

UNIVERSITY OF THE WITWATERSRAND

**The Spatial Impact of O.R Tambo International Airport on Ekurhuleni Municipality:  
2000 to 2015**

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MASTERS OF SCIENCE IN DEVELOPMENT PLANNING

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## **DECLARATION**

I, Kaula Nyilenda, declare that this research is my own, unaided work submitted for Master of Science in Development Planning at the University of the Witwatersrand, Johannesburg.

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Signature

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## ABSTRACT

O.R Tambo International Airport (ORTIA) holds strong prominence as Africa's biggest airport. Additionally, the anticipated growth of aviation within Africa will further enhance its relevance. Airports in their own right are becoming city cores of which its surrounding environments (aerotropolis) attract special industries which result to a transformation of the urban fabric. Ekurhuleni has followed global trends by asserting its decision to transform ORTIA into an Aerotropolis. The legitimacy of the aerotropolis model however is being questioned for the effects on the natural environment, displacement effects and its heavy dependence on government incentives required that tend to have a bias focus on foreign investment. Ekurhuleni is confronted by unique contextual factors of inequality and spatial racial-segregation that are the result of the historical South African apartheid system. Additionally, Ekurhuleni comes from a unique premise that it is a relatively newly established city that has been formed by amalgamating nine previous towns.

Irrespective of this incomparable situation of being a non-traditional metropolis, Ekurhuleni not having a traditional metropolis, notably relying on the adjacent City of Johannesburg for its identity, it has sought punch above its weight and thrive to become an airport city. This research explores the spatial impacts of O.R Tambo International Airport on Ekurhuleni Area through qualitative research methods and a review of key theories that are born from neo-liberal policies and airport orientated developments. It explores current developments with O.R Tambo International Airport and Ekurhuleni focusing on physical, economic and social spaces that are owed to the existence of the airport.

*O.R Tambo International Airport has had significant spatial impact on Ekurhuleni area. The spatial impacts undeniably led to positives through the conception of competitive, economically thriving and innovative environments which align to global, competitive cities. As part of the Gauteng City Region (GCR), Ekurhuleni is placing strong leverage on the existence of the airport to shape the city spatially.*

*There is a strong focus on increasing scale and density within the immediate surrounds of the airport through development infill and replacement of single dwellings with apartments and hotels. The corridors and spines developed place focus on links to the airport as the key*

*central point in which its development stems. The environment reveals industrial clusters which gain economically through the agglomeration effects. It is also stimulating focus on the presence of social facilities such as tourism, retail and hotels which would serve the airport. The traditionally manufacturing based economy of Ekurhuleni is integrating with knowledge economy industries which are aligned to global cities. The city is focusing on compaction with new development being mixed- use spaces connected by a multi modal transport network. These Integrated Transport Networks are concretised by recent investments into the Gautrain and the Bus Rapid Transitsystem (BRT). The previous far reaching edge cities that were the black traditional townships are being connected to the metro core through increasing available modes of public transport.*

*There still remains the threat that airports become contributory factor to the creation of exclusionary spaces faced with environmental threats. It is noted that in an unequal society such as South Africa, areas surrounding airports may exacerbate the challenges of crime and further displacement of residents. The spatial formation process within Ekurhuleni involved multi-disciplinary actors from various industries and decision making cuts across the various spheres of government. Non-robust community engagements coupled by their lack of knowledge on the aerotropolis initiative has reflected that there needs to be a focus on the empowerment of citizens. Branding has been recognized as critical for city competitiveness. The resultant effects of Ekurhuleni being formed from a combination of towns has left it with meek and ambiguous identity. The formulation of robust branding policies and building on the strength of ORTIA brand has the potential to give Ekurhuleni's vague character significant leverage.*

*Overall, ORTIA's spatial contribution has both a positive and negative spatial impacts on Ekurhuleni. ORTIA gives competitive advantage to the Gauteng City Region (GCR) and it acts as an urban development stimuli to Ekurhuleni as the GCR gateway airport. Planning can however be instrumental in remedial actions on addressing the negative corollaries caused by airports to their surrounds. Hence it is recommended that a communicative and collaborative planner; who encourages equitable capacity development practices, would be effective in managing the spatial formation process within Ekurhuleni.*

