linkages

The backward linkage for mining and quarrying is 0.985, which shows there are weak sectoral linkages between the mining and quarrying sector and the other sectors of the economy. The forward linkages for mining and quarrying show a numerical value of 0.572, which shows that the sector has an insignificant amount of total output used by other industries as intermediate inputs to their total production within the Nelson Mandela Bay Metropolitan Municipality.

##### Final demand multipliers – Type I

An increase in the final demand of the mining and quarrying sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R420 000.
- The total GVA will increase by R900,000.
- Job opportunities (total number of jobs) will increase by an added 1.82 workers.

- Total output within the region will increase by a significant R1,620,000.

An increase in investment of mining and quarrying will not have a significant impact on the local economy due to its insignificant contribution to total job opportunities, the lack of income and an inadequate competitive advantage in terms of employment within the sector.

### Final demand multipliers – (type II)

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the agricultural sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R1000,000.
- Total number of job opportunities will increase 4,95 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the mining and quarrying industry will have an increase in earnings by R1000,000. However, the total number of jobs will increase by 4,95 in final demand jobs meaning that the sector is moderately dependent on employees to meet the final demand for households.

## **6.7.2 The secondary sector**

The secondary sector focuses on sectors such as the manufacturing, electricity, gas, and water as well as construction sector.

### *6.7.2.1 Manufacturing*

#### GVA and employment

The manufacturing sector contributes 18,92% of the total provincial GVA as shown in Table 6.4, meaning the manufacturing sector contribute significantly towards total output. The location quotient for the manufacturing sector is 1.55, meaning that this sector of the municipality has a higher degree of specialisation level than that of the province. The manufacturing sector also contributes 56,464 towards total employment in the region, which is 15.40% of the total workforce. The employment in the manufacturing sector decreased by -618 i.e., (-9.466%) from 2014 to 2019. The shift-share analysis show that the food, beverages and tobacco, petroleum products and electrical machinery are the only industries in the manufacturing industry that has a significant competitive advantage in terms of employment.

### Forward and backward linkages

The backward linkage for the manufacturing sector is 1.361, which shows there are strong sectoral linkages between the manufacturing sector and the other sectors of the economy. The forward linkages for the manufacturing sector show a numerical value of 2.313, which indicates that the sector has a significant amount of total output used by other industries as intermediate inputs to their total production within the Nelson Mandela Bay Metropolitan Municipality. The manufacturing sector is regarded as a key sector within the Nelson Mandela Bay Metropolitan Municipality especially considering its strong forward and backward linkages with other sectors of the economy.

### Final demand multipliers – Type I

An increase in the final demand of the manufacturing sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R470 000.
- The total GVA will increase by R870,000.
- Job opportunities (total number of jobs) will increase by an added 2.19 workers.
- Total output within the region will increase by a significant R2,400,000.

An increase in investments of the manufacturing sector show that it will have a significant impact on the local economy, especially with regard to employment and total output. The manufacturing sector is a key sector within the economy due to its strong linkages with other sectors of the economy and its significant contribution towards total employment.

### Final demand multipliers –Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the manufacturing sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R1,120,000.
- Total number of job opportunities will increase 5,69 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the agricultural industry will have an increase in earnings by R1,120,000. However, the total number of jobs will increase by 5,69 in final demand jobs meaning that the sector is moderately dependent on employees to meet the final demand for households.

### 6.7.2.2 *Electricity, gas, and water*

#### GVA and employment

The electricity, gas and water industry contribute only 1.86% towards the total provincial GVA meaning, the sector does have a degree of significance in terms of total output within the region. The location quotient shows that the region does not have significant specialisation in terms of electricity, gas and water (0.689). The electricity, gas and water industry also only employ 848 employees and the total employment growth from 2014 until 2019 grew by 2.5%. The shift-share analysis shows that the region has a competitive advantage in this sector and that the employment within this sector grew more than the national average.

#### Forward and backward linkages

The backward linkage for the electricity, gas and water sector is 0.714, showing weak sectoral linkages between the electricity, gas and water sector and the other sectors of the economy. The forward linkages (0.662) indicate that there is an insignificant amount of output used by other industries as intermediate inputs to their total production within the Nelson Mandela Bay Metropolitan Municipality. The forward and backward linkages show weak supply between the electricity, gas and water sector and the other sectors of the economy.

#### Final Demand multipliers – Type I

An increase in the final demand of the electricity, gas and water sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R300 000.
- The total GVA will increase by R910,000.
- Job opportunities (total number of jobs) will increase by an added 0.49 workers.
- Total output within the region will increase by a significant R1,260,000.

An increase in investments of the electricity, gas and water sector will not have a significant impact on the local economy, especially in terms of total employment and total output. This sector is not a key sector within the economy due to its weak linkages with other sectors of the economy and its insignificant contribution towards total output and employment.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the gas, water and electricity sector of let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by only R710,000.
- Total number of job opportunities will increase 2,71 per one job change in final demand jobs.

This reveals that when the households earning increases by R1 change in the final demand, the electricity, gas and water industry will have an increase in earnings by R710,000. However, the total number of jobs will increase by 2.71 in final demand jobs meaning that the sector is not a key sector within the local economy.

### 6.7.2.3 *Construction*

#### GVA and employment

The construction industry only contributes 2.86% towards the total provincial GVA meaning the sector does have a degree of significance in terms of total output within the region. The location quotient shows that the region does not have significant specialisation in terms of construction activities (0.856). The construction industry also only employs 18,520 employees and the total employment growth from 2014 until 2019 declined by -2.1% showing the industry is not growing in terms of job creation opportunities. The shift-share analysis shows that the region does not have a competitive advantage in this sector and that the employment within this sector did not grow more than the national average.

#### Forward and backward linkages

The backward linkage for construction is 1.343 showing strong sectoral linkages between construction and the other sectors of the economy. The forward linkages (0.726) show that there is an insignificant amount of output used by other industries as intermediate inputs to their total production within the Nelson Mandela Bay Metropolitan Municipality. The construction industry is classified as a strong backward linkage sector (B), however, there is an insignificant amount of the construction sectors' total output that are used by other industries for production.

#### Final demand multipliers – Type I

An increase in the final demand of the construction sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/ remuneration earned by households will increase by R440 000.
- The total GVA will increase by R870,000.
- Job opportunities (total number of jobs) will increase by an added 2.93 workers.

- Total output within the region will increase by a significant R2,360,000.

An investment in the construction industry will have a significant impact on total output and create more job opportunities. The sector creates sufficient backward linkages for the other sectors of the economy and the investment in construction towards new projects and plans will help the local economy significantly towards total output.

### Final demand multipliers –Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the construction sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R1,050,000.
- Total number of job opportunities will increase 6,20 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the construction industry will have an increase in earnings by R1,050,000. The total number of jobs will also increase by 6,20 per one job change in final demand jobs showing a significant contribution towards total output and employment within the metro.

## **6.7.3 The tertiary sector**

### *6.7.3.1 Wholesale and retail trade, catering and accommodation*

#### GVA and employment

The wholesale, retail trade, catering and accommodation contribute 20,34% towards the total GVA. Wholesale and retail trade contribute 19.34% while catering and accommodation services contribute 1.00% towards the total GVA of the NMB metro. The location quotient show that the region has a moderately strong specialisation in this sector with a location quotient of 0.974 for wholesale and retail trade, while catering and accommodation services has a location quotient of 0.824.

The wholesale and retail trade industry employ 83,616 employees and the total growth from 2014 until 2019 grew by 10.5% while the catering and accommodation services only employ 11466 from 2014 until 2019; the total jobs growth rate in this sector grew by 33%. According to the analyses of the shift-share, the region has a competitive advantage in this sector in terms of employment creation and it performs better than the national average.

#### Forward and backward linkages

The backward linkage for wholesale and retail trade is 0.877, showing weak sectoral linkages between wholesale and retail trade and the other sectors of the Nelson Mandela Bay Metropolitan Municipality economy. The forward linkages, however, shows that the sector has a significant amount of its output being used by the other industries as intermediate inputs to their total production within the Nelson Mandela Bay Metropolitan Municipality. The wholesale and retail trade industry is classified as a sector with weak backward linkages, but as a strong forward linkage sector (F).

#### Final demand multipliers – Type I

The increase in final demand of the wholesale and retail trade sector of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/remuneration earned by households will increase by R410 000.
- The total GVA will increase by R910,000.
- Job opportunities (total number of jobs) will increase by an added 2.85 workers.
- Total output within the region will increase by a significant R1,540,000.

An investment in the wholesale and retail industry will have a significant impact on total output and create moderate potential job opportunities. The sector, however, does not create sufficient backward linkages for other sectors of the economy but it creates sufficient forward linkages for other sectors of the Nelson Mandela Bay Metropolitan Municipality.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the construction sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R990,000.
- Total number of job opportunities will increase 5,92 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the construction industry will have an increase in earnings by R990,000. The total number of jobs will also increase by 6,20 per one job change in final demand jobs showing a significant contribution towards total output and employment within the metro.

#### 6.7.3.2 *Transport, storage and communication*

#### GVA and employment

The transport, storage and communication sector contribute 10.96% towards the total GVA, transport and storage contribute 8.923%, while communication only contribute 2.036% towards the total GVA. The location quotient shows that the region has strong specialisation within the transport and storage sector with a location quotient of 1.205 while the communication sector has a location quotient of 1.557. The transport and storage industry has 15,805 employees and the total growth of employees from 2014 to 2019 by 14.2%, while the communication industry only has 3,095, however, the total number of employees diminished by -13.5% within the Nelson Mandela Bay Metropolitan Municipality. The shift-share analysis shows that the transport and storage industry have a competitive advantage in terms of employment creation, however, the communication sector does not have a competitive advantage.

#### Forward and backward linkages

The backward linkage for transport, storage and communication is 1.051, indicating strong sectoral linkages and supply between the transport and storage industry and other sectors of the Nelson Mandela Bay Metropolitan Municipality. The forward linkages (1.020) also shows that a significant amount of the transport and storage industry's output are used as intermediate inputs towards the total production of the Nelson Mandela Bay Metropolitan Municipality. The transport, storage and communication sector is a key sector (K) since the forward and backward linkages are significant, meaning a lot of industries use this sector in its output and intermediate inputs.

#### Final demand multipliers – Type I

The increase in final demand of the transport, storage and communication sector of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/ remuneration earned by households will increase by R370 000.
- The total GVA will increase by R890,000.
- Job opportunities (total number of jobs) will increase by an added 1.77 workers.
- Total output within the region will increase by a significant R1,850,000.

An investment in the transport storage and communication industry will have a significant impact on total output and create moderate potential job opportunities. The sector creates sufficient forward and backward linkages for other sectors within the Nelson Mandela Bay Metropolitan Municipality.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the construction sector of, let us assume R1,000,000 per annum will have the following effects:

- Total household earnings per R1 change in final demand earnings will increase by R890,000.
- Total number of job opportunities will increase 4.53 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the transport, storage and communication industry will have an increase in earnings by R890,000. The total number of jobs will also increase by 4,53 per one job change in final demand jobs showing a moderate contribution towards total output and employment within the metro.

### 6.7.3.3 *Finance, insurance, real estate, and business services*

#### GVA and employment

The finance, insurance, real estate and business services sector contribute 21.77% towards the total GVA, the finance, insurance and real estate sector contributes only 6.42% to the total GVA, while business services contribute nearly 15.34% to the total GVA. The location quotient shows that the region has high specialisation in both the finance, insurance and real estate industry (1.237) and the business services has a location quotient of 1.099, which are both more than 1. The finance, insurance and real estate sector employs 7,734 people, while the business services have 52,263 employees, however, the finance, insurance and real estate declined by -9%, while the business services grew at 11.3% in total. The shift-share analysis show that the finance and insurance industry have a weak competitive advantage in terms of finance and insurance, while the business services have a very good competitive advantage in comparison with South Africa.

#### Forward and backward linkages

The backward linkage for finance, insurance, real estate and business services is 1.011, showing strong sectoral linkages and supply between the finance, insurance and real estate industry and other sectors of the Nelson Mandela Bay Metropolitan Municipality. The forward linkages (1.381) also shows that a significant amount of the financial industry's output is used as intermediate inputs towards the total production of the Nelson Mandela Bay Metropolitan Municipality. The finance, insurance, real estate and business services are a key sector (K), since the forward and backward linkages is significant, meaning a lot of industries use this sector in its output and intermediate inputs.

#### Final demand multipliers – Type I

The increase in final demand of the finance, insurance, real estate and business services of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/ remuneration earned by households will increase by R410 000.
- The total GVA will increase by R900,000.

- Job opportunities (total number of jobs) will increase by an added 2.26 workers.
- Total output within the region will increase by a significant R1,780,000.

An investment in the finance, insurance, real estate and business services industry will have a significant impact on total output and create moderate potential job opportunities. The sector creates sufficient forward and backward linkages for other sectors within the Nelson Mandela Bay Metropolitan Municipality.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the finance, insurance, real estate and business of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R980,000.
- Total number of job opportunities will increase 5.30 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand for the finance, insurance, real estate and business industry will have an increase in earnings by R980,000. The total number of jobs will also increase by 5.30 per one job change in final demand jobs showing a significant contribution towards total output and employment within the metro.

#### *6.7.3.4 General government*

##### GVA and employment

The general government sector contributes 17.30% towards the total GVA indicating that government plays an integral role towards total output. The government sector has a location quotient of 0.667, which are less than 1 showing that the sector does not have significant specialisation within the metro. The sector does employ a large number of 53084 people, however, the number of employees has decreased by -1.2% from 2014 until 2019. The shift-share analysis shows that the sector within the NMB metro does not have a competitive edge, meaning its not better than the national average.

##### Forward and backward linkages

The backward linkage for the government sector is 0.72,1 indicating weak sectoral linkages and supply between the government and other sectors of the Nelson Mandela Bay Metropolitan Municipality. The forward linkages (0.626) also show that an insignificant amount of the government sector output is used in other sectors. The government sector is a weak sector (W) since the forward and backward

linkages are insignificant, meaning the industries do not use this sector in its output and intermediate inputs.

#### Final demand multipliers – Type I

The increase in final demand of the government services of R1,000,000 per annum will have a significant impact/effect on the following aspects:

- Income/remuneration earned by households will increase by R760 000.
- The total GVA will increase by R920,000.
- Job opportunities (total number of jobs) will increase by an added 2.24 workers.
- Total output within the region will increase by a significant R1,270,000.

The government does not provide adequate forward and backward linkages within the economy, however, the local community are largely dependent on government for income, job opportunities and total output.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of government sector of, let us assume R1,000,000 per annum, will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R1,830,000.
- Total number of job opportunities will increase 7.91 per one job change in final demand jobs.

This shows that when the household earnings increase by R1 change in the final demand for the government sector it will cause an increasing of earnings by R1,830,000, and the total number of jobs will also increase by 7.91 per one job change in final demand jobs showing a significant contribution towards total output and employment within the Nelson Mandela Metropolitan Municipality.

#### 6.7.3.5 *Community, social and personal services*

##### GVA and employment

The community, social and personal services sector contributes 5.23% towards the total GVA indicating that the community, social and personal services sector plays a minimal role towards total output. The community, social and personal services have a location quotient 0.682 which are less than 1 showing that sector does not have significant specialisation within this sector in the metro. The sector does

employ a large number of people 55835 and the total number of employees increased by 2% from 2014 until 2019. The shift-share analysis shows that the sector within the NMB metro does have a competitive edge, meaning its better than the national average in terms of employment creation and total output.

#### Forward and backward linkages

The backward linkage for the government sector is 1.011, indicating strong sectoral linkages and supply between the community, social and personal services and other sectors of the Nelson Mandela Bay Metropolitan Municipality. The forward linkages (0.735) show that an insignificant amount of the community services output is used in other sectors. The community, social and personal services has a strong backward linkage (B), however, the forward linkage within the sector is insignificant.

#### Final demand multipliers – Type I

The increase in final demand of the government services of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/remuneration earned by households will increase by R510 000.
- The total GVA will increase by R890,000.
- Job opportunities (total number of jobs) will increase by an added 5,22 workers.
- Total output within the region will increase by a significant R1,790,000.

Community, social and personal services do not provide adequate forward and backward linkages within the economy, however, the local community are largely dependent on community services for income, job opportunities and total output.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact that are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of community, social and personal services of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R1,220,000.
- Total number of job opportunities will increase 9,01 per one job change in final demand jobs.

This shows that when the household earnings increase by R1 change in the final demand for the community, social and personal services it will cause an increase of earnings by R1,220,000 and the total number of jobs will also increase by 9,02 per one job change in final demand jobs showing a

significant contribution towards total output and employment within the Nelson Mandela Metropolitan Municipality.

**Table 6.21: 2019 Leontief inverse matrix for the Nelson Mandela Bay Metropolitan Municipality**

[I-A] <sup>-1</sup> matrix - Type I Leontief inverse	[SIC1]	[SIC2]	[SIC3]	[SIC4]	[SIC5]	[SIC6]	[SIC7]	[SIC8]	[SIC9]	[SIC10]	Total input multipliers	Forward linkages
Agriculture, forestry and fishing [SIC 1]	<b>1,004</b>	0,002	0,015	0,001	0,006	0,002	0,003	0,002	0,001	0,002	<b>1,038</b>	<b>0,589</b>
Mining and quarrying [SIC 2]	0,001	<b>1,000</b>	0,002	0,001	0,001	0,000	0,000	0,000	0,000	0,000	<b>1,007</b>	<b>0,572</b>
Manufacturing [SIC 3]	0,340	0,230	<b>1,692</b>	0,088	0,677	0,191	0,313	0,213	0,077	0,252	<b>4,072</b>	<b>2,313</b>
Electricity, gas and water [SIC 4]	0,013	0,021	0,026	<b>1,040</b>	0,014	0,009	0,011	0,016	0,002	0,012	<b>1,165</b>	<b>0,662</b>
Construction [SIC 5]	0,013	0,015	0,032	0,009	<b>1,054</b>	0,024	0,056	0,029	0,008	0,038	<b>1,278</b>	<b>0,726</b>
Wholesale and retail trade [SIC 6]	0,141	0,101	0,327	0,056	0,292	<b>1,086</b>	0,161	0,104	0,034	0,123	<b>2,425</b>	<b>1,378</b>
Transport, storage and communication [SIC 7]	0,088	0,131	0,120	0,021	0,106	0,062	<b>1,093</b>	0,077	0,033	0,064	<b>1,795</b>	<b>1,020</b>
Finance, insurance, real estate and business services [SIC 8]	0,091	0,102	0,158	0,035	0,194	0,155	0,164	<b>1,264</b>	0,053	0,215	<b>2,431</b>	<b>1,381</b>
General government [SIC 91]	0,002	0,001	0,001	0,000	0,001	0,001	0,005	0,003	<b>1,043</b>	0,044	<b>1,102</b>	<b>0,626</b>
Community, social and personal services [SIC 92-96, 99]	0,042	0,013	0,023	0,006	0,019	0,015	0,044	0,073	0,018	<b>1,042</b>	<b>1,294</b>	<b>0,735</b>
<b>Total Output Multipliers (Type 1)</b>	<b>1,734</b>	<b>1,616</b>	<b>2,397</b>	<b>1,258</b>	<b>2,365</b>	<b>1,544</b>	<b>1,851</b>	<b>1,780</b>	<b>1,269</b>	<b>1,793</b>	<b>17,607</b>	
<b>Backward linkages</b>	<b>0,985</b>	<b>0,918</b>	<b>1,361</b>	<b>0,714</b>	<b>1,343</b>	<b>0,877</b>	<b>1,051</b>	<b>1,011</b>	<b>0,721</b>	<b>1,018</b>		

Source: Own compilation

**Table 6.22: Final demand multiplier analyses: Type I and Type II multipliers for the Nelson Mandela Bay Metro**

Final demand multipliers											
		Output multipliers		Earnings/income multipliers		Tax multipliers		GVA multipliers		Total job multipliers	
		Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2
<b>A-matrix (Technical coefficients)</b>	Nr										
Agriculture, forestry and fishing	1	1,73	3,70	0,34	0,81	0,11	0,25	0,90	1,79	7,92	10,44
Mining and quarrying	2	1,62	4,05	0,42	1,00	0,11	0,28	0,90	2,00	1,83	4,95
Manufacturing	3	2,40	5,12	0,47	1,12	0,15	0,34	0,87	2,11	2,19	5,69
Electricity, gas and water	4	1,26	2,99	0,30	0,71	0,10	0,21	0,91	1,70	0,49	2,71
Construction	5	2,36	4,91	0,44	1,05	0,14	0,32	0,87	2,03	2,93	6,20
Wholesale and retail trade, catering and accommodation	6	1,54	3,94	0,41	0,99	0,11	0,28	0,91	1,99	2,85	5,92
Transport, storage and communication	7	1,85	4,01	0,37	0,89	0,13	0,27	0,89	1,87	1,77	4,53
Finance, insurance, real estate and business services	8	1,78	4,16	0,41	0,98	0,14	0,30	0,90	1,98	2,26	5,30
General government	9	1,27	5,70	0,76	1,83	0,09	0,40	0,92	2,93	2,24	7,91
Community, social and personal services	10	1,79	4,76	0,51	1,22	0,13	0,33	0,89	2,24	5,22	9,02
SA weighted national average		<b>1,93</b>	<b>4,65</b>	<b>0,50</b>	<b>1,19</b>	<b>0,12</b>	<b>0,30</b>	<b>0,90</b>	<b>2,08</b>	<b>4,85</b>	<b>8,13</b>

Source: Own compilation

## **6.8 AN ANALYSIS OF EACH SECTOR FOR THE BUFFALO CITY METROPOLITAN MUNICIPALITY**

### **6.8.1 Regional input-output table (balanced) for the Buffalo City Metropolitan Municipality**

After calculating the regional intermediate use/sales matrix, the next step is to determine the regional input-output table (balanced). The input-output table for the region are estimated and all the cells within the table must be estimated, however, by obtaining the relevant data for the area, the input-output table for the region is correct (Szabó, 2015:54). The RAS method are utilised to develop the input-output matrices by means of calculating the method of automatic adjusted of a matrix by columns and rows (Trinh & Phong, 2013:133).