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## ACRONYMS

ACSA	Airports Company South Africa
ANC	African National Congress
CAB	Civil Aeronautics Board
CAGR	Compound Annual Growth Rate
dBA	Decibels
DTI	Department of Trade and Industry
EMM	Ekurhuleni Metropolitan Municipality
FDI	Foreign Direct Investment
GAAM	Group Against the Aerotropolis Movement
GAO	Government Accountability Office
GCR	Gauteng City Region
GCRO	Gauteng City Region Observatory
GDP	Gross Domestic Product
GDED	Gauteng Department of Economic Development
GEAR	Growth Employment and Redistribution
GGDA	Gauteng Growth and Development Agency
GVA	Gross Value Added
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IDP	Integrated Development Plan
IDZ	Industrial Development Zone
ILO	International Law Organization
IRPTN	Integrated Rapid Public Transport Network
MSDF	Municipal Spatial Development Framework
NDP	National Development Plan
NPC	National Planning Commission
OECD	Organization for Economic Cooperation and Development
PPP	Public Private Partnership
ORTIA	O R Tambo International Airport
SACN	South African Cities Network
SEDA	Small Enterprise Development Agency
SDF	Spatial Development Framework
SDG'S	Sustainable Development Goal



## CHAPTER ONE: THE ROLE OF AIRPORTS IN CONTEMPORARY CITIES

### 1.1 Background to the Study

The International Air Transport Association (IATA, 2016) which is the most recognised body of aviation observe that air transport globally has grown with an expected travel of 3.6 billion passengers in 2016. In 2011, it was already anticipated that global passenger and freight traffic will handle 2.75 billion passengers, which are 620 million more passengers than in 2006 and 36 million tonnes of international freight which is 7.5 million tonnes more than in 2006 (IATA, 2007). Within a five-year gap, airlines are expecting to safely transport 3.5 billion passengers and 50 million tonnes of cargo (IATA, 2015). These figures will double by 2035 with airlines expecting to carry 7.2 billion passengers, based on the prediction of 3.7% annual Compound Average Growth Rate (CAGR) (IATA, 2016).

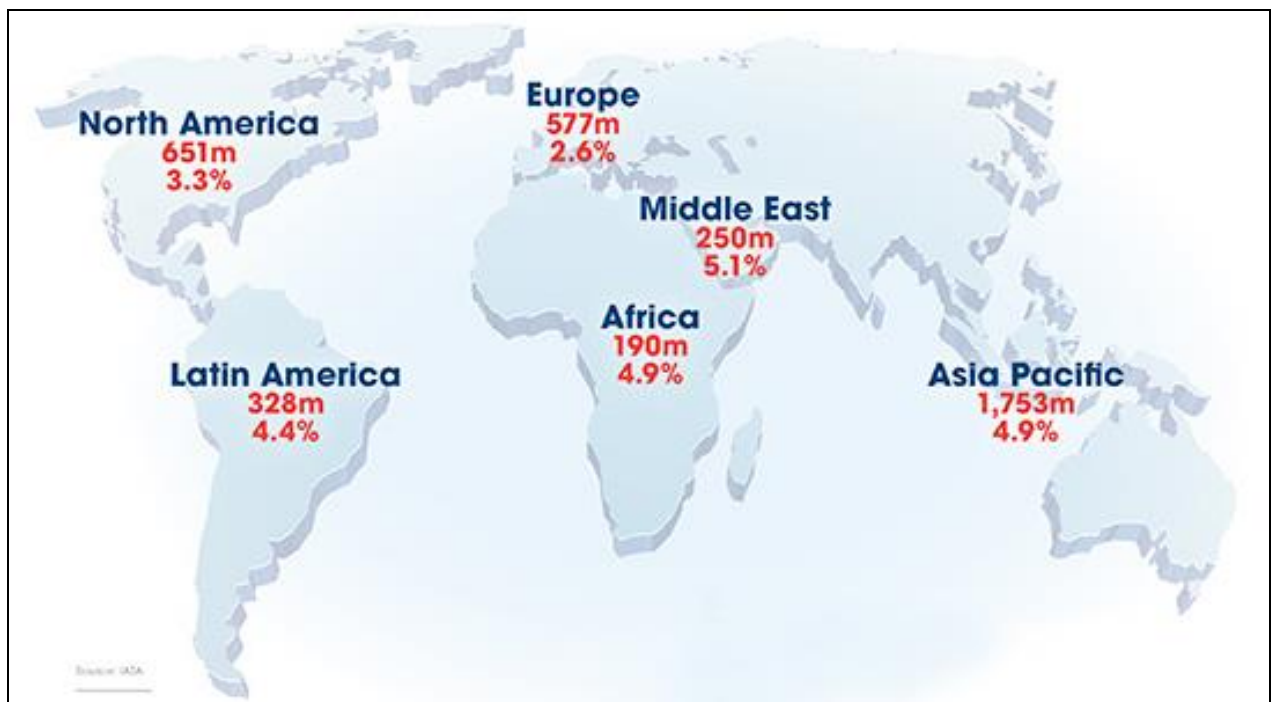


Figure 1- Growth and change in passenger journeys by region\* (% and million, 2014-34)

Source: IATA (2015)

Although air traffic globally has been on an upward swing, a significant number of developed countries' passenger growth has stabilised. The global air transport market is approaching maturity. However areas in Asia, Middle East and Africa are still capturing a capacity growth

above 5% (Stalnaker, Usman & Taylor, 2016). The fastest rate of growth is observed in the emerging economy areas such as Africa, Asia, and South America. “Eight of the ten fastest-growing markets in percentage terms will be in Africa and in terms of country-pairs, Asian and South American destinations will see the fastest growth, reflecting economic and demographic growth in those markets” (IATA, 2014, p.4).

Similarly, O.R Tambo International Airport has shown significant growth in passenger arrivals from approximately 10 million passengers in 2000 to just over 20 million arrivals in 2015 (ACSA, 2015). It is the major hub of airline travel in South Africa and Africa as a whole. Recent statistics from ACSA reflect that O.R Tambo International Airport caters for approximately 19 million passengers annually (ACSA, 2015). It is the busiest airport in Africa in terms of passenger numbers and its recent expansion will enable the airport to handle traffic of up to 28 million passengers (Answers Africa, 2016). This reflects that by virtue of O.R Tambo International Airport’s location in Africa, the airport will continue to play a critical role in the growth of air transport.

The South African government owned O.R Tambo International airport has been praised for playing an important role in Gauteng’s economic growth and infrastructure development (City of Johannesburg, 2009). O.R Tambo international Airport has correspondingly experienced consistent year on year growth since its new expansion (ACSA, 2009). The only drop that was experienced in terms of passenger numbers was between 2012 and 2013 (ACSA, 2014). This dependable performance is confirmed by the 100% growth in passenger numbers between 2000 until 2015 (ACSA, 2000 and ACSA, 2015). Green (2007, p.110) likewise emphasises that ‘passenger boarding’s per capita and passengers commencing travel in the nation’s largest metropolitan areas are powerful predictors of population growth and employment growth’.

Globally, airport trends reflect that airports tend to attract distinct businesses in close proximity to the airport (GAO, 2013; Appold & Kasarda, 2013). Airports now take a bigger role beyond being spaces to facilitate and house aircraft operations. This trend is an illustration of an airport city concept whereby the traditional understanding of airports is giving way to a broader, more encompassing model which recognizes the fact that along with their core aeronautical infrastructure and services, nearly all major airports have incorporated a wide variety of non-aviation orientated amenities (Kasarda, 2007).

It has been acknowledged by different authors that transport modes do shape urban growth and development (Kasarda, 2000; Lindsay, 2008). The emergence of fast passenger and cargo jets together with the advancement in communication technology has led to globalisation and time base competition (Kasarda, 2010). These advancements require businesses to respond with speed, agility and fluidity in moving goods and people (*ibid*, 2000). The Mayor of Ekurhuleni attested to this in his State of the City address:

If rail, road and sea travel constitute the tried and tested modes of transport of a bygone era, research shows that air travel is the future. The main advantage of air travel is convenience and accessibility. If you have the infrastructure, you are able to cut the time it takes to ferry goods and services across time zones, on schedule and on time (Gungubele, 2011, p.1).