Table 6.23 is an illustration of the 2019 input-output table for the Buffalo City Metropolitan Municipality. The calculation of the table is used with the RAS method. The table illustrates the input-output coefficients for the BCM metro for all ten of the sectors, which includes agriculture, mining, manufacturing, electricity and gas, construction, wholesale and retail trade, transport storage, finance insurance, general government as well as community and social services. The columns are the demand per sector (intermediate demand and final demand), which equals the total output. The rows are the total supply per sector (intermediate input and GVA), which equals the total national production (gross inputs).

The 2019 input-output table show that the biggest sectors within the Buffalo City Metropolitan Municipality include manufacturing (R29948 million), the wholesale and retail (R24584), finance and insurance (R24159) as well as general government (R18297). The sectors that employ the most workers include the general government (9231 employees), finance and insurance (3871 employees), wholesale and retail trade (3634 employees) and the manufacturing sector (3126 employees). Table 6.23 further illustrates the intermediate demand as well as the final demand and the intermediate input and GVA. The total demand (columns) should equal the total output (rows) for each of the sectors in the economy.

**Table 6.23: 2019 Input-output table for the Buffalo City Metropolitan Municipality**

Buffalo City Metropolitan 2019 financial year	SIC1	SIC2	SIC3	SIC4	SIC5	SIC6	SIC7	SIC8	SIC9	SIC10	Household	General government	Capital formation	Changes in inventories	Exports	Imports	Total demand
Agriculture [SIC 1]	2,34	-	1 121	-	0,03	5,15	0,01	0,74	1,77	4,68	97,53	-	22,61	-0,61	57,64	-34,09	1 279
Mining [SIC 2]	0,18	0,00	83,84	6,44	5,04	-	-	-	0,61	1,49	0,01	-	0,01	-0,00	0,00	-0,00	97,62
Manufacturing [SIC 3]	183,76	9,32	9 270	130,80	2 915	2 473	881,43	1 018	739,05	813,41	8 334	-	1 218,26	-51,75	4 925,27	-2 913,14	29 948
Electricity, gas [SIC 4]	16,21	3,73	827,78	317,55	27,50	366,03	70,70	375,92	49,45	119,36	644,16	-	405,55	-4,00	380,68	-225,16	3 375
Construction [SIC 5]	1,13	0,69	505,45	42,39	497,99	880,72	605,85	448,02	181,93	374,23	3 911	-	308,62	-24,29	2 311,67	-1 367,28	8 678,7
Wholesale and retail trade [SIC 6]	122	6,77	6 273	180,20	1 446	1 259,21	934,61	959,78	456,99	543,51	8 961	-	1 332,40	-55,65	5 296,21	-3 132,53	24 585
Transport, storage [SIC 7]	62,02	9,21	1 839	38,23	454,14	1 451	521,41	832,12	674,40	380,49	2 199	-	1 234,61	-13,66	1 299,99	-768,90	10 214
Finance, insurance [SIC 8]	43,58	5,58	1 717	67,79	905,64	4 040	967,40	5 303	929,46	1 738	5 690	-	1 410,68	-35,34	3 362,96	-1 989,08	24 159
General government [SIC 91]	-	-	-	-	-	-	15,54	-	1 038	209,26	4 741	9 566	1 610,79	-29,44	2 802,02	-1 657,30	18 297
Community, social services [SIC 92-96, 99]	77,74	0,28	314	16,83	7,09	132,29	441,39	1 686	566,28	393,63	4 122	-	313,88	-25,60	2 436,37	-1 441,03	9 043
Tax-subs on products	78,35	7,58	1 927	308,94	491,10	1 753	748,57	1 791	1 855	637,58	1 607	-	511,44	-	-	-	11 718
Employees	188	24,99	3 126	331,89	723,89	3 634	1 188	3 871	9 231	2 035	-	-	-	-	-	-	24 356
Tax-subs on production	5,76	0,71	134	18,15	24,86	277,35	111,21	739,98	237,02	123,23	-	-	-	-	-	-	1 672,68
GOS	498	28,77	2 805	1 916,2	1 179,4	8 310,8	3 727,5	7 131	2 335	1 668	-	-	-	-	-	-	29 601
Total output	1 279	97,62	29 948	3 375	8 678,7	24 584	10 214	24 159	18 297	9 043	40 310	9 566,22	8 368,83	-240,35	22 872	-13 528	

Table 6.24 is an illustration of the technical coefficients or also known as the A-matrix. The technical coefficient can be defined as the input requirements (number of commodities) for 1 unit of output (Ten Raa, 2006:14). The technical coefficient is measured with the requirements of several input units to produce 1 unit of output – for example, the amount of yeast needed to produce 1 bread.

For example, when looking at Table 6.24, it illustrates that in the manufacturing sector you will need 0.144 units of products within the manufacturing sector to produce 1 unit of goods in the agricultural sector. The table also illustrates that you will need 0,336 units within the manufacturing sector to produce/supply 1 unit of construction. The calculation of these technical coefficients is broad, however, it shows how much one industry need to put in (in terms of supply) to acquire 1 unit of output in another industry. Even though the manufacturing sector needs 0,310 units of the manufacturing to produce 1 manufacturing unit, the manufacturing sector is dependent on the production of various goods and services to produce 1 unit of output due to the interconnection of value chains within the various sectors of the economy.

The role of the technical coefficient is to illustrate the numerical values that are needed to produce 1 output for a specific industry or sector. Let's say for instance the Buffalo City Metropolitan Municipality wants to expand its agricultural sector then the total inputs required by the sectors including largely the manufacturing, wholesale and retail trade and transport and storage will need to increase to obtain a larger output for the storage and transport sector. The technical coefficients are useful in the local economy to determine which industries have the most impact on the local economy in terms of the overall input-output coefficient matrices.

Table 6.24 further shows that the manufacturing sector, the construction, transport and storage as well as the finance, insurance and real estate need more inputs from other sectors to increase its total output in terms of the technical coefficients. The impact analyses of the technical coefficients are useful since it can explain what the impact on other industries will be if there is a severe shock in one of the industries. For example, let's say there is a severe shock in the Buffalo City and the East London IDZ needs to shut down (which causes the total manufacturing output to decrease by 50%), it will cause a major downturn and halve the inputs in various sectors that will cause sectors such as the construction industry's total output to decline by 0.168 and effectively cause major job losses, employment and production for various other industries and sectors of the local economy.

**Table 6.24: 2019 Technical coefficients of the Buffalo City Metropolitan Municipality**

		Agriculture [SIC 1]	Mining [SIC 2]	Manufactu- ring [SIC 3]	Electricity, gas and water [SIC 4]	Construc- tion [SIC 5]	Wholesale and retail trade [SIC 6]	Transport, storage [SIC 7]	Finance, insurance, real estate [SIC 8]	General government [SIC 91]	Community , social services [SIC 92-96, 99]	Total
A-matrix (Technical coefficients)	Nr	1	2	3	4	5	6	7	8	9	10	
Agriculture [SIC 1]	1	0,002	0,000	0,037	0,000	0,000	0,000	0,000	0,000	0,000	0,001	<b>0,040</b>
Mining and quarrying [SIC 2]	2	0,000	0,000	0,003	0,002	0,001	0,000	0,000	0,000	0,000	0,000	<b>0,006</b>
Manufacturing [SIC 3]	3	0,144	0,095	0,310	0,039	0,336	0,101	0,086	0,042	0,040	0,090	<b>1,283</b>
Electricity, gas and water [SIC 4]	4	0,013	0,038	0,028	0,094	0,003	0,015	0,007	0,016	0,003	0,013	<b>0,229</b>
Construction [SIC 5]	5	0,001	0,007	0,017	0,013	0,057	0,036	0,059	0,019	0,010	0,041	<b>0,260</b>
Wholesale and retail trade [SIC 6]	6	0,095	0,069	0,209	0,053	0,167	0,051	0,091	0,040	0,025	0,060	<b>0,862</b>
Transport and storage [SIC 7]	7	0,048	0,094	0,061	0,011	0,052	0,059	0,051	0,034	0,037	0,042	<b>0,491</b>
Finance, insurance [SIC 8]	8	0,034	0,057	0,057	0,020	0,104	0,164	0,095	0,220	0,051	0,192	<b>0,995</b>
General government [SIC 91]	9	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,000	0,057	0,023	<b>0,081</b>
Community, social services [SIC 92-96, 99]	10	0,061	0,003	0,011	0,005	0,001	0,005	0,043	0,070	0,031	0,044	<b>0,273</b>
<b>Total</b>		<b>0.398</b>	<b>0.363</b>	<b>0.733</b>	<b>0.237</b>	<b>0.721</b>	<b>0.431</b>	<b>0.434</b>	<b>0.440</b>	<b>0.254</b>	<b>0.506</b>	

Source: Author's compilation

The aim of this study was to evaluate both the economies for the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality. Both the economies were aggregated into 22 main economic sectors/industries, in turn were divided into ten sectors including agriculture, mining and quarrying, manufacturing, electricity gas and water, construction, wholesale and retail trade, transport and storage, finance and insurance, general government as well as community and social services. Both the input-output tables for the regions were calculated based on the non-survey method of the input-output table derived from the South African national input-output table. The Leontief inverse matrix represented in Table 6.25, which shows both the output and input multipliers as well as the forward and backward linkages. The final demand multipliers are illustrated in Table 6.26, which include output, income, tax, GVA as well as employment.

In this section, the ten main economic sectors in the Buffalo City Metropolitan Municipality are discussed. The multipliers and linkages are based on the derivatives from the input-output tables for both the Nelson Mandela Bay Metropolitan Municipality as well as the Buffalo City Metropolitan Municipality.

## **6.8.2 The primary sector**

The primary sector consists of agriculture, forestry and fishing as well as the mining and quarrying sector.

### *6.8.2.1 Agriculture forestry and fishing*

#### GVA and employment

The agriculture, forestry and fishing industry contribute 1.171% of the Eastern Capes GVA as illustrated in Table 6.4. The location quotient is 0.601, which is high compared to the Nelson Mandela Bay Metropolitan Municipality with a location quotient of 0.282. The industry contributes a significant 10,046 towards total employment within the region, meaning the agriculture, forestry and fishing industry contribute 4.70% towards total employment within the Buffalo City Metropolitan region. There is major potential for growth in the sector due to a significant increase of 22,9% in total employment from 2014 to 2019, meaning there is major growth potential in the agricultural, forestry and fishing sector as seen in Table 6.7. The shift-share analysis shows that the employment and competitiveness within the sector has significant potential compared to the rest of South Africa as seen in Table 6.12.

#### Forward and backward linkages

The backward linkage for agriculture, forestry and fishing is 0,951, which is strong, however, the numerical value is not higher than 1, showing weak sectoral linkages. The forward linkages show that the numerical value is 0.584, which is weak, both the forward and backward linkages are weak (W) for

the agricultural sector. Capable value chains are needed within the Buffalo City region to improve its overall sectoral linkages with other industries.

### Multiplier effects

#### Final demand multipliers Type I

According to the Northern Ireland Statistics and Research Agency (NIRSA) (2021) the Type I multipliers or supplier linkage effects include both indirect and direct effects only. The Type I multiplier was used to assess the influence on the supply chain stemming from an increase in the total output to meet demand.

An increase in the final demand of the agricultural sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R270,000.
- The total GVA will increase by R880,000.
- Job opportunities (total number of jobs) will increase by an added 6,49 workers.
- Total output within the region will increase by a significant R1,870,000.

An increase in investments of agriculture will aid the region in terms of employment opportunities, especially since the Eastern Cape has a large unemployment rate. The potential for agriculture is there, especially when considering the significant increase of employment by 22.9% from 2014 to 2019.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact that are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the agricultural sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R570,000.
- Total number of job opportunities will increase 8.71 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the agricultural industry will have an increase in earnings by only R570,000. However, the total number of jobs will increase by 8,71 in final demand jobs meaning that the sector is very dependent on employees to meet the final demand for households.

### 6.8.2.2 *Mining and quarrying*

#### GVA and employment

The mining and quarrying industry only share 0,076% of the total provincial GVA as illustrated in Table 6.4. The location quotient is at 0.497, which is exceptionally low, meaning the region does not have sufficient employment opportunities within this sector and only contributes 129 towards the total employment within the metro and the percentage of job creation stayed the same from 2014 to 2019. According to the shift-share analysis for mining and quarrying it shows that this industry does not have a competitive advantage within the Buffalo City Metropolitan Municipality.

#### Forward and backward linkages

The backward linkage for mining and quarrying is 0.894, which shows there are weak sectoral linkages between the mining and quarrying sector and the other sectors of the economy. The forward linkages for mining and quarrying show a numerical value of 0.517, which shows that the sector has an insignificant amount of total output used by other industries as intermediate inputs to their total production within the Buffalo City Metropolitan Municipality.

#### Final demand multipliers – Type I

An increase in the final demand of the mining and quarrying sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R350 000.
- The total GVA will increase by R870,000.
- Job opportunities (total number of jobs) will increase by an added 1.78 workers.
- Total output within the region will increase by a significant R1,750,000.

An increase in investment of mining and quarrying will not have a significant impact on the local economy due to its insignificant contribution to total job opportunities, the lack of income and an inadequate competitive advantage in terms of employment within the sector.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the mining sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R750,000.
- Total number of job opportunities will increase 4,74 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the mining and quarrying industry will have an increase in earnings by R1000,000. However, the total number of jobs will increase by 4,74 in final demand jobs meaning that the sector is moderately dependent on employees to meet the final demand for households.

### **6.8.3 The secondary sector**

The secondary sector focuses on sectors such as the manufacturing, electricity, gas and water as well as construction sector.

#### *6.8.3.1 Manufacturing*

##### GVA and employment

The manufacturing sector contributes 9.22% of the total provincial GVA as shown in Table 6.4, meaning the manufacturing sector contribute significantly towards total output. The location quotient for the manufacturing sector is 0.9, meaning that this sector of the municipality does not have a high degree of specialisation within the manufacturing sector. The manufacturing sector contribute 29,801 towards total employment in the region, which is 8.27% of the total workforce. The employment in the manufacturing sector declined by -2522 i.e., (-136%) from 2014 to 2019. The shift-share analysis show that the food, beverages and tobacco, are the only industry within the manufacturing industry that has a significant competitive advantage in terms of employment.

##### Forward and backward linkages

The backward linkage for the manufacturing sector is 1.335, which shows there are strong sectoral linkages between the manufacturing sector and the other sectors of the economy. The forward linkages for the manufacturing industry show a numerical value of 1.927, which indicates that the sector has a significant amount of total output used by other industries as intermediate inputs to their total production within the Buffalo City Metropolitan Municipality. The manufacturing sector is a key sector within the Buffalo City Metropolitan Municipality, especially considering its strong forward and backward linkages with other sectors of the economy.

##### Final demand multipliers – Type I

An increase in the final demand of the manufacturing sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R310 000.
- The total GVA will increase by R820,000.
- Job opportunities (total number of jobs) will increase by an added 3.20 workers.
- Total output within the region will increase by a significant R2,620,000.

An increase in investments of the manufacturing sector reveals that it will have a significant impact on the local economy, especially with regard to employment and total output. The manufacturing sector is a key sector within the economy due to its strong linkages with other sectors of the economy and its significant contribution towards total employment.

### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact that are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the mining sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R670,000.
- Total number of job opportunities will increase 4,82 per 1 job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the manufacturing industry will have an increase in earnings by R670,000. However, the total number of jobs will increase by 4,82 in final demand jobs meaning that the sector is moderately dependent on employees to meet the final demand for households. This shows that the manufacturing sector has a significant impact on the economy in terms of job opportunities, however, the total output in the region will not increase significantly due to its lack of competitive advantage within the sector.

#### 6.8.3.2 *Electricity, gas, and water*

##### GVA and employment

The electricity, gas and water industry contribute only 2.967% towards the total provincial GVA, meaning the sector does have a degree of significance in terms of total output within the region. The location quotient shows that the region has a significant specialisation in terms of electricity, gas, and water (1.180). The electricity, gas and water industry employ 806 employees and the total employment growth from 2014 until 2019 declined by -5.17%. The shift-share analysis shows that the region does not have a competitive advantage in this sector and employment within this sector grew less than the national average.

### Forward and backward linkages

The backward linkage for the electricity, gas and water industry sector is 0.737, showing weak sectoral linkages between the electricity, gas and water sector and the other sectors of the economy. The forward linkages (0.727) show that there is an insignificant amount of output used by other industries as intermediate inputs to their total production within the Buffalo City Metropolitan Municipality. The forward and backward linkages show weak supply between the electricity, gas and water sector and the other sectors of the economy.

### Final demand multipliers – Type I

An increase in the final demand of the electricity, gas and water sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R150 000.
- The total GVA will increase by R880,000.
- Job opportunities (total number of jobs) will increase by an added 0.58 workers.
- Total output within the region will increase by a significant R1,450,000.

An increase in investments of the electricity, gas and water sector will not have a significant impact on the local economy, especially in terms of total employment and total output. This sector is not a key sector within the economy due to its weak linkages with other sectors of the economy and its insignificant contribution towards total output and employment.

### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact that are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the electricity, gas and water sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by only R330,000.
- Total number of job opportunities will increase 1,87 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the electricity, gas and water industry will have an increase in earnings by R330,000. However, the total number of jobs will increase by 1.87 in final demand jobs indicating that the sector is not a key sector within the local economy.

### 6.8.3.3 *Construction*

#### GVA and employment

The construction industry only contributes 3.602% towards the total provincial GVA, therefore the sector does have a degree of significance in terms of total output within the region. The location quotient shows that the region does have significant specialisation in terms of construction activities (1.100 – location quotient). The construction industry also only employs 11,348 employees and the total employment growth from 2014 until 2019 increased by 2.05% showing the industry is growing in terms of job creation opportunities. The shift-share analysis shows that the region does have a competitive advantage in this sector and that the employment within this sector grew more than the national average.

#### Forward and backward linkages

The backward linkage for construction is 1.354, showing strong sectoral linkages between construction and the other sectors of the economy. The forward linkages (0.781) indicate that there is an insignificant amount of output used by other industries as intermediate inputs to their total production within the Buffalo City Metropolitan Municipality. The construction industry is classified as a strong backward linkage sector (B), however, there are insignificant amount of the construction sectors total output that are used by other industries for production.

#### Final demand multipliers – (type I)

An increase in the final demand of the construction sector of, let us assume R1,000,000 per annum will have the following impact:

- Income/remuneration earned by households will increase by R300 000.
- The total GVA will increase by R830,000.
- Job opportunities (total number of jobs) will increase by an added 2.48 workers.
- Total output within the region will increase by a significant R2,660,000.

An investment in the construction industry will have a significant impact on total output and create more job opportunities. The sector creates sufficient backward linkages for the other sectors of the economy and the investment in construction towards new projects and plans will help the local economy significantly towards total output.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the construction sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R630,000.
- Total number of job opportunities will increase 4.95 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the construction industry will have an increase in earnings by R630,000. The total number of jobs will also increase by 4,95 per one job change in final demand jobs showing a significant contribution towards total output and employment within the metro.

#### **6.8.4 The tertiary sector**

##### *6.8.4.1 Wholesale and retail trade, catering, and accommodation*

###### GVA and employment

The wholesale, retail trade, catering and accommodation sector contributes 23.24% towards the total GVA, while wholesale and retail trade contributes a significant 21.94%, meaning that catering and accommodation services only contribute 1.29% towards the total GVA of the Buffalo City Metropolitan Municipality. The location quotient shows that the region has a strong specialisation in this sector with a location quotient of 1.130 for wholesale and retail trade, while catering and accommodation services has a location quotient of 1.086. The wholesale and retail trade industry employ 47,979 employees and the total growth from 2014 until 2019 grew by 8.62% while the catering and accommodation services only employ 7,629 from 2014 until 2019 the total jobs growth rate in this sector grew by 35.41%. According to the analyses of the shift-share, the region has a competitive advantage in this sector in terms of employment creation and it performs better than the national average.