Being the major airport in South Africa and arguably in Africa, O.R Tambo International Airport will play an important role in introducing the concept of the aerotropolis in the continent.

There has been strategic planning that is already taking place within Ekurhuleni to support the development of aerotropolis. The overall view currently being proposed is:

For the next five years, the City has planned to optimise the existence of the airport in its space together with other key development nodes, including the identified industrial development zones under the development of the Aerotropolis Strategy. This will entail investment on new economic infrastructure to support logistics, distributions and related green industries. This will be coupled by the optimisation of the broadband ICT infrastructure to realise the vision of the Digital City and to reposition the metro as a visionary smart city that is globally competitive (Ekurhuleni, 2011, p.64).

As an acknowledgment in the manner in which transport continues to influence the dynamic forces of city planning, Ekurhuleni intends to have its infrastructure development anchored by the potential economic spin offs in which the airport can bring to the country. Ekurhuleni (2015) elaborates that,

The core of the Ekurhuleni aerotropolis vision is the desire to build prosperity for the City of Ekurhuleni based on job creation. To meet this challenge, the Ekurhuleni Aerotropolis Master Planning strategy (2015) proposes five overarching principles of;

creating strong communities, collaboration, concentrated transit orientated development, connectedness of people and good and creating a competitive city (p.6). All these principles are interlinked and therefore will be considered holistically.

## **1.2 Problem Statement**

John Kasarda who is viewed as the architect of the aerotropolis concept has described the aerotropolis as, “representing the physical manifestation of globalization made concrete in the form of aviation-oriented, airport-centric urban development where many local businesses are more dependent on distant suppliers and customers than on those in their own region” (Kasarda,2013, p.3). The Mayor of Ekurhuleni Municipality where O.R Tambo International Airport is situated, encapsulates this concept as, “The main virtue of air travel is convenience and accessibility; if you have the infrastructure, you are able to cut the time it takes to ferry goods and services across time zones, on schedule and on time” (Gungubele, 2011, p.4). This reflects that even in the future airports will continue to shape cities. They will have a greater role and impact of steering development within the areas surrounding airports. Contemporary city airports have become spaces for time sensitive productive which come inclusive with supported entertainment, tourism, business facilities which benefit from fast rotation and connectivity of air transport (Kasarda, 2013).

The connectivity of Ekurhuleni will be improving even further with the proposed Integrated Rapid Public Transport Network (IRPTN). This Ekurhuleni IRPTN, as well as a new O.R Tambo Public Transport Network will offer even greater transport networks for Ekurhuleni through the upgrades of national and provincial routes. The main roads that offer connection to other parts of the province and country within Ekurhuleni includes the N3 which connects Johannesburg and Durban; the N12 running from Johannesburg to Witbank and the freeway connection from the airport into these major national routes is through the R21 highway which has a central connection at the Gillooly’s Interchange (Ekurhuleni, 2010). Within proximity to the O.R Tambo airport within either side of the freeway is the Albert Sisulu Corridor which is currently a prime investment and development location (Ekurhuleni, 2010).

With the political history of South Africa and cities being formulated around this, careful consideration of integrative mechanisms will need to be considered. Maylam (1995) describes the apartheid cities as,



Gross material inequality - so much a feature of the country - has been most visible in urban areas where extraordinary polarities of wealth and poverty can be seen in close proximity to each other. Cities have been the main sites of popular protest, struggle and resistance (p.20).

Airports have evidently now taken on a bigger role than just places where aircrafts operate their key role of transporting cargo and passengers. Airports are now seen as the heart of the airport cities and aerotropolis. This is owing to the ability of airports to link and attract other businesses which are not necessarily directly linked to aviation services. Ekurhuleni's (2015, p.11) view of the airport city is, "an efficiently designed international transport hub for both passengers and cargo with an urban character agglomerating uses associated with the old city centre, and providing a growing number of services and facilities not directly related to actual transport functions". In achieving this greater role, cities and airports need to have a strong and competitive brand. Within the context of Gauteng, O.R Tambo International Airport becomes a critical asset of Ekurhuleni and beyond. Ekurhuleni is also formed from the segment of different cities which have been joined in less than two decades (Ekurhuleni, 2015). As the airport city requires connectivity with the 'traditional city centre', it becomes critical for Ekurhuleni to make a distinction of the area of connections to be considered that will associated with the airport city.

Additional infrastructure around the airport is being developed to support various other businesses. "Globally, airport property beyond the terminal is being developed with hotel and entertainment facilities, conference and exhibition complexes, shopping centers, office buildings, and logistics and free trade zones" (Kasarda, 2007, p.106). Airport cities also form a convergence of multimodal transport systems creating connectivity within the area (ibid, 2007). The Ekurhuleni municipality has been considering transforming O.R Tambo international into an airport city and in turn Ekurhuleni into an aerotropolis. The associated branding of Ekurhuleni will come to the fore. Currently the Ekurhuleni brand does not have a strong presence and relies on Johannesburg for its regional identity. This may place an additional challenge for O.R Tambo International Airport in creating a strong and differentiated brand when the city remain ambiguous of its character.

With the shift in the customer demands in the 21<sup>st</sup> century, the move towards this connected supply chain will allow Ekurhuleni to become competitive.

Customers in both advanced and emerging markets are demanding quick and predictable delivery of goods that are often with distinctive features. Competitive advantage is thus being gained by firms that respond flexibly, quickly and reliably to their domestic and global customers, delivering lower cost, higher-quality (often customized) products quickly over great distances (Kasarda,2013, p.4).

Though there is significance in the price and quality of product, the speedy delivery of products has also become equally as important. The concept becoming accustomed to the increase in demand for flexibility, speed and predictability has been termed fast-cycle logistics (ibid, 2013). In order to respond to the needs of competitive business, cities require independence in order to respond fast to the market. In the 2013/2014 IDP review, the city is still focusing on the ultimate outcome of the EMM integrating into the Gauteng City Region (Ekurhuleni, 2013).

Though it appears that the aerotropolis offers great advantages in the future, there are some authors who are highly critical of the relevance of the aerotropolis and the impacts it may have in the surrounding area. English Author, reviewer and columnist for building design which has led him to be a thinker within the politics of urbanity, William Woodard known as *Will Self* is one of those cynics. Self (2011) criticises Kasarda's outlook extensively and his views are summarised as follows: 'I have called *Aerotropolis* a scientific romance because like some of the futuristic fiction of the late 19th century it predicates social improvement on technological advance. Some – but not all' (p.13). This view may be triggered by the concept that air travel only caters for a niche market of goods that can travel by air, other goods to this day, still require other forms of transportation. There is a greater need to rather not only single out air transport as the source of the aerotropolis model but to rather also focus on the relationship amongst the sea, rail and airport facilities (Charles, Barnes, Ryan & Clayton, 2007).

Cresswell (2010, p.21) who researches extensively in mobility theory clarifies that, "mobility is one of major resource of the 21<sup>st</sup> century life and that it is the differential distribution of this resource that produces some of the starkest differences today". Self (2011, p.6) further criticises that air transport only offers travel for unnecessary products which the 'capitalists' perceive as being crucial for global economy. He laments that, 'This promethean fireball of iPads, Peruvian blooms, farmed salmon and Amazon Prime deliveries is what these ardent neoliberals view as powering the world's growth: like it or not, we are all in the comet's supply tail, so we'd better build the necessary runways-cum-instant cities to serve it' .

The long-term sustainability of the energy intensive form of moving goods and passengers is also questionable. 'There is growing interest in sustainability, sustainable development, and sustainable transport. The key indicators of transport sustainability include the use of less fossil fuel and carbon emissions (Litman, 2005). Further criticism is the issue of whether oil will remain relatively reasonably priced and widely available in the future or whether a decline in oil production will adversely affect the aerotropolis that exist (Charles *et al*, 2007).