###### Forward and backward linkages

The backward linkage for wholesale, retail trade is 0.975 Nelson Mandela Bay Metropolitan Municipality economy. The forward linkages (1.467), however, shows that the sector has a significant amount of its output being used by the other industries as intermediate inputs to their total production within the Buffalo City Metropolitan Municipality The wholesale and retail trade industry is a sector with weak backward linkages but is regarded as a strong forward linkage sector (F).

###### Final demand multipliers – Type I

The increase in final demand of the wholesale and retail trade sector of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/remuneration earned by households will increase by R270 000.

- The total GVA will increase by R860,000.
- Job opportunities (total number of jobs) will increase by an added 2.21 workers.
- Total output within the region will increase by a significant R1,910,000.

An investment in the wholesale and retail industry will have a significant impact on total output and create moderate potential job opportunities. The sector, however, does not create sufficient backward linkages for other sectors of the economy but it creates sufficient forward linkages for other sectors of the Buffalo City Metropolitan Municipality.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the wholesale and retail sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R580,000.
- Total number of job opportunities will increase 4,47 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the wholesale, retail trade, catering and accommodation industry will have an increase in earnings by R580,000. The total number of jobs will also increase by 4,47 per one job change in final demand jobs showing a significant contribution towards total output and employment within the metro.

#### 6.8.4.2 *Transport, storage, and communication*

##### GVA and employment

The transport, storage and communication sector contributes 7,77% towards the total GVA, transport and storage contributes 6.63%, while communication only contributes 1,135% towards the total GVA. The location quotient shows that the region has strong specialisation within the transport and storage sector with a location quotient of 0.931, while the communication sector has a location quotient of 0.892. The transport and storage industry has 7,381 employees and the total growth of employees from 2014 to 2019 increased by 5.21%, while the communication industry only has 1,136, however, the total number of employees diminished by -17.62% within the Buffalo City Metropolitan Municipality. The shift-share analysis indicates that the transport and storage industry have a competitive advantage in terms of employment creation, however, the communication sector does not have a competitive advantage.

##### Forward and backward linkages

The backward linkage for transport, storage and communication is 0.987, showing moderately strong sectoral linkages and supply between the transport and storage industry and other sectors of the Nelson Mandela Bay Metropolitan Municipality. The forward linkages (1.003) also indicate that a significant amount of the transport and storage industry's output is used as intermediate inputs towards the total production of the Nelson Mandela Bay Metropolitan Municipality. The transport, storage, and communication sector is a key sector (K) since the forward and backward linkages are significant, meaning a lot of industries use this sector in its output and intermediate inputs.

#### Final demand multipliers – Type I

The increase in final demand of the transport, storage and communication sector of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/remuneration earned by households will increase by R240 000.
- The total GVA will increase by R860,000.
- Job opportunities (total number of jobs) will increase by an added 1.48 workers.
- Total output within the region will increase by a significant R1,940,000.

An investment in the transport storage and communication industry will have a significant impact on total output and create moderate potential job opportunities. The transport, storage and communication industry is as a sector with weak backward linkages and strong forward linkaged(F).

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect, and household (induced) impact, which is based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the transport, storage and communication of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R520,000.
- Total number of job opportunities will increase 3.52 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand, the transport, storage and communication industry will have an increase in earnings by R520,000. The total number of jobs will also increase by 3.52 per one job change in final demand jobs showing a moderate contribution towards total output and employment within the metro.

### 6.8.4.3 *Finance, insurance, real estate and business services*

#### GVA and employment

The finance, insurance, real estate and business services sector contribute 19.97% towards the total GVA, the finance, insurance and real estate sector contributes only 5.22% to the total GVA while business services contribute 14.57% to the total GVA. The location quotient shows that the region has high specialisation in in both the finance, insurance and real estate industry (1.047) and the business services has a location quotient of 1.091, which are both more than 1. The finance, insurance and real estate sector employs 3,780 people, while the business services have 27,564 employees, however, the finance, insurance and real estate declined by -13.62%, while the business services grew at 4.86% in total. The shift-share analysis show that the finance and insurance industry have a weak competitive advantage in terms of finance and insurance, while the business services have a particularly good competitive advantage in comparison with South Africa.

#### Forward and backward linkages

The backward linkage for finance, insurance, real estate and business services is 0.959 showing adequate sectoral linkages and supply between the finance, insurance and real estate industry and other sectors of the Nelson Mandela Bay Metropolitan Municipality. The forward linkages (1.643) also shows that a significant amount of the financial industry's output is used as intermediate inputs towards the total production of the Buffalo City Metropolitan Municipality. The finance, insurance and real estate industry is a sector with weak backward linkages and strong forward linkages (F).

#### Final demand multipliers – Type I

The increase in final demand of the finance, insurance, real estate and business services of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/ remuneration earned by households will increase by R290 000.
- The total GVA will increase by R860,000.
- Job opportunities (total number of jobs) will increase by an added 2.11 workers.
- Total output within the region will increase by a significant R1,880,000.

An investment in the finance, insurance, real estate and business services industry will have a significant impact on total output and create moderate potential job opportunities.

#### Final demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which is based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of the finance, insurance, real estate and business sector of, let us assume R1,000,000 per annum will have the following effects:

- Total household earnings per R1 change in final demand earnings will increase by R620,000.
- Total number of job opportunities will increase 4.54 per one job change in final demand jobs.

This shows that when the households earning increases by R1 change in the final demand for the finance, insurance, real estate and business industry will have an increase in earnings by R620,000. The total number of jobs will also increase by 5.30 per 1 job change in final demand jobs showing a significant contribution towards total output and employment within the metro.

#### 6.8.4.4 *General government*

##### GVA and employment

The general government sector contributes 21.204% towards the total GVA, indicating that government plays an integral role towards total output. The government sector has a location quotient of 0.848, which are less than 1, showing that the sector does not have significant specialisation within this the metro, however, the level of specialisation are still higher than in the Nelson Mandela Bay Metropolitan Municipality. The sector does employ a large number of people 37,125, however, the number of employees has decreased by -3.827% from 2014 until 2019. The shift-share analysis shows that the sector within the Nelson Mandela Bay Metropolitan Municipality does not have a competitive edge, meaning it is not better than the national average.

##### Forward and backward linkages

The backward linkage for the government sector is 0.764, showing weak sectoral linkages and supply between the government and other sectors of the Buffalo City Metropolitan Municipality. The forward linkages (0.561) also shows that an insignificant amount of the government sector output is used in other sectors. The government sector is a weak sector (W), since the forward and backward linkages are insignificant, meaning the industries does not use this sector in its output and intermediate inputs.

##### Final demand multipliers Type I

The increase in final demand of the government services of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/remuneration earned by households will increase by R600 000.
- The total GVA will increase by R860,000.
- Job opportunities (total number of jobs) will increase by an added 3.54 workers.
- Total output within the region will increase by a significant R1,500,000.

The government does not provide adequate forward and backward linkages within the economy, however, the local community are largely dependent on government for income, job opportunities and total output.

### Final Demand multipliers Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of government sector of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R1,270,000.
- Total number of job opportunities will increase 7,53 per 1 job change in final demand jobs.

This shows that when the household earnings increase by R1 change in the final demand for the government sector it will cause an increasing of earnings by R1,270,000, and the total number of jobs will also increase by 7.53 per 1 job change in final demand jobs showing a significant contribution towards total output and employment within the Buffalo City Metropolitan Municipality.

#### 6.8.3.5 *Community, social and personal services*

### GVA and employment

The community, social and personal services sector contributes 7.62% towards the total GVA indicating that the community, social and personal services sector plays a minimal role towards total output. The government sector has a location quotient of 1.041, which is more than 1, indicating that the Buffalo City Metropolitan Municipality employ more people in government in comparison to the rest of the Eastern Cape. The sector does employ a large number of people (40,955) and the total number of employees increased by 2% from 2014 until 2019. The shift-share analysis shows that the sector within the Nelson Mandela Bay Metropolitan Municipality does have a competitive edge, meaning its better than the national average in terms of employment creation and total output.

### Forward and backward linkages

The backward linkage for the government sector is 1.011, showing strong sectoral linkages and supply between the community, social and personal services and other sectors of the Buffalo City Metropolitan Municipality. The forward linkages (0.789) show that an insignificant amount of the community services output is used in other sectors. The government sector has a strong backward linkage (B), however, the forward linkage within the sector is insignificant.

### Final demand multipliers – Type I

The increase in final demand of the government services of R1,000,000 per annum will have a significant impact on the following aspects:

- Income/remuneration earned by households will increase by R380 000.
- The total GVA will increase by R860,000.
- Job opportunities (total number of jobs) will increase by an added 4.72 workers.
- Total output within the region will increase by a significant R2,050,000.

Community, social and personal services does not provide adequate forward and backward linkages within the economy, however, the local community are largely dependent on community services for income, job opportunities and total output.

#### Final Demand multipliers – Type II

Type II multipliers account for the direct, indirect and household (induced) impact, which are based on the purchases made by employees i.e., rounds of spending (Bess & Ambargis, 2011:7).

An increase in the final demand of community, social and personal services of, let us assume R1,000,000 per annum will have the following impact:

- Total household earnings per R1 change in final demand earnings will increase by R810,000.
- Total number of job opportunities will increase 7,90 per 1 job change in final demand jobs.

This shows that when the household earnings increase by R1 change in the final demand for the community, social and personal services it will cause an increase of earnings by R810,000 and the total number of jobs will also increase by 7.90 per 1 job change in final demand jobs showing a significant contribution towards total output and employment within the Buffalo City Metropolitan Municipality.

**Table 6.25: 2019 Leontief inverse matrix for the Buffalo City Metropolitan Municipality**

[I-A] <sup>-1</sup> matrix - Type I Leontief inverse	[SIC1]	[SIC2]	[SIC3]	[SIC4]	[SIC5]	[SIC6]	[SIC7]	[SIC8]	[SIC9]	[SIC10]	Total input multipliers	Forward linkages
Agriculture, forestry and fishing [SIC 1]	1,013	0,008	0,060	0,004	0,024	0,009	0,009	0,006	0,004	0,009	<b>1,145</b>	<b>0,584</b>
Mining and quarrying [SIC 2]	0,001	1,001	0,005	0,002	0,003	0,001	0,001	0,001	0,000	0,001	<b>1,015</b>	<b>0,517</b>
Manufacturing [SIC 3]	0,284	0,208	1,592	0,099	0,639	0,236	0,234	0,147	0,106	0,236	<b>3,781</b>	<b>1,927</b>
Electricity, gas and water [SIC 4]	0,030	0,055	0,062	1,110	0,037	0,033	0,024	0,032	0,011	0,033	<b>1,427</b>	<b>0,727</b>
Construction [SIC 5]	0,026	0,030	0,061	0,024	1,103	0,062	0,088	0,043	0,024	0,071	<b>1,532</b>	<b>0,781</b>
Wholesale and retail trade, catering and accommodation [SIC 6]	0,191	0,149	0,400	0,096	0,368	1,144	0,189	0,113	0,070	0,160	<b>2,879</b>	<b>1,468</b>
Transport, storage and communication [SIC 7]	0,093	0,131	0,147	0,030	0,140	0,103	1,098	0,074	0,060	0,091	<b>1,967</b>	<b>1,003</b>
Finance, insurance, real estate and business services [SIC 8]	0,142	0,147	0,244	0,067	0,301	0,289	0,221	1,358	0,114	0,341	<b>3,223</b>	<b>1,643</b>
General government [SIC 91]	0,002	0,001	0,001	0,000	0,001	0,001	0,003	0,003	1,061	0,027	<b>1,101</b>	<b>0,561</b>
Community, social and personal services [SIC 92-96, 99]	0,083	0,024	0,048	0,014	0,040	0,036	0,070	0,105	0,047	1,080	<b>1,548</b>	<b>0,789</b>
<b>Total output multipliers</b>	<b>1,865</b>	<b>1,753</b>	<b>2,619</b>	<b>1,446</b>	<b>2,656</b>	<b>1,913</b>	<b>1,936</b>	<b>1,881</b>	<b>1,500</b>	<b>2,048</b>	<b>19,617</b>	
<b>Backward linkages</b>	<b>0,951</b>	<b>0,894</b>	<b>1,335</b>	<b>0,737</b>	<b>1,354</b>	<b>0,975</b>	<b>0,987</b>	<b>0,959</b>	<b>0,764</b>	<b>1,044</b>		

Source: Own compilation

**Table 6.26: Final demand multiplier analyses: Type I and Type II multipliers for the Buffalo City Metropolitan Municipality**

Final demand multipliers											
		Output multiplier		Earnings/income multipliers		Tax multipliers		GVA multipliers		Total job multiplier	
		Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2
<b>A-matrix (Technical coefficients)</b>	Nr										
Agriculture, forestry and fishing	1	1,87	3,75	0,27	0,57	0,14	0,29	0,88	1,64	6,49	8,71
Mining and quarrying	2	1,75	4,25	0,35	0,75	0,15	0,36	0,87	1,89	1,78	4,74
Manufacturing	3	2,62	4,84	0,31	0,67	0,20	0,39	0,82	1,73	2,20	4,82
Electricity, gas and water	4	1,45	2,54	0,15	0,33	0,13	0,23	0,88	1,32	0,58	1,87
Construction	5	2,66	4,75	0,30	0,63	0,19	0,37	0,83	1,68	2,48	4,95
Wholesale and retail trade, catering and accommodation	6	1,91	3,83	0,27	0,58	0,16	0,32	0,86	1,64	2,21	4,47
Transport, storage, and communication	7	1,94	3,66	0,24	0,52	0,16	0,31	0,86	1,56	1,48	3,52
Finance, insurance, real estate and business services	8	1,88	3,94	0,29	0,62	0,18	0,36	0,86	1,70	2,11	4,54
General government	9	1,50	5,72	0,60	1,27	0,16	0,51	0,86	2,58	2,54	7,53
Community, social and personal services	10	2,05	4,74	0,38	0,81	0,17	0,40	0,86	1,95	4,72	7,90
SA weighted national average		<b>2,06</b>	<b>4,43</b>	<b>0,38</b>	<b>0,81</b>	<b>0,16</b>	<b>0,36</b>	<b>0,86</b>	<b>1,78</b>	<b>4,15</b>	<b>6,98</b>

Source: Own compilation

## 6.9

### QUALITATIVE RESPONSES OF PARTICIPANT SAMPLE

This section quantitatively records the essential answers from the qualitative reply of the participant sample. Table 6.27 shows that most of the respondents were from the East London IDZ and most of the stakeholders/participants were senior managers or executives.

**Table 6.27: Demographics of participants (Basic information)**

Category	Possibility	N=12
<b>Number of respondents</b>	Coega (IDZ) (Port Elizabeth)	3
	East London IDZ (East London)	7
	Saldanha Bay IDZ	2
<b>Position within IDZ</b>	Sector manager	2
	Technical adviser	2
	Senior manager	4
	Executive manager: Business development	1
	Executive manager: Infrastructure development	1
	Executive manager: Stakeholders	2

*Source:* Authors compilation

Table 6.28 shows the questions and themes about the physical features of the IDZ. Most of the respondents had an optimistic response with regard to the physical infrastructure of the IDZs. The stakeholders agreed that the physical infrastructure of the IDZ is excellent and it is important that the infrastructure is of high-quality since most investors requires high-quality infrastructure.

All the respondents agreed that the IDZ is situated in a strategic location (near the port), which makes trade easier and improves the overall logistics. Halve of the respondents agreed that the IDZ are implementing renewable energy and green practice principle within their long-term strategic plan. The IDZs within the Eastern Cape have the best and leading eco-industrial park on the African continent as classified by the UNDP.

**Table 6.28: Subheading 1: Physical features of SEZ**

Physical features	Question	Extract from interview – (Respondent no)
<b>Infrastructure quality</b>	Do you think that the physical infrastructure is high-quality and the IDZ supply affordable factory utilities and sites? If no, please explain.	<p><i>“Yes, overall IDZ quality is excellent, you need it to attract investments and factory utilities are affordable. The rental prices are same as those in surrounding areas”. Businesses receive high-quality infrastructure with limited maintenance obligations – (1)</i></p> <p><i>“Yes, high-quality IDZ, especially in terms of maintenance and security” – (2)</i></p> <p><i>“Yes, infrastructure internally is good, however, the external infrastructure is not adequate such as roads and the link between East London and Port Elizabeth. The port is very small and doesn’t accommodate big vessels and there is an element for improvement. A railway between East London and Port Elizabeth needs to be upgraded in order to improve logistics and its more cost-effective to do so.” –(3)</i></p> <p><i>“The standards of the buildings are affordable and excellent quality infrastructure” – (4)</i></p> <p><i>“Excellent infrastructure quality” – (7)</i></p> <p><i>“The infrastructure is high-quality in order to attract foreign investors, the objective of the high-quality infrastructure is to attract international investors in the long term. There is also a one-stop shop for investors as well and we already have three warehouses that are complete and ready for occupation” – (11)</i></p>
<b>Strategic location</b>	Do you think that this IDZ is situated in a region to enjoy location advantages? In other words, is this IDZ situated in a strategic region to improve local sourcing?	<p><i>“Yes, the IDZ’s are established due to their location advantages. The IDZ are 2km away from the airport, 6km away from the port/harbour. The problem we face are logistics, since the big companies need resources quickly and the local community doesn’t always supply the best products and services” – (1)</i></p> <p><i>“Yes, especially with regard to the automotive sector – major Auto Manufacturing companies are situated within the IDZ and driving the supplier development programmes – the IDZ is well-located. “ – (2)</i></p> <p><i>“Yes, we are situated in a strategic location since we are situated on the coast and not inland. The only problem we have is the limited size of the shipping docks. We are 2km away from the airport and 6km away from the port and not far from the national roads and other critical logistic nodes” – (3)</i></p> <p><i>“Yes, especially since we are situated within the port which gives a strategic advantage in terms of trade. Being part of the maritime industry will always give you a strategic advantage.” – (4)</i></p>

Physical features	Question	Extract from interview – (Respondent no)
		<p>“Yes, definitely, the IDZ is situated within a port whereby we enjoy various location advantages, especially in terms of imports and exports” – (8)</p> <p>“Yes definitely, its all about the geographical locations of IDZs. The port situated in a strategic location which allows for good trade.” – (12)</p>
<b>Green practice principles</b>	Does the specific IDZ focus comprehensively on low/carbon and green practice principles?	<p>“Yes, we are graded as an eco-industrial park by the United Nations Development Programme. IDZ-zoned for light industrial activities only. IDZ focusing more on renewable energy and water balancing” – (1)</p> <p>“Yes, definitely, they are the leading eco-parks in the country – a lot of projects planned, and the automotive sector are under pressure to go green” – (2)</p> <p>“Yes, we are definitely going towards the green economy. There are a few projects, such as self-generating the electricity that can supply power to the zone. We have plans for the future to implement independent electricity supply contractors such as solar energy. We also just focus on a few sectors such as the automotive and the renewable energy sector which will implement renewable energy as a source of electricity provision. We also focusing on wind energy” – (3)</p> <p>“No, not directly, as operated we are not utilising it, however, in the future we will utilise it. Some of the organisations within the IDZ do apply renewable energy”- (5)</p> <p>“The strategic objective is to apply comprehensive low/carbon and green practice principles, however, we are largely dependent on the provision of electricity by Eskom (the electricity public utility in South Africa) and they do experience a lot of challenges in terms of the provision of sufficient energy sources. The target of the IDZ is to be independent in terms of service delivery provision and to apply renewable energy sources within the zone itself” – (8)</p> <p>“Definitely, one of our core focuses is to improve the social, governmental and environmental policies within the region. The IDZ focuses on the environment while ensuring that the area is environmentally friendly. Our environmental sustainability is core to who we are, and we focus on renewable energy” – (11)</p>

Source: Authors compilation

Table 6.29 shows the questions with regard to the policy framework perceptions of the IDZs. Most of the respondents agreed that unemployment is still a huge concern within the local communities, however, the IDZs managed to create a substantial sum of new jobs over the past few years. The IDZs

do provide a wide breadth of job opportunities within various industries, however, the potential is there to create more jobs in years to follow.

Most of the stakeholders agree that there is a shortage of skilled labour within the local communities that hampers the firm’s ability to employ new workers especially within the manufacturing sector. Even though skills development remains a huge concern for the firms operating within the IDZs there is a science and technology park that can provide skills for those who require the necessary skills. With regard to the IDZs contribution towards the local economy most of the stakeholders contribute largely towards investments since there are a few firms within the IDZ that attracts sufficient local and foreign investments. For most of the IDZs more than 30% of the resources used need to be from the local firms and organisations and all tenders awarded should follow the government policy to improve economic transformation and improve economic participation of previously disadvantaged groups.

Unfortunately, the current economic situation in the country and in the world makes it difficult to attract sufficient investments. The majority of the stakeholders feel that more investments are needed and South Africa should sharpen its value propositions so that it is in line with international standards, nonetheless, the majority of IDZs already has sufficient domestic and foreign investments, however, more can be done to attract investments both domestically and foreign. Most stakeholders also agree that the IDZs provide investor-friendly and pro-business policies and that the zone creates an effective enabling environment for new investors.

**Table 6.29: Subheading 2: Policy framework perceptions**

<b>Policy framework perceptions</b>	<b>Question</b>	<b>Extract from interview</b>
<b>Job creation opportunities</b>	Do you think that the IDZ create sufficient jobs for people in the local communities?	<p><i>“Yes, the IDZ created 3490 new jobs since its establishment” (1)</i></p> <p><i>“The unemployment is very high and de-industrialisation – the IDZ doesn’t create jobs but as the rest of South Africa it’s the same issue – unemployment is very high (2)</i></p> <p><i>“Yes and no. In the zone we managed to create 3500 work for local employees. No, also the unemployment rate is more than 30%, however, we can’t always rely on the IDZ to fulfil the unemployment gap within the region.” – (4)</i></p> <p><i>“The need within the local communities to seek job opportunities are high and we ensure that there is a major uptake of the local contractors in terms of construction. The contractors that we employ does have a high uptake of local work seekers – (7)</i></p> <p><i>“The potential is there to create new jobs, however, there are a few things that needs to fall in place since we are still in the development phase, however, there</i></p>

Policy framework perceptions	Question	Extract from interview
		<p><i>is potential to create more jobs in the long term” – (9)</i></p> <p><i>“The local people do want more job opportunities, however, you can’t only rely on one IDZ / industry to create the majority of work opportunities. We are part of the maritime industry; you have shipping and the decommissioning of ships and there are a lot of job opportunities from low to high skilled workers. There are a wide range and spectrum of work opportunities available. If the industry is running well it will definitely create more jobs and increase overall growth.” – (12)</i></p>
<b>Labour regime standards</b>	<p>Is there enough skilled labour within the IDZ and does the labour regimes consists with international norms and standards?</p>	<p><i>“There are definitely some skill shortages within the local community.” There is, however, a science and technology park and they provide skills for people who doesn’t have the required skills (1)</i></p> <p><i>“The regulatory side of things are well-established, in terms of digital and green practice principles, there are some skills gaps. Institutions like the University are not well-integrated towards new innovations” – (2)</i></p> <p><i>“No there is a in the future the training capabilities need to improve, especially since there is a major skills gap between the local employees and skills needed to perform the work” – (3)</i></p> <p><i>“Its difficult to say, since we as the operators doesn’t know for certain whether the firms consist with the international norms and standards. The labour force is not that huge, however, the IDZ is in its development phase meaning we have a lot of construction workers and most of them are semi-skilled” – (7)</i></p> <p><i>“No, we experience a very low-skilled workforce within the IDZ and we notice it especially within the manufacturing and production side. Skills developments remain one of our major concerns” – (9)</i></p> <p><i>“Yes, we have strong partnerships with trade unions and we have trade zone labour charter signed with various trade unions including COSATU and NUMSA and the trade unions are partners as well” - (10)</i></p>
<b>IDZ contribution towards local economy</b>	<p>Does this IDZ contribute significantly towards the local economy? Does the IDZ as an institution supply enough support and services for the vulnerable and disadvantage groups to participate in the economy?</p>	<p><i>“The total investment is nearly R7.7 billion, so it did contribute significantly towards bringing in new investments. Raw materials are sourced locally and therefore imports and exports are monitored.” “We also focus on woman and the youth, BBBEE within SME’s. – (1)</i></p> <p><i>“There can be a lot more done to accommodate third and second tier automotive industry suppliers within the local communities – the fortunes of the</i></p>

Policy framework perceptions	Question	Extract from interview
		<p><i>organisations are intertwined with the automotive industry. A dedicated automotive incubator is needed within the IDZ – (2)</i></p> <p><i>“The IDZ as an institution comply with the necessary rules and regulations such as the Employment Equity and therefore, we prioritise the groups that are not represented within the employment demographics. It is, however, difficult to manage the private companies’ employment regulations since they have their own set of requirements for hiring employees. The management does ensure that the locals are given preference by giving a list of qualified and skilled individuals within the local communities” – (3)</i></p> <p><i>“Yes, when the tenders and contracts are advertised it is compulsory that the firms conform to BEE regimes and standards” – (5)</i></p> <p><i>“Yes, all our rules and regulations need to follow the government policy to advance economic transformation and develop the economic participation of previously disadvantaged groups” – (8)</i></p> <p><i>“Yes, 30% if not more has to be spent on suppliers from the local communities such as local plumbers, local tilers and local construction workers. We have a skill development programme where we access funds towards the skills development of the local people and put them through accredited training” – (12)</i></p>
Investment perceptions	Do you think that this IDZ attract sufficient domestic and foreign investments?	<p><i>“Yes, we have more than R7.7 billion worth of total investments” – (1)</i></p> <p><i>“The room for new investments aren’t that much due to the fact that its already 70% full and only 30% new investments can be attracted, however, more investments are needed – the problem we have is that we are not close to the markets, which makes it quite difficult” – Other than the automotive sector there are not really other investors that will invest, however, time will tell – (2)</i></p> <p><i>“No, the IDZ concept is not well-established in South Africa since we need to sharpen our value propositions and that it is line with international standards such as the ASEAN countries. The IDZ have sufficient investments and the total investments is a total of R8 billion. – (4)</i></p> <p><i>“Yes, we have sufficient domestic and foreign investments. The only problem is that the projects take a long time to implement in terms of planning, financing. We currently have 16 investors who are willing to be situated within the IDZ. The only problem is the red tape regulations and overall delays in terms of implementation” – (5)</i></p>

Policy framework perceptions	Question	Extract from interview
		<p><i>“Unfortunately, not, especially with regard the current economic situations and the sovereign credit rating of BB- which makes it difficult to attract new investments and people are anxious to spend capital. We also need more infrastructure development within the port to enable more trade activities” – (8)</i></p> <p><i>“Investments are there, but not coming as strong due to the uncertainty with regard to the Covid-19 pandemic. More can be done to attract more investments both domestically and foreign. Policy certainty is one of our major concerns. There are some uncertainties with regard to the oil and gas extraction bill which creates some uncertainty for investors” – (10)</i></p>
<p><b>Pro-business policies</b></p>	<p>Does the IDZ provide investor-friendly and pro-business policies?</p>	<p><i>“Yes, we are investor-friendly – we have a business analyst and an investment services facilitator. We also use a soft-landing platform to facilitate new investors.” – (1)</i></p> <p><i>“Yes, very investor-friendly and pro-business policy orientated” – (2)</i></p> <p><i>“The IDZ just influence the pro-business policies and are strictly controlled by the Department of Trade and Industry, we merely give some inputs. The DTI need to make some changes for IDZ to be more competitive and to create effective value propositions. There are definitely a lot of incentives provided to the firms.” – (3)</i></p> <p><i>“Yes, it’s part of our mandate to create an enabling environment for businesses to be situated here” – (5)</i></p> <p><i>“Yes, we have excellent investor and pro-business policies within the IDZ” – (9)</i></p> <p><i>“Definitely yes. We have a dedicated team that drives investor-friendly policies for potential investors such as the ease of doing business. We are also a free port zone, and we get various incentives from the Department of Labour, the DTIC and home affairs. The investors will then get a list to show them what they are able to qualify for, we have contact with the local municipality to show them the service that will be provided to them” – (12)</i></p>

Source: Authors compilation

Table 6.30 shows the questions with regard to the policy framework constraints of the IDZs. Most of the stakeholders agree that there is land available for new investors and most of the IDZs are only at the development stage of operations. Most of the stakeholders feel that the operators should source more of their products and services from the local firms, however, the IDZs do communicate with the local business do communicate with local firms in the surrounding regions to communicate potential projects in which they can be involved in.

In terms of the institutional volatility and political stability most of the stakeholders believe there is no volatility and civil unrest since most workers are part of a labour union. In terms of physical security all the IDZs are safe and fenced, meaning the security is professionally managed. The local communities, however, perceive that the IDZs do not contribute enough towards creating sufficient job opportunities, however, the local communities occasionally feel excluded from the IDZ's work opportunities. The problem is that most of the local firms do not meet the necessary required skills to perform the projects or plans given to them.

**Table 6.30: Sub-heading Policy framework constraints**

Policy framework constraints	Question	Extract from interview
<b>Land availability</b>	Is there limited access to serviced land for new and established IDZs?	<p><i>“Yes, we have land available, only 60% capacity and only at Phase 1” - (1)</i></p> <p><i>“Yes, land space is limited, and they will need more land outside of the IDZ itself – (2)</i></p> <p><i>“Moderately, the Phase 1 is almost at full capacity and we have used more than 70% and looking for more land in the surrounding regions” – (3)</i></p> <p><i>“Currently we are running out of available land space and its only a matter of time that the land space will be depleted” – (5)</i></p> <p><i>The land space is adequate within the IDZ and if there are limited space available then our objective is to expand our current operational procedures” – (9)</i></p> <p><i>“We currently have enough land available within the IDZ and with the port infrastructure up and gain we will have more opportunities to expand. The port therefore plays a significant role in terms of our long terms strategic planning for trade.” –(12)</i></p>
<b>Sufficient linkages with local firms</b>	Do you think that the specific SEZ contribute sufficiently towards the local economy? Does the IDZs create sufficient linkages with the local firms in the surrounding regions?	<p><i>“Yes, the tenants should utilise and source from local producers and management also try to encourage the purchase and sales of local producers” -(1)</i></p> <p><i>“Yes, it does make a huge contribution, but a lot more can be done with regard to creating sufficient linkages, however, the DTIC should be more involved with regard to creating linkages with local suppliers” – (2)</i></p> <p><i>“Yes, we created moderate job opportunities and we have enough imports and exports within the ports. The exportation within the automotive zone is performing good, especially since they export more than 80% of the auto manufacturing which contributes largely towards the South African GDP and the regions GDP”. – (3)</i></p> <p><i>“We are creating sufficient linkages with ourselves and the local communities especially for the last</i></p>

Policy framework constraints	Question	Extract from interview
		<p><i>couple of years now. The IDZ executive team do engage regularly with the local business communities” – (5)</i></p> <p><i>“Yes it is a specific policy of the IDZ to create sufficient linkages within the IDZ and the local firms in the surrounding regions in order to grow the local economy”- (8)</i></p> <p><i>“Yes, especially with regard to the infrastructure programme we have 30% of all production to be produced/serviced by the local business, which does create sufficient linkages with the local firms in the surrounding regions and we also focus on skills development such as the funding from SETA’s” – (10)</i></p>
<b>Institutional volatility and political instability</b>	<p>Are there considerable institutional volatility, political instability and civil unrest in the diverse demographic regions? If yes, how does this affect the operations of the IDZ?</p>	<p><i>“It can be, sometime the bargaining councils, the trade unions every four years, there are trade negotiations, but nothing major” – (1)</i></p> <p><i>“Yes and no. The Zone are fenced, and security is excellent. In 2017 the government through National Treasury issued “Preferential Procurement Programme” which stipulates that if a tender is awarded above R30 million then 30% needs to go towards the SMME’s in the local communities. The SMME’s need to come from vulnerable groups, now the challenge that we have with the locals is that they do not have the required skills in terms of grading and therefore felt excluded. These locals started lobbying and disrupt activities of the IDZ’s operations and continues to be a problem, hence, the DTI need to carefully plan the policies which they want to implement. – (3)</i></p> <p><i>“The local community sometimes feel that we don’t do enough in terms of creating job opportunities, however, the skills needed from the firms doesn’t match the actual skills and knowledge of people within the local community. It does create some frustration for job seekers, however, the situation still is the same in the rest of South Africa. Overall, we didn’t experience as much civil unrest over the past few years as an establishment” – (5)</i></p> <p><i>“There is relative average civil unrest within the local community especially since the people are aware of the IDZ, however, the job opportunities are limited due to empty promises made by government and therefore creates a certain expectation that the IDZ is responsible for major work opportunities available” – (9)</i></p>

Source: Own Compilation

Table 6.31 shows the questions with regard to the incentives’ perceptions of the IDZs. The stakeholders within the IDZs agree that incentives are provided to the various operators if they are registered with

the revenue services such as SARS. The organisations operating within the IDZs are able to utilise the employment tax incentives provided to them, however, only a few of them actually make use of the incentives provided to them. The incentives are adequate, however, the operators only receive incentives once they are in operations for a few years and incentives will only be provided to those who are part of the manufacturing sector. The stakeholders feel that more incentives should be provided for the investors in order for them to get value for their money.

**Table 6.31: Subheading 4: Incentive’s perceptions**

<b>Incentives perceptions</b>	<b>Question</b>	<b>Extract from interview</b>
<b>Employment incentives</b>	Are the incentives provided to the organisations consist of the adequate labour regimes and employment incentives (under the Employment Tax Incentive Act, 2013)?	<p><i>“Yes, they have to comply with all labour regulations and rules as well as the Employment Tax Incentive Act – (1)</i></p> <p><i>“Yes, the organisation do apply the employment incentives” –(2)</i></p> <p><i>“Yes, it is implemented, not as the operator but the organisations (those who are registered with SARS).</i></p> <p><i>“No one has utilised the employment tax incentive act as of yet, but it can be utilised by the firms as a form of incentives provided to them” – (5)</i></p> <p><i>“No, currently we don’t have any exemptions in terms of the employment incentive acts, however, it can be utilised by firms in the long term if they qualify for the incentive requirements” – (8)</i></p> <p><i>“Yes, the incentives can be provided to the organisations, depending if whether they are registered with SARS”- (11)</i></p>
<b>Industrial support / Incentives</b>	Do you think its financially beneficial or not for an organisation to operate within an IDZ, or is it the same as any other type of industrial environment? In other words, do you think the organisations operating here get enough incentives on their exports and imports?	<p><i>“We do get incentives, but not as much as we would have liked. There are a few firms that want to operate there but the incentives are implemented in such way that the business owners only receive incentives in a few years’ time, and generally they are not profitable within the first two to three years of operations. More proper incentives will help more in the long term” – (1)</i></p> <p><i>“More incentives are needed, however, their offering is good due to the fact that they provide excellent infrastructure” – (2)</i></p> <p><i>“Yes, there are a lot of incentives, such as VAT, employment incentives, reduced taxation for 5-7 years of establishment and other incentives such as lower importation taxes and lower exportation taxes. The investors do get value for money in terms of the facilities provided to them – (3)”</i></p> <p><i>“Yes, they are provided and its well-communicated with the firms, however, they are not on that stage to fully benefit from the incentives given to them. The IDZ isn’t fully industrialised and the firms operating</i></p>

Incentives perceptions	Question	Extract from interview
		<p><i>here are mostly in the service industry or finance then you won't benefit from the manufacturing and industrialisation incentives which are available" – (5)</i></p> <p><i>"Yes, since it is regarded as an area with specific incentives it thus creates more investment opportunities, which are beneficial for potential investors. It allows for tax breaks and more benefits in terms of trade activities" – (8)</i></p> <p><i>"Yes, since the IDZ deals with aspects such as importation and exportation you deal with a lot of aspects in terms of incentives provided. Being within a free port, the businesses operating there do get tax incentives. The incentives provided to the firms are valuable. The businesses within the IDZs definitely support each other since they are operating within the same industries." - 12</i></p>

Source: Author's compilation

Table 6.32 indicates the enabling environment perceptions of the stakeholders. The IDZs do interact with the communities and the stakeholders agree that there are a lot of synergies between the people, the businesses and local government. The stakeholders agree that monthly meetings are being held between the various stakeholders and various community engagement projects are being implemented. The stakeholders also agree that more can be done in terms of creating effective and efficient synergies between business, government and the people.

**Table 6.32: Subheading 5: Enabling Environment**

Enabling environment	Question	Extract from interview
<b>Enabling environment perceptions</b>	Do you think there is an excellent link between the community, the government, and the local community? If not, please elaborate.	<p><i>"Yes, we have social responsibility programmes and corporate responsibilities programmes. We interact with society and monitor those interactions – more can be done"- (1)</i></p> <p><i>"They are involved with the communities, the metro and business chambers and they do participate in the local development and planning with the municipality, there are definitely a lot of synergies between the community, people and local government" – (2)</i></p> <p><i>"The collaboration is 50%. In terms of shareholding, the provincial government owns 74% while the local government owns 26%. The provincial government support the IDZ in terms of operational funding and the local government support us with land availability. The national government does not have share, however, the capital infrastructure is funded</i></p>

		<p><i>by the national government. The unemployed people in the local communities does have a preference in terms of local employment opportunities, hence the collaboration is standard.” – (3)</i></p> <p><i>“Yes, there is an integrated approach between the IDZ, the civil society and the business community. There are a lot of integrating projects between ourselves and the other important stakeholder” – (5)</i></p> <p><i>“There are definitely attempts to create an efficient linkage between the government, the community and the business chambers. This is not the case, however, since the local government is a bit sceptical about the IDZ and its purpose within local government. The local government see the IDZ as a threat since it applies pressure on the system of the municipality especially in terms of basic service provision.” – (9)</i></p> <p><i>“Definitely, you need a social licence to operate. The IDZ do meet regularly with various stakeholders such as Togasi. We meet up with the local businesses, the community etc, so in other words everyone knows what is happening and we are open to the public regularly so that they are up to date with all activities, plans and projects. The meetings happen at least once a month. We also run various community programmes such as school programmes where we illustrate how the zone will look like and all future plans and projects, we have for the zone itself and thereby the learners get a glimpse of what the maritime industry looks like. The IDZ also has a development and innovation centre, which is similar to a science and technology centre operated in SEZs across the globe, which is also a very important for community engagements.” – (12)</i></p>
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Source: Author’s compilation

Table 6.33 illustrates the economic leverage perceptions of the stakeholders. The investors within the IDZ focuses more on the innovation side of manufacturing and production.

The IDZs in the Eastern Cape have science and technology parks that enables knowledge sharing, the promotion of innovation on a commercial level as well as fostering the commitment and collaborations between government, investors and the private organisations.

**Table 6.33: Sub-heading 6: Economic leverage perceptions**

<b>Economic leverage perceptions</b>	<b>Question</b>	<b>Extract from interview</b>
<b>Innovation</b>	Does the SEZ exhibit policy restructuring and applications through innovative production of products and services?	<i>“The investors themselves focuses more on innovation within their production, however, some big corporations have a lot of innovative ways of manufacturing” – (1)</i>

Economic leverage perceptions	Question	Extract from interview
		<p><i>“They have the science and technology parks especially the digital platforms, however, more resources are needed, however, they are leading in terms of Science and Technology” –(2)</i></p> <p><i>“Yes, we believe that any institution to survive we need to be innovative to survive. A platform was created by government and academia to support innovation through incubation which aid the operations of the zone. We are establishing a manufacturing incubator to improve the overall value chains within”</i></p> <p><i>“Yes, on the IDZ itself there is an innovation campus that helps a lot in terms of new products and service delivery innovations” – (5)</i></p> <p><i>“Yes, the IDZ do provide services for innovation for organisations and firms that need the latest technology” – (9)</i></p> <p><i>“Yes, we ran a schools programme as well as an innovation campus where the public and private sector comes together to solve problems and engage in an effective manner. The IDZ also has a drone challenge where people get to pitch various ideas which can be seen as an innovation hub in order to collaborate effectively” – (11)</i></p>
<b>Effective tools for Industrial Development</b>	<p>Do you think that IDZs are effective tools used in industrial development in South Africa? Please give a reason for your answer.</p>	<p><i>“Yes, it has a space for improving industrial development.” Most IDZ’s in South Africa focuses on the automotive industry, especially those IDZ’s that were unsuccessful in the past few years. Specialisation in SEZs are very important in the long term – (1)</i></p> <p><i>“Yes, however, looking at the broader industrial development policies a lot more needs to be done to create comparative and competitive advantages such as support enterprise development and supply development and especially in terms of the labour-intensive side. The problem isn’t only the IDZ themselves but also the overall industrial development policies in South Africa” – (2)</i></p> <p><i>“Yes, they improve the employment levels within the local community and investments increased by R80 billion and there are various organisations from around the world that influence the overall investment levels. – (3)</i></p> <p><i>“Yes, they should definitely use IDZs to boost industrialisation and manufacturing in South Africa” – (5)</i></p> <p><i>“Yes, the type of infrastructure provided is to enhance investment opportunities for big organisations” – (8)</i></p> <p><i>“Yes, it is a good platform for industrial development, however, there needs to be various</i></p>

Economic leverage perceptions	Question	Extract from interview
		<p><i>success factors in place for the IDZ to work. One of the success factors definitely is policy certainty and a policy framework and a competent management team as well as well structured political environment. The critical success factors need to be established for the IDZs to work effectively in the long term. The location also plays a very important role as well as the macroeconomic environment, infrastructure, of the IDZ and the government needs to play an active role in order for the IDZs to work sufficiently” – (12)</i></p>
<p><b>Effective trade policies, indirect employment and skills development</b></p>	<p>Does the IDZ provide services such as effective trade policy, indirect employment, skills development and domestic participation. Please give a reason for your answer.</p>	<p><i>“The tenders favour the local suppliers, in other words construction are aimed at local employment”- (1)</i></p> <p><i>“Yes, they give a lot of grants and the provincial government provide a lot of support for infrastructure and skills development” – (2)</i></p> <p><i>“Yes, the IDZ does have a dedicated unit that provide skills training and we have given training to more than 3000 people over the past few years and they provide specialised training for specific skills, so in the long term it will definitely contribute towards economic development initiatives.” – (5)</i></p> <p><i>“The DTIC doesn’t really give a support structure to give enhance the capabilities of improving skills development efforts and therefore it has a significant impact in terms of funding. We only receive funding from the Western Cape and other stakeholders but not directly from the DTIZ” – (8)</i></p>

Source: Own compilation

The last section is the role of government within the IDZs. Table 6.34 shows that most stakeholders agree that the IDZs do get some degree of support from government such as the Department of Labour and the Department of Trade Industry and Competition (DTIC) that funds the capital projects as well as the Sector of Education and Training Authority (SETA), which gives support in terms of skills development.