Policy Analyst Audrey Spalding who writes broadly on policy issues within Missouri disapproves of the Aerotropolis' need to be driven by intensive government funds through tax incentives for implementation. She shares that:

The Aerotropolis' dream of attracting international trade to a region is by no means a poor one. In fact, increasing trade among countries is one of the best ways to improve economic wellbeing. However, problems arise when the dream is used as a justification for public subsidy' (Spalding, 2011, p.2).

The idea that the Aerotropolis development benefits all those occupying an area is also disputed. Those who benefit significantly are only a few local developers involved in the implementation of the project.

Spalding and Ishmael, (2011) argue that:

The plan to gain a tax incentive to fund the development in Missouri violates sound public policy principles by sanctioning a government hand-out to local developers on terms that are impossible to differentiate from the cronyism often seen in legislation at the federal level (p.1).

Spalding and Ishmael (2011) further raise concerns that government funding that goes through tax credits may be placing free markets in jeopardy. Their view is that if the business concept and economic forecast for the Aerotropolis was lucrative, private investors would enthusiastically invest in the concept without the need to enticed by government incentives (*ibid*, 2011). This reflects a major concern that the economic growth the aerotropolis offers is being overstated.

Ekurhuleni will be going through a major development transformation with the current plans of constructing the aerotropolis. Development of a multi modal transportation system that is

most importantly a connected network is vital in offering an efficient supply chain that will respond to the needs desired by customers today. The new roles that airports are taking are highly complex. O. R Tambo International Airport as a major gateway in Africa will have to play a central role in the emergence of these airport-centric developments. Kasarda (2000) confirms that airports which are considered to be international gateways will become key forms of urban development.

Airports in other areas that are built on brown fields have also come with many challenges. In various areas around aerotropolis, there has been a displacement of people through the reclaiming of land for development. Various advances of airports into aerotropolis within Asia, including Taoyuan Aerotropolis in Taiwan have had to resettle a number of people who dwell around the planned airport city area. Another one of these areas were the aerotropolis city plans for Bhogapuram in India. Advocate Jogi Naidu KV Allu voices concern on an anti-aero blog by Bridger which stands against the aerotropolis. Allu expresses apprehensions by stating the extent of the impact that this would have - "The project would wipe out approximately 10,000 family's property and livelihood, causing huge displacement" (Bridger, 2014, p.1).

The level of environmental impact that is caused by air emissions within these areas has been raised as a concern as well (Bridger, 2015). The implementation of the aerotropolis concept without environmental and social considerations is criticised as being a cruel use of power by government. A collective of Advocates in Taoyuan staged a protest at the Town Hall accusing the city of inflating levels of support from residents in hopes of winning land expropriation approval (Gerber, 2016). Further requests were made for the city to consider an environmental review before continuation of construction (ibid, 2016).

Northern Forest Defense activist Kuzey Ormanlari Savunmasi was also concerned about the green field development airport in Yenikoy, Instabul. Savunmasi (2016) expressed concerns because the identified area was 90% lakes and forest. This means that there would be severe environmental impact through destruction of the natural environment in order to accommodate the mega project. The displacement of villagers from the area was also a concern. Self (2011) cynically highlights that there is a lack of care within the government within the consultation of Kasarda in creating these aerotropolis. He states that, "It almost doesn't matter, because the government will simply do what it did at the site of the current

one, which was to flatten 15 villages and resettle 10,000 residents without compensation.” Kasarda was “awed by the ministry’s rationale: ‘Democracy sacrifices efficiency’” (p.7).

Aerotropolis offers a great hope for the future for the development of a new economy. Connectivity through multi modal transport networks is essential for the success of the aerotropolis (Aerospace: 2010). Though aeroplanes are the focal mode of transport to move goods and people, it does not fully replace other types of transportation that offer other benefits, including increased capacity, for movement of other goods. There is a required clear consideration of the government’s involvement in the formation of the Aerotropolis and also a clear guideline for all other stake holders. The displacement of residents in brown field developments should be taken into consideration.