The provincial government funds the operational expenses and the municipality is regarded as a stakeholder since they work closely with the IDZ in terms of agreements such as bulk infrastructure on basic services. Some stakeholders feel that the DTIZ can do more in terms of the IDZ programmes since they lead from a policy perspective with regard to infrastructure development funds. Skills development from the national government is a bit fragmented and the different spheres between the different national departments need to improve to have a more integrated approach in terms of collaborations.

With regard to effective public service delivery, the basic services are provided effectively. The only problem that the majority of the stakeholders seems to have is the provision of electricity and in some instances waste management and port infrastructure development remains a huge concern. With regard to the efficiency to establish new IDZs, the current IDZs should firstly be managed properly since there is already 10 established IDZs, yet they are not being managed properly.

An IDZ will only be effective if it keeps in mind the success factors such as the market, value propositions, capital resources as well as human resources. The record of IDZs in South Africa shows that they do not perform as well as initially expected and if they are going to establish new IDZs they will need capable management in order for the IDZs to operate effectively. The goal is that the IDZ should not depend on capital from government in terms of funding because in the long term IDZs will fail because of the fiscal problems that we experience within South Africa.

Regarding to the general perceptions of IDZs it is established that IDZ allow for a positive outcome especially in terms of clustering and knowledge sharing. There is still a lot that needs to be done within the IDZs of South Africa to ensure that they operate efficiently and effectively, however, the market should demand IDZs and there should be a need within the region to establish an IDZ. If the IDZs are purely dependant on money from the government in terms of funding then in the long term IDZs will eventually fail because the government does not have enough capital both in the short and long term.

**Table 6.34: Subheading 7: The role of government**

<b>The role of government</b>	<b>Question</b>	<b>Extract from interview</b>
<b>Fiscal and skills development perceptions</b>	Does the government support IDZs in any way in terms of fiscal and skills development and training, or any other type of incentives?	<p><i>“Government has given the SEZ Act where incentives are provided. The Department of Trade and Industry fund the capital infrastructure projects. The provincial government funds the operational expenses. The municipality is a shareholder of the IDZ, we work with all three spheres of government” – (1)</i></p> <p><i>“Yes, there are programmes. There are a number of institutions such as the Department of Labour. The Department of Labour feels like they need to upskill the graduates and employees and identified us through the science and technology park to identify graduates that major in engineering and therefore help them in training for three years and the private firms allow us to give potential graduates the opportunities to work and earn. They do want to upskill the local community” - (2)</i></p> <p><i>“The IDZ doesn’t get funding directly from National Treasury or the DTI, we get funding from the SETA and we need to apply for these kind of fundings. The IDZ get funding from other entities as well” – (3)</i></p>

<b>The role of government</b>	<b>Question</b>	<b>Extract from interview</b>
		<p><i>“They certainly can do more. I feel like the DTIC can do more since they are the custodians of the IDZ programme since they lead from a policy perspective and the infrastructure development fund in terms of the bulk infrastructure. They also have the critical infrastructure programme, feasibility studies but not a dedicated skills development department, which hinders the process of trying to improve skills in the local community. The skills development from the DTI is a bit fragmented. The spheres between the government departments need to improve to have a more integrated approach towards skill development. The objective of the IDZ is to be more fiscally independent in the long term. The second objective is inclusivity within ourselves as the IDZ and the local communities in order to do this you need a skills development programme and enterprise development programme” – (11)</i></p>
<p><b>Effective public service delivery</b></p>	<p>Does the government provide effective and efficient public services to the IDZ? If not, what do you think the possible constraints are?</p>	<p><i>“We try to be independent, especially in terms of electricity provision. We do have some problems with electricity and water supply, since it’s not a guarantee” – (1)</i></p> <p><i>“The IDZ are more dependent on local government for basic service delivery, however, there are fiscal constraints in terms of basic service delivery”. The city did have problems with waste management and port development has been weak in the past few years. –(2)</i></p> <p><i>“The city provides the basic services, however, we volunteered to provide services to local people i.e. we buy bulk utilities and distribute to the various firms within the IDZ and it works effectively. It really helps to minimise the load on local government.</i></p> <p><i>“Thus far we have an arrangement with the local municipality in terms of the bulk infrastructure, but only time will tell what will happen if we reach capacity and whether the municipality will provide more than necessary. There is a service delivery agreement between the IDZ and the municipality – (5).</i></p> <p><i>“Yes, we have good infrastructure systems in place. Water availability is good as well as the road infrastructure. The only problem we experience is electricity supply such as loadshedding” – (9)</i></p> <p><i>“Yes, we have a good relationship with the local authorities we also have various agreements such as service level agreements, which focuses on infrastructure development, the ease of doing business, financial arrangements etc. we meet with them at least twice a month to discuss strategic and operational issues we are also part of their Spatial Development Framework the Integrated</i></p>

The role of government	Question	Extract from interview
		<i>Development Plan, however, we also discuss the plans with them for the future.” – (11)</i>
<b>Efficiency to establish new economic zones</b>	Is it sustainable for the South African government to establish new IDZs or “EZs”, or should they focus on other ways to grow the economy? Please provide a reason for your answer.	<p><i>“If they are managed properly it’s not a huge problem. There are a lot of IDZ’s in South Africa, yet they do not guarantee any successful operations. The effective and well operated SEZs in South Africa should gain more focus. The government does have effective policies to revitalise the economy, but SEZs form a small part of the total economy.” It helps to have a port to have a port to ease trade. If you are not dependent on shipping and only air freight, it can also work if the SEZs is situated in an inland area as supposed to a coastal region. – (1)</i></p> <p><i>“The traditional way worked, however, the IDZ do provide a bit more incentives than those of ordinary industrial development zones” – (2)</i></p> <p><i>“There are a number of success factors such as market, value propositions, capital resources and human resources which they should focus on. With our current SEZs that we have we need to get those ones running and make it fully operational” – (3)</i></p> <p><i>“They should definitely not disallow the growth of IDZs, however, they should focus on aspects such as the current effective financial tools and other support mechanisms. The existing tools are not effective, hence they need to focus their energy on the existing policies and plans for IDZ that are established in South Africa before establishing new IDZs – (5)</i></p> <p><i>“The record of IDZ in South Africa shows that they do not perform as well as initially expected. The fact is that the IDZs are currently established more than 20 years, yet the operational structures are not in place. The plans to establish IDZ are all good and well, however, sufficient and capable management is needed to help these IDZs operate effectively”. If IDZs are dependent on money from the government for funding, in the long term IDZs will fail because the government doesn’t have enough capital both in the short and long term. The IDZ has to be financially dependent, because the longer that these IDZs are dependent on government for funding, the chances for success are minimal if the IDZs doesn’t work effectively”. –(9)</i></p>
<b>Overall perception of IDZ</b>	What is your general perception with respects to IDZs? What would you recommend in terms of improving trade? Should government establish enterprises situated within IDZs or should we only focus on trade ports for exportation and importation where	<p><i>“The SEZ programme does allow for positive outcomes if managed correctly in terms of value chains used and the clustering of these organisations. Creating more value chains and cluster development will come a long way in contributing towards the success of IDZs. “– (1)</i></p> <p><i>“Tradeable goods are exceptionally good for the future and IDZ will help innovation, manufacturing capabilities etc., however, we are far from markets</i></p>

The role of government	Question	Extract from interview
	organisations do not form part of the manufacturing and production processes within the IDZs?	<p><i>and government need to have adequate incentives to create more job opportunities for the local communities” – (2)</i></p> <p><i>“There is a still a lot that needs be done within the IDZs in South Africa to ensure that we are able to operate effectively and efficiently so that we can compete with other countries in the world” – (3).</i></p> <p><i>“The IDZ do have their place and they can provide effective growth if it is established well and the government do their part to create the enabling environment. Import and exports should be promoted, despite the success or failure of IDZs. The port facilities play a crucial role in providing facilities for importation and exportation” – (5)</i></p> <p><i>“If the market doesn’t demand IDZs then IDZs won’t be successful. The limitations that we have is Transnet since they don’t provide effective transportation in terms of railway. There is a weak integration between the government departments and the SOE’s such as Transnet to improve trade within the region.”</i></p> <p><i>“It all depends on whether it will be workable to establish a IDZ so the feasibility studies play an integral role and there needs to potential within that region in order to establish whether the IDZ will work effectively or not. You also need to cost-benefit analyses and other important studies prior to the establishment of the IDZ before you actually establish the IDZ.”</i></p>

Source: Own compilation

## 6.10 SYNOPSIS

Chapter 6 discussed the results attained for the development indicators for South Africa and the Eastern Cape. Section 6.2 included the development indicators and total output for South Africa and all the nine provinces. Section 6.3 included the analysis of the development and economic indicators for the Eastern Cape and the two metros in which the IDZs are situated in namely the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality.

The analysis included the total output and GVA for South Africa, the Eastern Cape, the Nelson Mandela Bay Metropolitan Municipality as well as the Buffalo City Metropolitan Municipality. The province itself are highly dependent on the tertiary sector for total output, especially for both the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality (data obtained from Quantec Easy Data). Section 6.4 included the evaluation of the location quotient (which measures the level of specialisation within a sector) it showed that both the Nelson Mandela Bay Metropolitan

Municipality and the Buffalo City Metropolitan Municipality are highly specialised within its secondary and tertiary sectors.

Section 6.5 showed the shift-share analysis, which are utilised to determine the employment growth rates of the region compared to the national growth rates with regard to the various industries within the economy. In order to determine the values of the shift-share analysis, the employment figures were analysed on the basis of three empirical tests, which include the NS, the IM as well as the CS (as explained in Section 6.5).

The analysis of the shift-share calculation showed that there are 12 industries within the region that has a competitive advantage in terms of employment creation within the Nelson Mandela Bay Metropolitan Municipality. The sectors that have a significant advantage included agriculture, forestry and fishing, food beverages and tobacco, petroleum products, chemicals, rubber and plastic, other non-metal mineral products, electrical machinery and apparatus, radio and TV equipment, electricity, gas and water, wholesale and retail trade, catering and accommodation, transport and storage, business services as well as community, social and personal services.

Within the Nelson Mandela Bay Metropolitan Municipality there are a total of eight industries that has a competitive advantage within its industries. The industries included agriculture, forestry and fishing, food, beverages and tobacco, construction, wholesale and retail trade, catering and accommodation services, transport and storage, business services as well as community, social and personal services. Section 6.7 was an analysis of each sector within the Nelson Mandela Bay Metropolitan Municipality with specific emphasis on (a) the GVA and employment, (b) forward and backward linkages and (c) the multiplier effects. The final demand multipliers indicated that the manufacturing sector, the construction sector, transport, storage and communication, wholesale and retail trade as well as finance, insurance and real estate play a significant role in terms of total output and GVA.

The sectors that contribute significantly towards total earnings earned include sectors such as the general government, the manufacturing sector, construction as well as wholesale and retail trade. The sectors that contribute significantly towards the total employment within the region includes agriculture, forestry and fishing, community, social and personal services, construction, wholesale and retail trade as well as general government. Table 6.19 showed the forward and backward linkages for all industries within the Nelson Mandela Bay Metropolitan Municipality. The analyses indicated that the manufacturing sector, transport and storage as well as the finance and insurance industries are regarded as key sectors since the sectors provide significant linkages between the other industries within the region.

The Buffalo City Metropolitan Municipality indicated that there are a total of eight industries that have a competitive advantage within its various industries. The industries included, agriculture, forestry and fishing, food, beverages and tobacco, construction, wholesale and retail trade, catering and accommodation services, transport and storage, business services as well as community, social and personal services. Section 6.8 was an analysis of each sector within the Buffalo City Metropolitan Municipality with specific emphasise on (a) the GVA and employment, (b) forward and backward linkages and (c) the multiplier effects. In terms of total GVA and employment, the industries that showed significant growth included the general government, community and social services, manufacturing and construction. The analysis showed that overall employment in all sectors within Buffalo City declined for most of the sectors, compared to the employment figures of the Nelson Mandela Bay Metropolitan Municipality.

The sectors that contribute significantly towards total earnings include sectors such as the general government, community, social and personal services, manufacturing, and construction. The sectors that contributed significantly towards the total employment within the Buffalo City region includes agriculture, forestry and fishing, community, social and personal services, general government, construction as well as wholesale and retail trade. Table 6.25 showed that the key sectors within Buffalo City includes the manufacturing sector and construction, however, the transport, storage and communication and the finance, insurance and real estate and business services have valuable forward linkages (showing that supply stimulates the final demand).

Section 6.9 presented the qualitative responses from the interviews with the various stakeholders within the IDZs of the Eastern Cape. A total number of 12 stakeholders were interviewed in both the East London IDZ, Coega IDZ and two responses from the Saldanha Bay IDZ situated in the Western Cape. Most people (58%) of the respondents were situated within the East London IDZ while 25% were situated within the Coega IDZ and a small number (17%) of the respondents were situated within the Saldanha Bay Metropolitan Municipality. There was a total of 23 questions within the interview schedule combined with a total of 7 subheadings (themes). The themes of the interview schedule included physical features, policy framework perceptions, policy framework constraints, incentives perceptions, industrial support, enabling environment, economic leverage perceptions and lastly, the role of government.

## CHAPTER 7

### SUMMARY, RECCOMENDATIONS AND CONCLUSION

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#### 7.1 INTRODUCTION

The establishment of SEZs in the world have a lengthy history. The introduction of freeports dates back hundreds of years where traders managed off ships, transporting cargoes and re-exporting products with limited restriction from local government departments (UNCTAD, 2019:128). Eventually the world introduced modern free zones during the 1960s, which are close to airports, harbours and border corridors (UNCTAD, 2019:128). During the 1980s the free zones started to grow significantly in line with the export-positioned industrial development surge in various developing countries in conjunction with growing dependence of international manufacturers on offshore manufacturing (Ernst, 2005:9).

The rise of global manufacturing during the 1990s and 2000s established the fast growth of GVC, which created an alternative movement of new SEZs to be established, with developing countries imitating the success stories of SEZs in the developed world (UNCTAD, 2019:128). Even though the global trade rules reduced incentives linked to exports and the elimination of exclusions to the rules for developing countries it did not stop the growth of EPZs. SEZs continued to grow across the globe and authorities adjusted to the new SEZs policies, while keeping the important propositions to investors, which includes pro-business policies and the inclusion of financial incentives (UNCTAD, 2019:128).

The impact of the global financial crises in 2008 saw a total decline in international trade and decelerated the formation of new EZs (Steyler & Powell, 2010:152). The set back that the global financial crises had on international trade had a contrary outcome, as authorities found new ways to manage the bigger competition for moveable industrial activities with more and new types of SEZs established (UNTAD, 2019:128). Today there are more than five thousand SEZs across the globe while more than nine hundred of these SEZs have been established and more than 500 new zones are anticipated to open in the next following years (UNCTAD, 2019:128).

In South Africa, after the end of apartheid in 1994, the South African government focussed on an external method to conform to manufacturing and industrialisation policy to adapt to international trade policy (Chinguno, 2011:2). The National Industrial Policy Framework (NIPF) of 2007 and the IPAP of 2018 were implemented to grow the development of the South African economy to ensure the investment targets are met (Zalk, 2014:341). The aim of the IPAP was to implement “an inclusive and mixed tactic to grow industrial policy,” and thereby the following essential expanses of policy integration and intervention followed (Zalk, 2014:341):

- Improved orientation between industrial and macro policies.
- Industrial financing directed to real economy sectors.

- Leveraging the private and public purchasing to grow domestic employment and production in a variety of industries.
- Trade policies aimed at specific tariff fixing and the implementation and the choice of standards in a strategic manner.
- Innovation and skills development aligned with sectoral significance.

The South African government, DTIC, employed the IDZ programme to shift itself within the global economy (Republic of South Africa, 2021). The Republic of South Africa (2021) states that the programme was in line with the National Industrial Policy Framework of 2007 and the goal of the IDZ programme was to:

- Magnify tactical industrialisation emphasis to cover regional economic development.
- Providing a transparent, systemic and probable planning framework for the development of SEZs to support industrial policy goals.
- Strengthening the authority arrangements and increasing the array and quality of support measures beyond infrastructure development.
- The establishment of a structure for a conventional financing structure to facilitate long-term planning.

The focus of the programme was to improve manufacturing and production activities in South Africa and in the same sense to reduce inequality, unemployment and poverty as aligned with the South African macroeconomic policies (World Bank, 2017:2). Favourably, South Africa have development in the macroeconomic surroundings and comparative advantages in terms of natural resources, which indicates that there is major potential for economic development opportunities (Arvanitis, 2006:64; Mhaka & Jeke, 2018:3).

Policies such as the NDP (National Development Plan: 2030) and the IPAP: 2018/19 – 2020/21) focussed on industrialisation and growth within the manufacturing sector to provoke job creation. The Presidency (2012:96) states that IDZs and special SEZs play a significant role in LED while promoting industrialisation. According to the Republic of South Africa (2012:2), the introduction of the new Special Economic Zones Act 16 of 2014 saw a change in the overall objective for the functionality of SEZs, which included aspects of designation, advancement, operation and management of SEZs in South Africa. A critical aspect or purpose of SEZs is to promote regional economic development, which is an integral part of economic and social development (Republic of South Africa, 2014:9; Zeng, 2015:10). The implementation of the new act (Special Economic Zones Act 16 of 2014) saw a significant increase in the number of designated zones, higher investor confidence and a significant increase in operational investments (COGTA, 2019).

In the 2019 SONA the President of the Republic of South Africa said that spatial interference is needed to local industrial parks, SEZs and business centres (Republic of South Africa, 2019b:6). The intention of national government is therefore to improve manufacturing and industrial development through effective spatial policies and zone planning implementation. This research aims to explore the functionality of operational SEZs in South Africa and the impact that these SEZs have on the regional economic development.

SEZs are very important instruments to promote manufacturing and industrialisation in a region, only when its executed correctly (Zeng, 2015:1). In a developing country such as South Africa there are a total of 10 established SEZs, while only 6 of these SEZs are fully operational, which causes the SEZs to be less competitive and insignificant in terms of local economic growth (Republic of South Africa, 2019c). SEZs can have a significant impact on regional economic development, however, without the existence of success factors it is difficult to have a well-operating zone. The majority of SEZs in Africa have failed due to the execution of definite SEZ zone programmes, which conform to clear and functional SEZ policies and objectives (Farole & Moberg, 2014:3; UNCTAD, 2019:200).

Limited studies have directed their exploration on how functional and successfully operational SEZs influenced regional economic development within a specific region or area. Farole and Moberg (2014:3) say problems such as “insufficient knowledge” and the capability to utilise the incentives of SEZs in Africa are rather limitless and unclear (Farole & Moberg, 2014:3). The gap in the research of SEZs in developing countries is tremendous. As such, the primary objective of the study is to evaluate and analyse the level of regional economic development in areas of functional SEZs in South Africa and using the evaluation as a guideline policy for other non-functional and established new SEZs.

In particular, the theoretical objectives were to define and analyse concepts, definitions and theories relating to SEZs and regional economic development. These theoretical objectives were addressed Chapter 2 which included economic thoughts and concepts, location theories as well as regional economic development and agglomeration economic theory. The last three theoretical objectives included the investigation of determinants/themes and dimensions of successful SEZs through reviewing the literature involving international case studies based on successful SEZs.

The empirical objectives that facilitated in achieving the primary objectives of the study were to:

- To develop a descriptive profile of South African SEZs related to commercial and business information.
- To evaluate the stakeholder’s perceptions based on the determinants of functional SEZs, which has the most negative impact on commercial activities by means of an interview schedule.

- To evaluate the success factors of established SEZs based best practice principles and themes for the functionality of SEZs.
- To evaluate the level of regional economic development within the municipal boundaries of the SEZs.
- To implement specific SEZ functionality measurement tools for new and established SEZs.

The empirical objectives above were achieved by means of a quantitative research approach by means of economic dynamic analysis and economic baseline studies. The empirical analyses included analyses such as the input-output analysis, the shift-share analysis and the location quotient. The qualitative research approach adopted in the study included an interview schedule with various stakeholders within the Eastern Cape IDZs with regard to the functionality of SEZs. Chapter 7 provides the conclusion and policy recommendations drawn from the quantitative and qualitative findings of selected IDZs functionality in the Eastern Cape, South Africa.

## **7.2 SUMMARY OF THE STUDY**

### **7.2.1 Theoretical background**

The theoretical background of this study is based on the theoretical objectives as shown in Chapter 1, Section 1.3 and Section 1.4.2. As such, the theoretical background and objectives supported in attaining the primary objective, which is to analyse the functionality of selected SEZs in South Africa with specific reference to regional economic development.

The first conceptualisation of the study was to understand how the traditional economic development theories such as the Big Push model from Paul Rosenstein-Rodan (1943), which gained the attention of policymakers apply to SEZs with regard to the principle of intended government spending to influence growth within the industrial environment. The Big Push model are relevant since it focuses on the value of government spending and its influence on development and growth of industries within the 20<sup>th</sup> century.

Relating to the traditional economic development theories, the cluster theory of Michael Porter (1979) is also applicable to EZs. The theory itself signals the importance of clusters and the vital role of location, place and scale. Clusters itself forms a critical role in explaining why certain intuitions and companies are interconnected and concentrated (Bezerra, Gohr & Morioka, 2021:2). Clusters has a significant role in terms of production, innovation and new business formation (Cavén, 2011:3). The Porter theory of clusters and competition is imperative in the modern economic sciences and especially with regard to EZs since these zones are dependent on production activities, innovation, collaboration, concentration and interconnection between the various firms within the zones. Another traditional economic development theory is the new trade theory (NTT), which emphasises the importance of investments from multinational firms in SEZs and the significant impact it has on economic growth, increasing returns and employment opportunities. The

NTT also suggest that the focus should be on the enlargement of a variety/differentiating of production as supposed to homogenous goods and services.

Location theories also has a meaningful effect on SEZs since the importance of location justify the reason firms are found where they are and the vertical interconnection between the variety of hierarchically ordered central places (Zeng, 2013:4). The growth pole theory is also applicable to the study since it focuses on the principle of a key industry and its effect on other industries through both direct, indirect and induced effects (Nijkamp, 2016:193).

The growth pole theory is significant in modern economics since it explains how industries affects one another in terms of growth and development and the reason SEZs are portrayed as “clustered regions.” Another important theory is the structural change model, which focuses on the dynamics of structural change i.e., whereby the traditional economies are transformed to a modern approach through the changes in demand and supply. The theory justified the why a country focuses less on agricultural production as it grows and develop and the focus shifts towards an industrial development approach as supposed to agricultural production (Gabardo *et al.*, 2017:393).

Section 2.2.3.1 explains the shortcomings of economic development approaches, which includes unbalanced economic development. As said by Albert Hirschman (1978) the unbalanced economic theory based on the investment in pragmatic industries will cause various “linkages effects”, whereby developing countries have low economic growth, which leads to socio-economic problems such as poverty and unemployment (Akamatsu, 1961:209). The theory is very applicable to South Africa and EZs, since the “linkages effects” are insufficient, however, it does not create sufficient value chains for local producers, which leads to lower local growth.

Section 2.3 explains the prominence of regional economic development and agglomeration economics. Regional economic development is a both a process (labour force and human capital development) and a product (standard of living and employment) (Stimson & Stough, 2008:3). Regional economic development is useful in justifying a region’s economic capability through various evaluations such as economic development indicators and industry performance, which are specifically important for SEZs. The various theories of regional economic development include the cumulative causation model, the input-output model and LED.

The cumulative causation model as explained in Section 3.1.1.1 shows that a new industry/SEZ will lead to higher investment within a particular region, which in turn creates sufficient forward and backward linkages for other industries. With the establishment of a new industry or SEZ it will enable job creation and the attraction of more capital, so leading to higher demand for services and a higher population rate because of the new job opportunities that the industry presents. The higher population will enable the increase in general wealth and a higher tax rate for local government leading to higher infrastructure

provision and the creation of a larger tertiary sector. However, as said by Hirschman (1978) in his theory of unbalanced economic theory it is explained that the “linkages effects” because of new investments such as SEZs will initially have a major influence on economic growth, however, due to the lack of capacity within the developing countries it will have minimal effect on job creation and growth in the long term.

The last section of regional economic development theories includes the theory of agglomeration economics. Agglomeration economics concentrates on firm location in terms of movement and space, particularly in highly dense regions such as cities (Giuliano *et al.*, 2019:383). The theory applies to understand why individuals, firms and corporations move to highly dense regions such as industrial clusters and cities (Glaeser, 2010:1). The theory further clarifies the reason economic activities tend to centralise, especially in terms of minimum cost and other various “cost-saving” aspects (Parr, 2002:3). The theory that applies within agglomeration economics include the comparative advantage approach, the spatial diffusion approach as well as the importance of public policy in economic development.

Section 2.3.2.1 defines the comparative advantage approach specifies that an area produces products more efficiently and effectively with the lowest opportunity costs, which shows that the industries specialise more in certain products within a specified industry or sector (Todaro & Smith, 2011:575). The comparative advantage proposition stays true, especially within the context of SEZs in South Africa since manufacturing and mining are still two of the major industries in South Africa and therefore specialisation is needed in regions where they have a comparative advantage. Section 2.3.2.2 indicates the importance of the spatial diffusion approach, which is the direct opposite of agglomeration.

The spatial diffusion concepts specify that industries and business activities should focus on the preserving the spatial relationships between regions and focusing on creating adequate linkages between the various sectors of the economy (Amarasinghe *et al.*, 2018:1). The focus of the spatial diffusion relies on the relationship and link between under-developed regions and develop regions and the spillover effects that may follow if the linkages between developed and developing regions are resilient. The same practical approach can be applied within the context of SEZs since the firms in the SEZs are clusters, however, the knowledge spillover effect will inevitably happen as the clusters communicate and integrate with the local firms.

Section 2.3.3.4 signifies the value of public policy in regional economic development. Glaeser (2010:13) states that public policy plays a significant role in economics since infrastructure development is essential for development. Intended government programmes such as government projects and plans to develop infrastructure is needed to create an enabling environment for organisations and businesses to succeed. The implementation of effective public policy, however, is still a major concern especially when the goals and aims differ between national, provincial and local government. Aligned public policy and strategies are needed to effectively implement policies in a strategic manner. The policy drivers of SEZs in South Africa

need to have effective alignment in terms of the strategic plans and objectives especially in the long term for SEZs to be sustainable.

The succeeding chapter, Chapter 3 focussed on the literature review about the concepts, definitions, benefits, and success factors of SEZs. The objective of the chapter was to analyse and define conceptions relating to SEZs, while also determining the success factors of SEZs around the globe by way of a comprehensive literature review analysis, which explores the elements of successful SEZs. The aim was therefore to justify, outline and understand elements that influences the functionality of successful EZs. The first part of the study focussed on the history of SEZs and the reason the zones were established in the 20<sup>th</sup> century and the goal of the countries were to intensify their export-orientated objectives and goals. The chapter also indicated that SEZs increased significantly over the past few decades because of the success factors of Asian nations such as China.

The second and third part of Chapter 3 focussed extensively on the concepts of free zones, which are delimited regions whereby the regulations and rules of trade within the region differ from the rest of the country. Organisations that are situated within the SEZs enjoy more benefits than those firms or organisations operating outside the SEZs, some of the benefits include world class infrastructure and other financial benefits such as tax exemptions and tax incentives. Different countries do not use the same terminology, for example, there are different types of zones such as FTZs, export processing zones, comprehensive SEZs, industrial parks or bordered logistics parks.

The world does not use the same terminology, however, the principle of free zones and EZs are still the same. Section 4 of Chapter 3 focussed on the key role of SEZs on regional economic development by the key role of labour markets and transfer knowledge within the regions. Section 4 also illustrates the importance of SEZs and its ability to improve infrastructure development and urbanisation by the employment opportunities that these zones provide to the local economy. The empirical evidence discussed in the chapter also showed that EZs expand local economic growth through its ability to increase international trade and movement while also regulating business practices and limiting tax charges.

Section 3.5 of Chapter 3 explained the ownership of SEZs. SEZs can either be centralised or decentralised, meaning that the public sector, the private sector and a mixture of both the sectors can have ownership of the SEZs. The literature in the chapter revealed that PPP are the most effective type of management and control of the SEZs since the partnerships allow for a more cost-effective method of SEZ ownership. Concerning the ownership of SEZs in South Africa, its important to follow a path whereby government has minimal influence on the incentives provided to the SEZs, since the designated policies and plans never occur or does not occur in an effective manner. As such, its important that the public sector (operators) within the SEZs find a way in which they are less reliant on the funding of projects such as skills development and grants since the government funds are unable to cover most of the costs within the SEZs.

The organisational structures of SEZs play a crucial role in the functioning of SEZs. Section 3.6 gives an overview of the role-players of SEZs and their responsibilities. The role-players include the government, owners, developers, regulators and operators, all of which play a significant role in the operations and management of the SEZs. The board controlling the implementation of SEZs in South Africa include the Minister of Trade, Industry and Competition as well as the MDB. The regulators are SARS, the AG and DTIC.

Section 3.7 of Chapter 3 included the important policy considerations of SEZs, which include elements such as governance and regulation, improved competitiveness, joint ventures and regional cohesion and effective labour market regime as well as export-led growth policies. The last section of Chapter 3 evaluated the success factors of SEZs on a micro, meso and macroclimate. The chapter focussed specifically on themes and elements found within the micro, meso and macroclimate. There is a total of 12 success factors, which include elements such as the physical infrastructure, operations, incentives, management and organisational structure, financial capabilities, labour, innovation, location and land, regional economic development, value chains, policies as well as government support.

Chapter 4 followed the discussion of international case studies and best practice principles. The objective of the chapter was to gain valuable insights on the way in which SEZs work internationally and to apply the success factors for various countries as initially recorded in Chapter 3. The first evaluation was to evaluate best practice principles from a developed country point of view. Developed countries such as the USA does not label EZs as “special”, but they are considered to be geographical bounded regions where trade takes place. Most of the zones within the USA are used as regions of free trade and not as a space for production or manufacturing. These “free zones” are used as a development tool for employment and economic development opportunities and the firms enjoy numerous benefits such as reduced taxes and levies, duty exemptions and supply chain efficiencies.

From a European perspective there is a total of 105 SEZs on the continent and all are governed by the public sector. “Foreign-trade zones” is the term used for European countries and these zones focuses specifically on fiscal incentives such as the exemptions of VAT and other tax duties. The only country in Europe with a large base of EZs is Poland. First established in 1995, the country has more than 20 SEZs of which 14 of the zones are SEZs and the other are “FTZs”. From the success factors evaluated within Poland it shows that leadership from government, effective administration and excellent governance are some of the elements of an effective EZ. Monitoring and management from government play an influential role in the success of these zones, especially since authorities monitor the operations, investments and employment figures, meaning that valuable feasibility evaluations are being utilised to track the progress of SEZs in the country.

Other countries in Europe enjoyed moderate success such as Lithuania and Bulgaria in terms of the establishment of EZs. It is specified that the limited success of the SEZs in Europe are due to the trade

regulations from the European Union, which makes it difficult to implement their own trade policy rules and regulations. In the developing world it has shown that the ASEAN countries has a significant number of EZs and the area is regarded as a key influence in the world trade and the investments within the regions are significant, both nationally and internationally.

The reason for the major success within the ASEAN group is the governments' participation and involvement with the zones, especially since the government focuses on export promotion and important substitution strategies. The countries that are situated within the ASEAN group experience flexible labour laws, which makes it easier for businesses to hire and fire, certainly something that are not as clear as within developed countries. Value chains and interregional trade within the group is significant and therefore the countries are very efficient and effective in terms of trade.

The countries also tend to focus more on growth-orientated sectors such as agriculture, renewable energy and environmental sustainability, so if investments are allowed within the country the organisations will have to invest within these specific sectors of the economy. Despite the magnificent success of SEZs within these countries, however, there are some obstacles and barriers that remain a problem. Infrastructure development and service delivery constraints are two aspects that have a significant negative outcome on the growth and development of the country.

The countries within the ASEAN group also focuses on the manufacturing, electronic and the high-tech industry as a tool for economic growth and development. In Malaysia, for example, the E&E industry contribute 91% towards total output, showing that the high-tech industry play a significant role on economic growth. One of the reasons why the SEZs are well-established is the role of FDIs and the considerable number of MNEs within the SEZs and this is mostly due to the focus of private sector development, excellent customs regimes and pro-business policies.

One country that stands out is China and its history shows that it has the most successful SEZs in the world. The success of China is because of it is the country's large investments and capital expenditure towards SEZs to attract technological advancements, improving international trade, promoting regional economic development and increasing employment. Even though a country's labour laws are flexible, all the spheres of government play a crucial role subsidising its comparative advantages and the government itself plays an active role in supporting SEZs by capital investments and the creation of linkages to the formal markets.

The success of the SEZs in China can not only be attributed towards the government's efforts to improve production but the effectiveness of PPP, which addresses the capital restraints. The other comparative advantage which the country has are tax breaks, low-cost land, duty-free imports and instant customs clearances. The labour-intensive workforce together with innovation plays a significant role in all industries of the country and the policy of the country is to attract a skilled labour force. The advantage that the SEZs have in China is the location of its SEZs that are situated near the coastal lines, which gives them the benefit

of a strategic location that creates more efficient linkages with the neighbouring countries while reducing transportation and distribution related costs.

The success of established SEZs in China comes a long way. The country focuses more on an open-door policy to avoid political interferences and its gradualist approach towards reformation. The efficient administration and regulations in its economic systems are some of the key elements in the provision of adequate infrastructure development. In other developing parts of the world, it is indicated that the continent of Africa has inadequate established EZs and they rely mostly on FEZs, a method to improve competitiveness and trade in terms of export promotion.

The potential benefits of establishing EZs on a continent such as Africa are endless. Some of the potential benefits include the significant land availability, natural resources, however, some of the major obstacles include political influences and infrastructure development. Even though a country such as Ghana provides major fiscal and non-fiscal incentives to encourage new investments, the country itself has limited investments, however, the success story of China can be used as a blueprint for establishing new SEZs in the country and the African continent.

The success factors of developed countries showed that adequate management, good governance and strategic planning are some of the key elements for a successful zone. The case study also showed that efficient logistics plays a major key role in creating sufficient forward and backward linkages, however, business support, strategic locations and infrastructure development are some of the key elements of a successful and fruitful EZ. The Chinese case study showed that adequate capital and investments are needed to attract technological advanced firms while the support of government is essential to create an enabling environment. The co-ordination between the different departments of government and co-operation between private and public sectors are needed for effective governance and business operations.

From a South African perspective, IDZs do play an integral role in terms of economic growth and development, however, there are 6 functional SEZs while there are 10 established SEZs in the country. The problem in South Africa is the extent to which the established SEZs are functional and whether the regions contribute significantly towards the local economy. The policies in South Africa to establish the IDZs are there, however, the policy direction remains a huge concern, especially with regard to the co-ordination of policy and integration between the various departments. Even though the country implemented various policies such as the NIPF of 2007 and the IPAP of 2018, the policy direction and frameworks are vague. In other instances, even if the policies are implemented the success is not sustainable in the long term.

### **7.2.2 Methodological and empirical process**

The empirical method followed in the study is a mixed-method study approach used within the study, which include a quantitative and qualitative research method and as a result both the positivist and interpretivism

research approach were followed. Section 5.4 focussed on the research approach and methodology that signifies the data collection method for both the qualitative and quantitative approach.

The qualitative data collection method in this study focussed on in-depth structured interviews with various stakeholders in the SEZs. The stakeholders included participants such as businesses (special interest groups and microenterprises), experts (business, professionals and local government) and the investor's assessment (private and public investors, non-profit organisations and developers). The study is based on an analysis of SEZs in two of the biggest SEZs in South Africa namely the Coega IDZ near Port Elizabeth and the East London IDZ situated in East London.

The respondents are selected stakeholders from the different IDZs in South Africa, meaning the method utilised within the study is a non-probability sampling method, whereby the snowball sampling method are utilised and as a result the networks will guide the researcher to the specific group if necessary. Since the study only uses specific samples from the population, which include specific stakeholders within the IDZs rather than randomisation selection of chance, the probability sampling technique will be the most suitable method.

Respondents were contacted preceding the interviews in order to explain the reason for the interview and what the interview entails. Due to health protocols and the Covid-19 pandemic, most of the respondents were interviewed telephonically or via satellite (Zoom, Teams, Skype etc). All the interviews were recorded on the specific device i.e., mobile phone or computer and the interviewer analysed the transcripts by playing back the recordings and evaluating the answers given by the respondents.

The depicted recordings of the interviews were analysed using a content analysis method, once data saturation was reached the researcher then addressed the recordings whereby particular themes were identified. The themes are based on numerous factors that enable the success of EZs. These factors were then coded by giving them titles that are represented by the success factors in the previous segments of the study.

The researcher obtained 12 interviews from stakeholders within the East London IDZ and the Coega IDZ situated in Port Elizabeth. The interview schedule as seen in Appendix A included a total of 9 subheadings and a total of 24 questions. Some of the subheadings included the basic information, the physical features of the IDZ, policy framework perceptions, policy framework constraints, incentives perceptions, enabling environment perceptions, economic leverage perceptions and the role of government.

The standardised/structured interviews have closed-ended questions meaning that all the respondents have the same questions in the same frequency. Various stakeholders and workers within the Coega IDZ situated near Port Elizabeth and the Eastern Cape IDZ situated in East London were interviewed.

The first stage of qualitative exploration was to assess the recording from all the interviews and the interviews had to be transcribed. According to McLellan, MacQueen & Neidig (2003:70), in both large- and small-scale qualitative research situations, the transcription practice is beneficial for two reasons: (1) it reduces the possibility that a researcher will have dissenting transcript “products” to work with, and (2) it lowers the likelihood that analysed data will be rescheduled or conceded.

The ethical standards were followed during the entirety of the research period. The major ethical issues that the researcher had to keep in mind includes aspects such as (a) informed consent, (b) beneficence (not to harm), (c) respect for confidentiality and anatomy and the respect for privacy (Fouka & Mantzourou, 2011:4-6).

The researcher had to keep to technical and strict guidelines in order to avoid the plagiarism, even when the researcher utilised information from another writer, the researcher had to acknowledge each aspect of the study utilised. The researcher obtained an ethical clearance form from the Faculty of Economic and Management Sciences Research Ethics Committee (EMS-REC) with a valid ethics application number NWU-00981-21-A4.

The quantitative approach focussed on the secondary data analyses methods, which include techniques such as the economic baseline studies (i.e., input-output tables analyses) as well as economic dynamic analysis (i.e., shift-share analysis which were derived from the location quotient). The data are acquired from Quantec Easy Data (RSA standardised regional data), however, the results were calculated separately on Excel. The Excel spreadsheet were used to calculate the industry mix share (to evaluate whether employment in the industry and region grew above the national average) and the competitive effect (which measures the share of employment in that specific industry of the region).

The final calculation was the national effect, which calculated the total employment in the industry and region by the percentage growth in employment for that specific area. The shift-share analysis then shows in which industries did the overall competitiveness improve in the specific region compared to the national average.

All the data to calculate the specific input-output tables for the two regions were obtained from Quantec Easy Data by means of the control totals for both the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality, which included variables such as the intermediate use/sales (including output at basic prices and total output), value-added (GDP at factor costs, GDP at basic prices and GDP at market prices) as well as final demand (households, government, capital formation and trade (imports and exports)). The control variables used permitted the national data to be derived to data on a local level (municipality).

The control variables were then used to acquire the input-output tables by means of the SLQ, CILQ as well as the RegioFLQ, which ultimately estimated the regional input-output tables for both the Metropolitan

Municipality as well as the Buffalo City Metropolitan Municipality. The regional input-output tables were used to calculate the technical coefficients, the effects of forward and backward linkages as well as the final demand multipliers (Type I and TypeII).

### **7.3 REALISATION OF THE STUDY OBJECTIVES**

This provides a brief overview of the primary, theoretical and empirical objectives that had been addressed.