Hanft (2011) in his review of aerotropolis literature reflecting that the present theory of the aerotropolis is therefore devoid of how those who displaced can be reintegrated to become part of the development. To some, the aerotropolis concept may appear to be conceived from the minds of neoliberals and this is contributing to the lack of accessibility of the idea to the ordinary people (Self, 2011).

As a consequence, all the debates generated by the legitimacy of the aerotropolis raise the question as to whether all impacts of the airports to their surrounding environment are fully understood. There is required clarity in the theoretical agenda and understanding of the spatial impacts of airports. The debates also raise questions as to whether the development of an aerotropolis benefits similarly the general public and business owners. Hence, this merits research on the spatial impacts of airports in their immediate environment.

### **1.3 Research Question of the Study**

With all the changes and development strategies that are being considered to transform Ekurhuleni Municipality into an Aerotropolis, it is important to assess the current spatial impacts of O.R Tambo International Airport to the Ekurhuleni Municipal Area from 2000 until 2015. Hence the research question for this research is:

*What are the spatial impacts of the O.R Tambo International airport on the Ekurhuleni Municipality?*

The main purpose of the study is to explore the spatial impact of O.R Tambo International Airport within the surroundings of Ekurhuleni. This study will use the qualitative method of research to unpack the spatial impacts during the period 2000 until 2015. By spatial impact, the research is concerned with, “space of planning that is fixed on both the social and physical relations (space) of the moment and changing in relations to both the past and the future (time)” (Perry, 1995,p.223). As Perry (1995) reflects, the spatial impacts also entails looking at social and economic implications of the ORTIA spatial changes.

The focus is therefore on the physical aspects e.g. traffic, land use, access and spatial patterns, within the surrounding area; the social realm - which will interrogate policies, institutions, information and financial networks, strategies; and also power relations within the area. It will be an assessment of the magnitude of impact of the node and identify possible planning interventions to deal with challenges.

In other words, this study explores broadly the spatial connection between airports and their existing environment. Hull (2011) has observed that there is an interdependency between land use, transport and other policy measures. Gilbert and Perl (2010) also give additional insight that changes in urban form are offered as the most imperative factor in the choice of the mode of transport people will use. This study hopes to expand on the theory on the impact of social and physical patterns on an area due to being in close proximity to the airport. The study aims to understand the interplay between geographies, spatial patterns and policy formulation within airport areas.

The sub-questions for exploring the intricacies of the research questions are as follows:

- What were the strategies implemented by the O.R Tambo International Airport between 2000 and 2015 that influenced spatial pattern changes in the Ekurhuleni Metropolitan Municipality?
- What are the urban development projects that were implemented by Ekurhuleni Metropolitan Municipality for O.R Tambo International Airport between 2000 and 2015?

- What are the spatial plans (transport, tourism, technical and social infrastructure) Ekurhuleni Metropolitan Municipality which are created with the view to support the O.R Tambo International Area?
- To what extent does O.R Tambo International Airport contribute to the spatial changes in Ekurhuleni Metropolitan Municipality?
- What planning interventions are required to mitigate the negative impacts of the airport?

#### **1.4 Rationale of the Study**

Though there is presence of literature on the impacts of airports in surrounding areas, the source of information remains limited, more especially on the impacts within Africa. The University of Applied Sciences in the City of Bremen in Germany recently made a call for papers in ‘Aviation in Africa’. The request stressed that, “while a vast literature exists on a broad range of topics related in other regions of the world, comparatively little attention has been paid to aviation in Africa (Niemeier, 2016, p.1). The literature tends to focus on broader transport industry impacts; mostly looking at metropolis which generally pin focus on other forms of transportation, including buses, private cars, trams and rail in Africa (Mazaza,2002; Mtantato,2013).

This research is necessary as it will explore the relationship between the airport and spatial formation of surrounding areas of the airport. It will then guide on the implications of these spatial patterns for businesses and residences within the area.

The justification of this study is to expand on literature that already exists on the spatial impacts of airports within their surrounding areas. This will support the last chapter of this research which will clarify the role planning will be required to perform in order to ensure that the negative impacts of these developments are diminished. This research will interrogate if there may be significant impact in the future on spatial formation, structures and transport networks by virtue of having an airport within a node. It will also analyse how spatial patterns have transformed in Ekurhuleni from the metropolitan’s formation in 2000 up to when it was declared to be an identified node to be developed in South Africa’s first aerotropolis in 2010.