#### **7.3.1 Primary objective**

The primary objective was to analyse the functionality of selected SEZs in South Africa with specific reference to regional economic development.

#### **7.3.2 Theoretical objectives**

The study listed five theoretical objectives as outlined in Chapter 1. All the theoretical objectives are stated below and how they are achieved.

- Defining and analysing concepts related to regional economic development and SEZs.

The aim was achieved in Chapter 3. Specifically, the study began with a brief history of SEZs in Section 3.2. In Section 3.3.1 a thorough evaluation on the definition of SEZs were given and in Section 3.3.2 the several types of EZs were explained. Chapter 3 in Section 3.4 the key role of SEZs on regional economic development were also explained in detail.

- Discuss various theory relating to regional economic development with reference to SEZs.

This objective was achieved in Chapter 2. Firstly, in Section 2.3 the term of regional economic development was explained. Section 2.3.1 focussed on regional economic development theories such as the cumulative causation model and the input-output model and multiplier analyses, which are also used in the secondary data evaluation of this study, and how the theory relates to SEZs. Section 2.3.2 focussed specifically on agglomeration economics and the various theories relating to the concept. The theories included the comparative advantage approach, the spatial diffusion approach and the knowledge spillover approach; all of which are related to regional economic development.

- Investigating the determinants/dimensions of successful functional SEZs via international case studies.

This theoretical objective was achieved in Chapter 3, under Section 3.8, which were used as a base for the empirical part of the study. A thorough literature evaluation from various sources and case studies were utilised to indicate the success factors or failures of an operating SEZ.

- Identifying various best practice principles and themes for the functionality of SEZs.

The theoretical objective was also achieved in Chapter 3, under Section 3.8, which identified the various success factors/best practice principles of a functional SEZ.

- Reviewing the literature involving international case studies based on successful SEZs.

This objective was achieved in Chapter 4 that investigated the various SEZs in different parts of the globe and practically evaluating the success factors for each country. The chapter gave a brief overview of the establishment of SEZs within the country and followed with a practical approach to apply the success factors as identified in Chapter 3.

### **7.3.3 Empirical objectives**

In line with the theoretical objectives of the study, the following empirical objectives were set:

- To develop a descriptive profile of SEZs in the Eastern Cape.

In Chapter 1, the history and establishment of SEZs were explained and the key IDZs of the Eastern Cape were also evaluated. Section 6.2 gave a brief overview of the Eastern Cape and the operational IDZs within the province.

- To evaluate the stakeholder's perceptions based on the determinants of functional SEZs that have the most negative impact on commercial activities by means of an interview schedule.

This section was explained in Chapter 6, Section 6.9. The first part of Section 6.9 explained the basic demographics of the participants in the study, which included the number of respondents in each IDZ and their position within the IDZ. The subsequent parts focussed on areas such as the physical features of the IDZ, the policy framework perceptions, the policy framework constraints, the incentives perceptions, the enabling environment, the economic leverage perceptions as well as the role of government.

- To evaluate the success factors of established SEZs based best practice principles and themes for the functionality of SEZs.

This section was also explained in Chapter 6 under Section 6.9. The various themes were explained and the respondents gave their own viewpoints with regard to the questions that were asked in the interview. Certain themes were extracted from the interview and are further discussed in Chapter 7.

- To evaluate the level of regional economic development within the municipal boundaries of the SEZs compared to municipalities in the surrounding areas.

This empirical objective was explained in Chapter 6. Chapter 6 discussed the results attained for the development indicators for South Africa and the Eastern Cape. Section 6.2 included the development indicators and total output for South Africa and all the nine provinces. Section 6.3 included the analysis of the development and economic indicators for the Eastern Cape and the two metros in which the IDZs are

situated in namely the Nelson Mandela Bay Metropolitan Municipality and the Buffalo City Metropolitan Municipality. Section 6.4 discussed the evaluation of the location quotient (which measures the level of specialisation within a sector), it showed that both the Buffalo City Metropolitan Municipality and the Nelson Mandela Bay Municipalities are highly specialised within its tertiary and secondary sectors. Section 6.5 illustrated the shift-share analysis that are utilised to determine the growth of employment of the region compared to the national employment growth rates for the various industries within the economies. Section 6.5 showed the shift-share analysis that was utilised to determine the employment growth rates of the region compared to the national growth rates with regard to the various industries within the economy. In order to determine the values of the shift-share analysis the employment figures were analysed on the basis of three empirical tests which include the NS, the IM as well as the CS (as explained in Section 6.5).

The analysis of the shift-share calculation showed that there are 12 industries within the region that have a competitive advantage in terms of employment creation within the Metropolitan Municipality. The sectors that have a significant advantage included agriculture, forestry and fishing, food beverages and tobacco, petroleum products, chemicals, rubber and plastic, other non-metal mineral products, electrical machinery and apparatus, radio and TV equipment, electricity, gas and water, wholesale and retail trade, catering and accommodation, transport and storage, business services as well as community, social and personal services. Within the Nelson Mandela Bay Metropolitan Municipality there are a total of eight industries that has a competitive advantage within its industries.

The industries included agriculture, forestry and fishing, food, beverages and tobacco, construction, wholesale and retail trade, catering and accommodation services, transport and storage, business services as well as community, social and personal services. Section 6.7 was an analysis of each sector within the Nelson Mandela Bay Metropolitan Municipality with specific emphasis on (a) the GVA and employment, (b) forward and backward linkages and (c) the multiplier effects. The final demand multipliers indicated that the manufacturing sector, the construction sector, transport, storage and communication, wholesale and retail trade as well as finance, insurance and real estate play a significant role in terms of total output and GVA. The sectors that contribute significantly towards total earnings earned include sectors such as the general government, the manufacturing sector, construction as well as wholesale and retail trade. The sectors that contribute significantly towards the total employment within the region includes agriculture, forestry and fishing, community, social and personal services, construction, wholesale and retail trade as well as general government. Table 6.19 showed the forward and backward linkages for all industries within the Nelson Mandela Bay Metropolitan Municipality. The analyses showed that the manufacturing sector, transport and storage as well as the finance and insurance industries are regarded as key sectors since these sectors provide significant linkages between the other industries within the region.

The Buffalo City Metropolitan Municipality indicated that there are a total of eight industries that have a competitive advantage within its various industries. The industries included, agriculture, forestry and fishing, food, beverages and tobacco, construction, wholesale and retail trade, catering and accommodation

services, transport and storage, business services as well as community, social and personal services. Section 6.8 was an analysis of each sector within the Buffalo City Metropolitan Municipality with specific emphasis on (a) the GVA and employment, (b) forward and backward linkages and (c) the multiplier effects. In terms of total GVA and employment, the industries that showed significant growth included the general government, community and social services, manufacturing, and construction. The analysis showed that overall employment in all sectors within Buffalo City declined for most of the sectors, compared to the employment figures of the Nelson Mandela Bay Metropolitan Municipality.

The sectors that contribute significantly towards total earnings include sectors such as the general government, community, social and personal services, manufacturing, and construction. The sectors that contributed significantly towards the total employment within the Buffalo City region includes agriculture, forestry and fishing, community, social and personal services, general government, construction as well as wholesale and retail trade. Table 6.25 showed that the key sectors within Buffalo City includes the manufacturing sector and construction, however, the transport, storage and communication and the finance, insurance and real estate and business services have valuable forward linkages (showing that supply stimulates the final demand).

Section 6.9 presented the qualitative responses from the interviews with the various stakeholders within the IDZs of the Eastern Cape. A total number of 12 stakeholders were interviewed in both the East London IDZ, Coega IDZ and two responses from the Saldanha Bay IDZ situated in the Western Cape. Most people (58%) of the respondents were situated within the East London IDZ, while (25%) were situated within the Coega IDZ and a small number (17%) of the respondents were situated within the Saldanha Bay Metro. There was a total of 23 questions within the interview schedule combined with a total of 7 subheadings (themes). The themes of the interview schedule included physical features, policy framework perceptions, policy framework constraints, incentives perceptions, industrial support, enabling environment, economic leverage perceptions and lastly the role of government.

- To implement specific SEZ functionality measurement tools for new and established SEZs.

The objective of this chapter is discussed in the last section of Chapter 7.

## **7.4 KEY FINDINGS**

This section gives a synopsis of the findings of the study and how the empirical objectives were achieved. The primary objective of this study was to analyse the functionality of selected SEZs in South Africa with specific reference to regional economic development. The results of the study are highly similar to similar studies done on SEZs in South Africa. Firstly, only a few of the existing SEZs perform well, while the majority of the SEZs in South Africa are not functioning well or they are not operative and this is due to the SEZs' location, the inability of government to drive to projects and plans for the zones and the lack of

co-ordination between the various departments of government. Section 7.4.1 focuses on the qualitative responses from the interviews conducted with the participants.

## **7.4.1 Qualitative responses of the participant sample**

### *7.4.1.1 Physical features of the SEZ*

**Infrastructure quality:** most respondents agreed that the infrastructure quality within the IDZ itself are of very high-quality and that the buildings are affordable, however, the external infrastructure such as the roads outside the IDZs are of very low quality and the ports are relatively small and does not accommodate the big vessels and the railways are not working, which causes further pressure on the transportation networks.

**Strategic location of the SEZ:** most respondents felt that all of the IDZs are situated in a strategic location, especially considering that the IDZs are close to the harbour and the ports. The IDZs are situated in a location where they enjoy the benefit of trade, since the IDZ is in close proximity to the harbour, which makes trade more efficient.

**Green practice principles:** green practice principles and renewable energy are being implemented within the various IDZs, however, there are only a few projects in the pipeline that address low carbon strategies and renewable energy projects. The strategic objectives of the IDZs are to effectively implement the strategies in the long term, however, currently only a few projects are in place to implement green and renewable energy.

### *7.4.1.2 Policy framework perceptions*

**Job creation opportunities:** most respondents felt that the local regions have very high unemployment rates and that the local communities expect the IDZs to create more job opportunities. For each IDZ the number of jobs created are equal to more than 3000 employees since its establishment. The policy guidelines for the IDZs are to ensure a major uptake of local contractors as a method to get the local communities involved in the work projects such as construction.

**Labour regime standards:** most of the respondents felt that the local communities have some degree of skill shortages, which makes it exceedingly difficult to employ new workers. The firms operating within the IDZs conforms with the labour standards as prescribed by the Department of Labour, however, skill shortages remain a huge concern for the organisations. The IDZs also have strong partnerships with trade unions such as COSATU and NUMSA, which means that IDZs do conform to required labour standards as prescribed.

**IDZ contribution towards the local economy:** The IDZs contribute significantly towards the local economy since the total investments for a majority of the IDZs are higher than R3 billion. Raw materials

are sourced locally, and imports are closely monitored to ensure that the firms buy from local producers. The policy and regulations by the IDZ's are to improve local sourcing of materials and all of the tenders advertised by the IDZ's follow the government policy to improve economic transformation and improve the economic participation of previously disadvantaged groups.

**Investment perceptions:** The respondents felt that there are room for new investments and that South Africa needs to sharpen its value proposition so that it is in line with international standards such as the ASEAN countries, especially within SEZs in South Africa that are established but not operating. For the majority of IDZs in South Africa there are investors willing to invest and operate within the IDZs, however, they mostly feel that they need more policy support, especially since the country has a sovereign credit rating of BB-. Other problems that the investors have include problems such as political instability, the lack of adequate electricity provision and the overall state of affairs.

**Pro-business policies:** The majority of the IDZs are investor-friendly and they apply various soft-landing platforms to help new investors. Some of the respondents felt that the IDZ highly influences pro-business policies and that the department needs to make drastic changes for the IDZs to be more competitive in order to create effective value propositions. Most of the IDZs have adequate pro-business policies and investor-friendly facilitations for new IDZs.

#### *7.4.1.3 Policy framework constraints*

**Land availability:** The majority of the IDZs have land space available on the premises, however, more than 50% for most of the IDZs have reached the maximum capacity of land available. The stakeholders also felt that the port needs to be expanded and the infrastructure should develop more to attain its long-term strategic plans.

**Sufficient linkages with local firms:** Most of the IDZs make use of local producers and managers also try to encourage the purchases of materials from local producers.

**Institutional volatility and political instability:** The stakeholders within the IDZs feel that there is not that much institutional volatility, despite the role of bargaining councils and the trade unions who work effectively with management, there is no major volatility. In some instances, the government through National Treasury implemented the "Preferential Procurement Programme", which stipulates that whenever a tender is awarded above R30 million then 30% of the contract needs to be awarded to the local SMMEs. However, the SMMEs provide labour from the local workforce, which makes it difficult since the local people does not have the required skills in terms of grading and therefore, they feel excluded. The locals then start to lobby and disrupt the operational procedures of the IDZs.

#### 7.4.1.4 *Incentives perceptions*

**Employment incentives:** Most of the firms do apply the employment incentives such as the (Employment Tax Incentive Act, 2013) if they are registered with SARS.

**Industrial support/Incentives:** The firms do get incentives, but not as much as they would have liked, meaning the incentives only occur when the organisation is in a few years of operation and generally they are not profitable within the first years of operations. More adequate incentives will help in the long term. There are also other types of incentives such as VAT, lower importation taxes and lower export taxes. More incentives can be provided to organisations that is not part of the manufacturing sector, since only the manufacturing sector receive the majority of incentives.

#### 7.4.1.5 *The enabling environment*

**Enabling environment perceptions:** The majority of IDZ feel that there is a great link between the government, the community and the businesses. It is a mandate for all IDZs to incorporate social responsibility programmes whereby the IDZ interacts with society and the interactions are closely monitored. The synergies between the community, people and the local government is good. The provincial government and the local government are both shareholders of the IDZs and they provide an excellent link between the government, people and businesses. The IDZ also have regular meetings with its stakeholders monthly, whereby the IDZ's management communicate its various programmes such as community programmes and school programmes.

#### 7.4.1.6 *Economic leverage perceptions*

**Innovation:** There is no lack of innovation from the organisations that operate within the IDZs. The big firms use innovative ways to manufacture the vehicles and the IDZs also have science and technology parks and most of them use digital platforms. Management believes that any institution needs to be innovative to survive. The IDZs also have innovation campuses, which helps with the development and production of new products.

**Effective tools for industrial development:** There are some spaces to improve industrial development in South Africa. Most of the IDZs in South Africa that are successful focuses on the automotive industry and some of them fail. Specialisation is needed for the IDZs to grow significantly, as such, the government should focus on regions where the industries have a competitive advantage and work towards a solution to expand the productivity within those regions. IDZs are effective tools to stimulate local growth and enhance investment opportunities for big firms. Government should focus on some key areas such as the location of the IDZ, the macroeconomic environment, infrastructure development and the participation of government in the industrial sector.

**Fiscal and skills development perceptions:** Yes, most of the stakeholders feel that the government provide effective incentives towards the SEZs. For instance, the provincial government funds the operational expenses and the municipality is a shareholder while the Department of Trade and Industry fund the capital infrastructure projects. Some of the IDZs state that they do not get funding directly from the National Treasury, and as such they only get funding from the SETA and the IDZs have to apply for these types of fundings. Other stakeholders feel that the DTIC can do more in terms of a policy perspective in terms of infrastructure development and bulk infrastructure. The skills development from the DTIC is a bit fragmented, which causes a lot of uncertainty, however, the goal of the IDZs is to be more fiscally independent in the long term, since national government supply minimal funding for projects.

**Efficient public service delivery:** Most of the IDZs agree that they do have adequate services delivered to them by local government. Since the service delivery capacity to provide for the zones are very high, the IDZs have some arrangements with the local municipalities to buy their services in bulk. The only problem that the IDZs face are inadequate electricity provision and waste management.

**Efficiency to establish new economic zones:** It can be effective to implement new EZs within South Africa, however, they should be managed properly and more effectively. The government does have effective policies to revitalise the economy, however, IDZs form a small fraction of the economy. It helps to have a SEZ where there is a port available to ease trade, however, IDZs situated inland can also work to ease trade if they use road and air freight. IDZs can only work if it is dependent on a few success factors such as a demand for the market, its value proposition, adequate capital investments and human resources. With the current IDZs that are established but not fully operational, the government firstly needs to focus their energy on the existing IDZs and make them fully operational before establishing new zones.

**Overall perception of IDZ:** The IDZ programme allows for positive outcomes if managed correctly in terms of value chains used and effective clustering of the firms operating within the IDZ. Creating more value chains and cluster development will come a long way in contributing towards the success of IDZs. There are still a lot of work that needs to be done for SEZs to operate effectively and efficiently in order to compete with countries around the world. Import and exportation should be promoted, despite the success or failure of IDZs, nonetheless, these IDZs do provide value towards the regions in which they are situated in. It also depends on the whether it will be workable to establish an IDZ so the feasibility studies play an influential role in order to determine whether the IDZ will work effectively or not. Studies such as the cost-benefits analyses and other feasibility studies should be utilised to determine whether an IDZ will be successful or not.

## 7.4.2 Quantitative analysis of the study

### 7.4.2.1 *The Nelson Mandela Bay Metropolitan Municipality (Coega IDZ)*

The quantitative data analysis for the Nelson Mandela Bay Metropolitan Municipality indicated that the it is are highly specialised within the following sectors: (As per calculation of the location quotient): food, beverages and tobacco, textiles, clothing and leather goods, wood and paper, petroleum products, chemicals, rubber and plastic, other non-metal mineral products, metal products, electrical machinery, radio, TV, instruments and clocks, transport equipment as well as furniture and other manufacturing. In the tertiary sector, the region has a specialised advantage in the following sectors: transport and storage, communication, finance and insurance and business services (As illustrated in Section 6.4 – Table 6.5).

The shift-share analysis indicated that the Nelson Mandela Bay Metropolitan Municipality is very competitive in terms of new job creation. Section 6.5 (Table 6.12) indicated that the region has a competitive edge in terms of employment creation within the following sectors: agriculture, forestry and fishing, food, beverages and tobacco, petroleum products, other non-metal mineral products, electrical machinery, radio, TV instruments, watches and clocks, electricity, gas and water, wholesale and retail trade, catering and accommodation services, transport and storage, business services as well as community, social and personal services.

With reference to the input-output tables based on the non-survey method of the input-output tables derived from the South African national input-output table. The methods of calculations are based on a single region non-survey method that are based on the calculation of the location quotient. The following results as obtained in Section 6.7 of the study:

**Agriculture, forestry and fishing:** This sector only contributes 0.675% towards the total provincial GVA. However, the total employment grew significantly and the shift-share analysis shows that the region is competitive in terms of job creation within the industry. Although, the sector does not create capable value chains. The industry is labour-intensive and it does have a significant impact on the total output of the region.

**Mining and quarrying:** This sector only contributes 0.047% towards the total provincial GVA and the location quotient is low, meaning the region does not specialise within this sector and it does not create sufficient forward and backward linkages.

**Manufacturing:** The manufacturing sector contributes 18.92% of the total provincial GVA as indicated in Table 6.4. The location quotient is equal to 1.55 meaning the sector is highly specialised within the province itself and relies heavily on the sector for total output. The manufacturing sector is regarded as a key sector in the economy since it creates sufficient linkages with other industries in the metro.

**Electricity, gas and water:** The sector only contributes 1.86% towards the total provincial GVA indicating that the sector has an insignificant degree of total output within the region, however, the shift-share analysis indicated that the region has a competitive advantage in terms of employment creation. The industry also indicates

insignificant forward and backward linkages, indicating inadequate inputs and outputs used in other sectors of the economy.

**Construction:** The construction industry only contributes 2.86% towards the total provincial GVA, showing a relatively low degree of total output within the region. The shift-share analysis indicated that the sector does not have a competitive advantage in terms of job creation, however, the industry itself does create significant backward linkages.

**Wholesale and retail trade:** The wholesale and retail trade showed that the industry contributes 20.34% towards the total output of the region. The shift-share analysis indicated that the region does not have a competitive advantage in terms of job creation and the industry itself does not create sufficient linkages with other sectors of the economy.

**Transport, storage and communication:** This sector does contribute significantly towards the total output of the region as it shows that the industry contribute 10.96% towards the total GVA. The location quotient shows that industries within the region is highly specialised and that the industry has a comparative advantage in terms of job creation. The sector can also be regarded as a key sector since it has strong and capable forward and backward linkages.

**Finance, insurance, real estate and business services:** The finance, insurance, real estate and business sector contributes 21.77% towards the total GVA of the province and the location quotient indicates that the industry is highly specialised. This is a key sector for the Nelson Mandela Bay Metropolitan Municipality since it creates strong forward and backward linkages to other sector of the economy.

**General government:** The general government contributes 17.30% towards total GVA, which indicates that the government plays an influential role with regard to total output in the region. The location quotient is less than 1, meaning the sector is not as specialised and the forward linkages between the government and the sector of the economy is weak.

**Community, social and personal services:** The community, social and personal services only contribute 5.23% towards the total output of the region. The backward linkages for the government sector are significant, indicating strong sectoral supply and linkages between community, social and personal services and other sectors within the metro.

### **Buffalo City Metropolitan Municipality (East London IDZ)**

The quantitative data analysis for the Buffalo City Metropolitan Municipality indicated that the metro is highly specialised within the following sectors (as per calculation of the location quotient): food, beverages and tobacco, textiles, clothing and leather goods, wood and paper, electrical machinery, furniture and other manufacturing, electricity, gas and water as well as construction. In the tertiary sector the region has a specialised advantage in the following sectors: wholesale and retail trade, catering and accommodation

services, finance and insurance, business services as well as community, social and personal services (As illustrated in Section 6.4 – Table 6.5).

The shift-share analysis showed that the Buffalo City Metropolitan Municipality is extremely competitive in terms of new job creation. Section 6.5 (Table 6.13) showed that the region has a competitive edge in terms of employment creation within the following sectors: agriculture, food, beverages and tobacco, construction, wholesale and retail trade, catering and accommodation services, transport and storage, business services as well as community, social and personal services.

With reference to the input-output tables based on the non-survey method of the input-output tables derived from the South African national input-output table. The methods of calculations are based on a single region non-survey method, which are based on the calculation of the location quotient. The following results obtained from the study showed the following results as obtained in Section 6.8 of the study:

**Agriculture, forestry and fishing:** This sector only contributes 0.675% towards the total provincial GVA, however, the total employment grew significantly, and the shift-share analysis shows that the region is competitive in terms of job creation within the industry, however the sector does not create capable value chains. The industry is labour-intensive and it does have a significant impact on the total output of the region.

**Mining and quarrying:** This sector only contributes 0.076% towards the total provincial GVA and the location quotient is low, meaning the region does not specialise within this sector and it does not create sufficient forward and backward linkages.

**Manufacturing:** The manufacturing sector contributes 9.22% of the total provincial GVA as indicated in Table 6.4. The location quotient is equal to 0.9 meaning the sector is moderately specialised within the province itself and relies modestly on the sector for total output. The manufacturing sector is regarded as a key sector in the economy since it creates sufficient linkages with other industries in the metro.

**Electricity, gas and water:** The sector only contributes 2.96% towards the total provincial GVA indicating that the sector has an insignificant degree of total output within the region, however, the shift-share analysis indicated that the region does not have a competitive advantage in terms of employment creation. The industry also indicates insignificant forward and backward linkages, indicating inadequate inputs and outputs used in other sectors of the economy.

**Construction:** The construction industry only contributes 3.60% towards the total provincial GVA, showing a relatively low degree of total output within the region. The industry is, however, very specialised since the location quotient is more than 1. The shift-share analysis indicated that the sector does have a competitive advantage in terms of job creation and it creates sufficient backward linkages to other sectors of the economy.

**Wholesale and retail trade:** The wholesale and retail trade showed that the industry contributes 23.24% towards the total output of the region. The shift-share analysis indicated that the region does have a competitive advantage

in terms of job creation and the industry itself does create sufficient linkages with other sectors of the economy. The Buffalo City Metropolitan Municipality creates sufficient forward linkages within the sector itself.

**Transport, storage and communication:** This sector does contribute significantly towards the total output of the region as it shows that the industry contribute 7.77% towards the total GVA. The location quotient shows that the industry within the region is not highly specialised and that the industry does not have a comparative advantage in terms of job creation. The sector also only creates sufficient forward linkages and backward linkages indicating the sector is regarded as a key industry.

**Finance, insurance, real estate and business services:** The finance, insurance, real estate and business sector contributes 19.97% towards the total GVA of the province and the location quotient indicates that the industry is highly specialised. The sector itself is weak in terms of creating sufficient backward linkages, however, it does create sufficient forward linkages.

**General government:** The general government contributes 21.20% towards total GVA, which indicates that the government plays an influential role with regard to total output in the region. The location quotient is less than 1, meaning the sector is not as specialised and the forward linkages between the government and the sector of the economy is weak.

**Community, social and personal services:** The community, social and personal services only contribute 7.62% towards the total output of the region. The backward linkages are significant and shows strong sectoral linkages between the community, social and personal services and other sectors of the Buffalo City Metropolitan Municipality.

## 7.5 CONTRIBUTION OF THE STUDY

Few studies have adopted an approach of linking regional economic development analysis and SEZs as a study. The theoretical approach of the study focussed on various economic development theories with relevance to SEZs and its theoretical linkages with regional economic development. The use of a SLR was adopted to explore the various themes/dimensions and success factors of functional SEZs via international case studies and used as a basis for the qualitative data collection and the practical application of SEZs and its evaluation on an international scale. The thematic analyses in finding the success factors for SEZs showed that the success factors can be applied on a universal scale since most of the success factors are aligned. The success or failure of zones can be evaluated by adopting the current success factors and apply it in any region where there are SEZs.

Limited studies have adopted an approach towards analysing SEZs by functionality assessment within operational SEZs in South Africa. A thorough investigation was needed to understand how the IDZ operate within the context of the South African economy. This study served as guideline for measuring regional economic development for any region in South Africa and to serve as a basis for future regional economic

development research methods. The regional economic development assessment tool can be used as a blueprint for the analyses of any area or region in terms of its current economic situation and circumstances.

The study contributed significantly towards the comprehensive understanding of IDZs and its role within a specific region. The impact analyses and the multiplier analyses can be used as an effective tool for evaluating the impact of certain shocks in an industry and the possible direct, indirect and induced impact it has on other industries within the same geographical region. Despite the use of the input-output analysis as a tool for economic evaluations, the use of tools such as multiplier analysis can also be utilised to measure the effects that an economic shock, might have on other industries within the same region. The utilisation of forward and backward linkages are very important since it enables the measurement tools to evaluate the impact one industry and its effects on the supply chain in other industries within the same locality.

This study is unique to the geographical region chosen, however, the tools and measurements can be used in any region in the world, subject to data availability and information accessibility. The use of the input-output tables as discussed in this study can be used as a blueprint to evaluate a specific region and analyse its strengths and weaknesses, however, more importantly this study can be used as a blueprint for future studies on regional economic development and this layout can be used as a blueprint for future feasibility studies.

## **7.6 STUDY LIMITATIONS AND AVENUES FOR FUTURE RESEARCH**

The study evaluated and analysed the level of regional economic development in areas of functional SEZs in South Africa as a blueprint and policy guideline for other non-functional and established SEZs. Like any other study, there may be some limitations with regard to future research projects. Firstly, it should be carefully considered on what terminology to use and how it should be interpreted. For example, IDZs are used in South Africa, however, the term SEZs are more common, which makes it easier for the reader to understand what the topic involves. Secondly, viewpoints of stakeholders may differ and therefore it remains important to be open-minded in your approach to do the interviews. Thirdly, for the majority of IDZs they are still in the operational phase and therefore there is not sufficient information available with regard to some of the questions being asked, however, it should be kept in mind that the questions should be then asked in a future tense as supposed to the present. Future studies should focus comprehensively on SEZs beyond the boundaries of the African continent and the research approach should be adopted on an international radius. However, these types of studies should only be applicable for new IDZs as a policy framework as supposed to the current evaluations of the IDZs within a specific region.

## **7.7 RECCOMENDATIONS**

IDZs in South Africa are growing and they play a huge role in the industrial development and manufacturing in South Africa. Without a clear and strategic vision from the DTIC the implementation of new IDZs will not make any significant contributions towards the growth of the local economies.

### **7.7.1 The creation of labour-intensive manufacturing jobs**

One of the main goals of IDZ are to create meaningful employment opportunities and as such the IDZs should create more sustainable job opportunities for people in the local community, especially since South Africa has such a high unemployment rate. The only way in which South Africa will be able to compete against the fierce competition from the Asian countries is for the labour force to be more labour-intensive.

### **7.7.2 Focus on skills development**

The main goal for any region is to have a labour force that is skilled and knowledgeable. The government should focus on skills development as a priority to achieve sustainable work opportunities for people in the surrounding regions. The problem that most of the IDZs face in terms of employment is the low-skilled labour force and as such it is the priority of government to increase the skills of the general workforce.

### **7.7.3 More co-operation and integration between different government departments**

It is recommended that the different spheres of government find an integrated approach towards sustainable growth. The link between the different departments of government should be strengthened and the communication between the different departments should be aligned so that the strategic objectives are achieved, especially in terms of skills development and fiscal incentives provided.

### **7.7.4 A focus on policy direction**

Policy certainty remains a huge concern for stakeholders within the various IDZs. The overall strategic plan from government with regard to the policy direction of IDZs should be clear and understandable. Stakeholders feel there are some uncertainty with regard to the policy direction of IDZ, which makes it difficult for new investors to have a clear and strategic plan of their overarching plans and objectives.

### **7.7.5 The creation of value chains**

Sufficient forward and backward linkages should be created in order for firms to operate efficiently. The effective linkages between the IDZ's and the local firms should be established and firms in the local regions should have a clear and strategic advantage or benefit over firms outside the region itself.

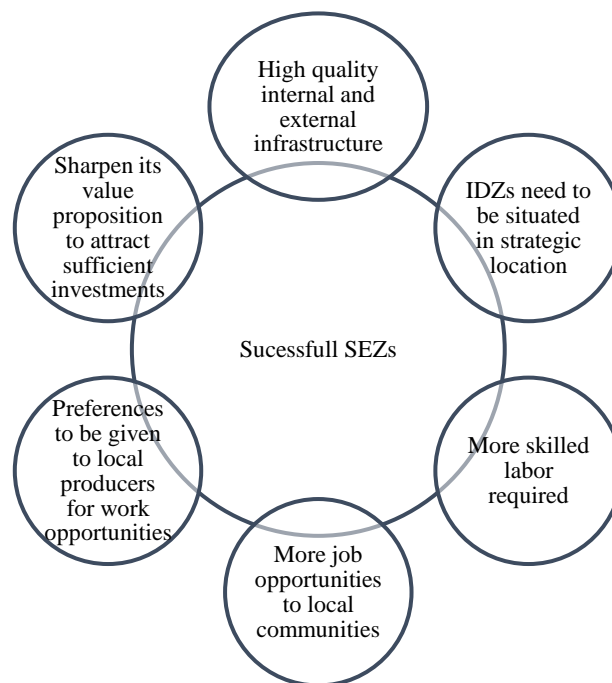
### **7.7.6 Fiscal independence**

The objective of any EZ is to achieve fiscal independence. This means that the SEZs are not reliant on the national, provincial or local government for finance, however, its easier said than done. The strategic objective is for the IDZs to be fiscally independent and they do not rely on government for any type of financial assistance.

### 7.7.7 A focus on value propositions

The government should focus on its ability to create both national and international investments. Government should therefore create an enabling environment for both businesses and communities to secure a valuable proposition by creating a competitive advantage and focusing on specialisation of products and services.

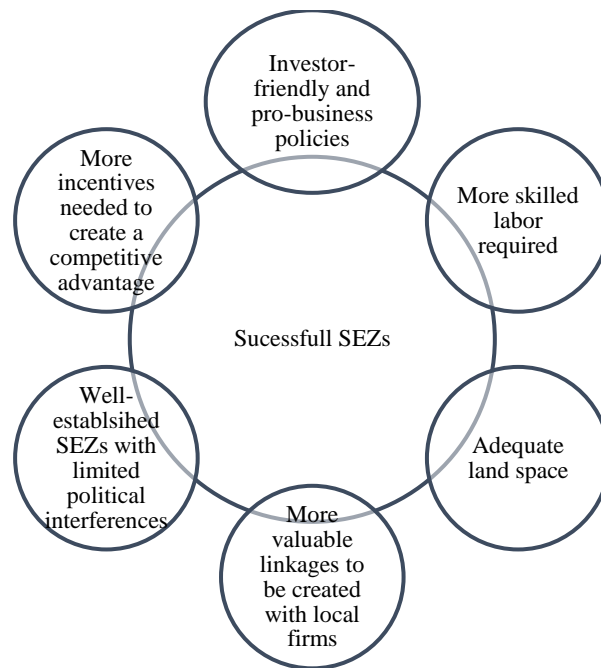
Figure 7.1 is an illustration of the elements that are needed to create a successful SEZ. Some of the elements include high-quality internal and external infrastructure development, location, a skilled labour force, more work opportunities, the involvement of the local community and sharpening its value propositions.



**Figure 7.1: Elements of a successful SEZ**

*Source:* Own compilation

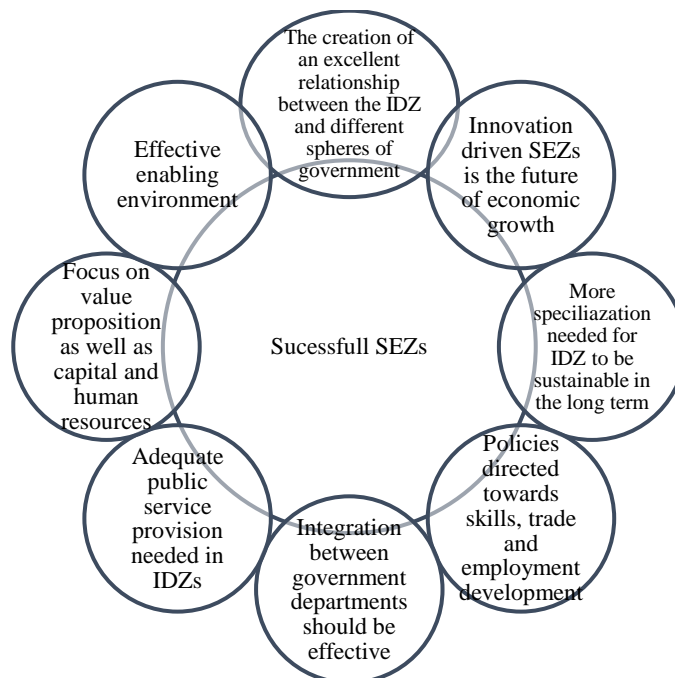
Figure 7.2 also illustrates the some of the elements that are needed for an IDZ to be successful, some of which include a skilled labour force, investor-friendly and pro-business policies, land availability and limited political influences.



**Figure 7.2: Elements of a successful SEZ**

*Source:* Own Compilation

Figure 7.3 also gives an illustration of some elements of successful SEZs and they include innovation, specialisation, integration and communication between government departments, adequate public service delivery and the creation of an enabling environment.



**Figure 7.3: Elements of a successful SEZ**

*Source:* Own compilation

## 7.8

### CONCLUDING REMARKS

IDZs play an integral role in the economy of South Africa, however, these IDZs need to be managed effectively and efficiently. It is the role of government to ensure that they create an enabling environment for the firms within the IDZs to function well and efficiently. This chapter has revealed that IDZs can have a major impact on the economy if they have a certain value proposition, if it is able to specialise and if its able to create certain competitive advantages. The IDZs in South Africa had an adequate success rate in recent years, however, it is the responsibility of government to ensure that the existing IDZs operate efficiently.

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## **An analysis of the regional economic development functionality of selected SEZ's in the Eastern Cape, South Africa**

Dear respondent,

My name is Jan Roan Neethling. I am a full-time economics PhD student at the North-West University (Vaal Triangle Campus) and I am currently working towards the completion of my dissertation under the supervision of Prof. Ewert Kleynhans and Dr. Precious Mncayi.

The interview schedule is part of obtaining qualitative data from various stakeholders within the COEGA IDZ (Industrial Development Zone) and the East London IDZ (Industrial Development Zone) both situated in the Eastern Cape of South Africa. The purpose of the study is to gather as much information regarding the dimensions influencing the functionality of Special Economic Zones in South Africa. Selected participants include business managers, public entities, local / provincial government officials, IDZ advisory board members, organized labour and DTi delegates.

The interview is strictly classified, and all the information gathered will always remain anonymous and the information will only be reflected in the statistical analyses of the qualitative data, and there is no compensation for responding nor is there any risks involved in participating in the interview. Participation in this study is entirely voluntary and you may withdraw your participation without any repercussions. Depending on how long you wish to elaborate on each question, the interview will take approximately 45-55 minutes of your time. The interview will take place at a date and time of your convenience via Microsoft Teams / Zoom. You are under no obligation to mention information that you deem suitable nor will any personal information be solicited from you. The interview recording will only be used for the researcher's thesis and stored for five years.

Ethical clearance has been obtained with the ethics number **NWU-00981-21-A4** from the Research Ethics Committee within the Faculty of Economic and Management Sciences at the North-West University.

The target respondents include employees from a managerial level and other stakeholders. to obtain information regarding the dimensions contributing to the functionality of Special Economic Zones in the

Eastern Cape of South Africa. Special economic zones play a significant role in the economic development of a region and its vital role in the international business environment, and therefore sustainable research should be employed to extend the knowledge of functional economic zones.

The North-West University and the institution involved in the study of the IDZ will not be held responsible for any concerns or disquiets that the other stakeholders might have regarding the completion of this interview. By agreeing to the interview and answering the questions, you give consent that this information may be used for research purposes. If you require any additional information, please do not hesitate to contact me or my supervisor on the following contact details.

**Student:**

Mr Jan Roan Neethling  
North-West University: VTC  
079 436 4800  
[roanneethling5@gmail.com](mailto:roanneethling5@gmail.com)

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Thank you for the participation in this project.

Sincerely,

*Jan Roan Neethling.*

**BASIC INFORMATION**

1. What is your position within the IDZ (Industrial Development Zone)?
2. In which IDZ are you operating in?

**PHYSICAL FEATURES OF THE SEZ**

3. Do you think that the physical infrastructure is high quality, and the IDZ provide affordable factory utilities and sites? If no, please explain?
4. Do you think that this IDZ is situated in a region to enjoy location advantages? In other words, is this IDZ situated in a strategic region to improve local sourcing?
5. Does the specific IDZ focus comprehensively on low/carbon and green practice principles?

**POLICY FRAMEWORK PERCEPTIONS**

6. Do you think that the IDZ create sufficient jobs for people in the local communities?

7. Is there enough skilled labor within the IDZ and does the labor regimes consists with international norms and standards?
8. Does this IDZ contribute significantly towards the local economy? Does the IDZ as an institution provide enough support and services for the vulnerable and disadvantage groups to participate in the economy?
9. Do you think that this IDZ attract sufficient domestic and foreign investments?
10. Does the IDZ provide investor friendly and pro-business policies?

#### **POLICY FRAMEWORK CONSTRAINTS**

11. Is there limited access to serviced land for new and established IDZ's?
12. Do you think that the specific SEZ contribute sufficiently towards the local economy? Does the IDZ's create sufficient linkages with the local firms in the surrounding regions?
13. Are there considerable institutional volatility, political instability, and civil unrest in the diverse demographic regions? If yes, how does this impact the operations of the IDZ?

#### **INCENTIVES PERCEPTIONS**

14. Are the incentives provided to the organizations consist with the adequate labor regimes and employment incentives (as prescribed by the Employment Tax Incentive Act, 2013)?
15. Do you think its financially beneficial or not for an organization to operate within an IDZ, or is it the same as is any other type of industrial environment? In other words, do you think the organizations operating here get enough incentives on their exports and imports?

#### **ENABLING ENVIRONMENT PERCEPTIONS**

16. Do you think there is an excellent link between the community, the government, and the local community? If not, please elaborate.

#### **ECONOMIC LEVERAGE PERCEPTIONS**

17. Does the SEZ exhibit policy restructuring and applications through innovative production of products and services?
18. Do you think that IDZ's are effective tools used in industrial development in South Africa? Please give a reason for your answer.

19. Does the IDZ provide services such as effective trade policy, indirect employment, skills development, and domestic participation. Please give a reason for your answer.

### **THE ROLE OF GOVERNMENT**

20. Does the government support Industrial Development Zones in any way shape or form in terms of fiscal and skills development and training, or any other type of incentives?

21. Does the government provide effective and efficient public services to the IDZ? If not, what do you think the possible constraints are?

22. Is it sustainable for the South African government to establish new IDZ or “economic zones”, or should they focus on other ways to grow the economy? Please provide a reason for your answer.

23. Should the South African government focus more on the establishment of new IDZ’s or isn’t it efficient to establish such a public enterprise with the current economic and social issues?

24. What is your general perception with respects to IDZ’s? What would you recommend in terms of improving trade? Should government establish enterprises situated within IDZ’s or should we only focus on trade ports for exportation and importation where organizations do not form part of the manufacturing and production processes within the IDZ’s?



*Jomone Miller*

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## DECLARATION OF LANGUAGE EDITING

8 December 2021

To whom it may concern

This is to confirm that I, the undersigned, have language edited the research of *JR Neethling* entitled: *An analysis of the regional economic development functionality of selected SEZs in the Eastern Cape, South Africa*

No changes were permanently affected and were left to the discretion of the author. The responsibility of implementing the recommended language changes rests with the author of the thesis.

Yours truly

A handwritten signature in cursive script that reads "J Müller".

Jomone Müller