The aerotropolis appears to be a concept that is currently being applied in many cities. "In Africa there are 14 aerotropolis being built and in places like the Middle East and Asia, people are sitting down and building cities from scratch around the airport" (DiNardo, 2013, p.1). Some being in the predominant airports of South Africa, Ethiopia and Egypt. Though there is extensive literature on aerotropolis concepts in other continents, there has been little or no study done focusing on developing aerotropolis in Africa. There have also been a number of studies on the economic impact of airports, however a limited number of studies focus on developing countries (Bless, Higson-Smith & Kagee, 2006).

There has been further liberation of African skies through the Yamoussoukro declaration that was signed by 29 African aviation ministers on the 13-14<sup>th</sup> of November 1999 (UN, 1999). This meeting held in Cote d' Ivoire aimed for the elimination of nonphysical barriers and also the harmonization of aviation policies within Africa (ibid, 1999). The ease of Intra African aviation as a result of this policy may see a major peak in the air industry within the region. The cooperation of aviation stakeholders within Africa will cultivate growth of the industry within the region. Noted efforts within the continent to unpack aerotropolis theories have been done by the Ekurhuleni Municipality. This study also therefore aims to expand on research that is done by the Ekurhuleni Municipality on transforming the metro into an aerotropolis through O.R Tambo as the heart of the airport city. With South Africa being the first country in Africa to have an aerotropolis, more research is required that will expand on the experience of the aerotropolis model and its applicability in the African continent.

Airport structures are also taking a different form to what they were initially intended. Airports historically focused on air travel derived revenues. Airports are now placing significant focus on creating non-aeronautical revenues. ACSA (2015b) hopes that it will receive 50% of revenues from non-aeronautical sources using development of commercial land around the airports as the means of achieving this goal. Airports have diversified focus from aeronautical activities largely due to the financial pressure they face. Two critical factors as identified by OECD (2008) which have resulted in increased pressure on airports, is the liberation of the skies and also the introduction of low cost airlines. This has placed pressure on airports to reduce fees directly associated with air transport. The creation of these airport cities has resulted as response of changing dynamics. The focus of such strategies has a dominant economic impact and the spatial impact will also need to be studied.



There subsequently is a need to understand the key role players in the process of the changes in surrounding urban form and the consequences of such changes.

Airport developments in various countries are put in place with the support of public investment and are usually part of the national development plan and municipality. In the case of recent developments, i.e. the expansion of O.R Tambo International Airport and King Shaka International Airport, an immense total investment of R5,2 billion and R9 billion on construction costs were spent respectively (Barradas, 2007; Mahlaka,2016). These expansions were done with the hopes of stimulating further passenger and cargo growth with the hopes of a regional economic spin off. In the case of Ekurhuleni Municipality, a further step has been taken as discussed in the background of study in Chapter 1 to develop the municipality as an Aerotropolis. It is therefore of worth to produce a well-thought-of representation of the spatial impacts of air transport within its environment.

This research study would additionally aspire to support infrastructure developer's planners and policy development professionals to gain a clearer picture on the relationship of airports within their immediate surroundings. As described by Gungubele (2011) and McCann and Shefer (2004), it seems as though air transport is the next wave of change in the transport sector with airports now playing a significant role as rail, highways and shipping industries thereby also shaping a new urban fabric in its immediate area. The air transport industry has become more accessible for frequent use due to the deregulation of the industry in the 1980's. The deregulation of the airline industry that commenced in the United States of America following through to other developed countries in Europe in the late 70's had a major effect on transport systems, with consequences felt throughout all different types of transport (Andrews, 2002).

There have also been significant improvements in aircraft technology which has made it one of the safest modes of transport (Collins, 2015). The Civil Aviation Authorities AGCS risk assessment shows that the fatality rate per billion kilometre by an aircraft is 0,003 compared to 0,27 and 2,57 by rail and car respectively (Collins,2015, p.22). The increased safety will increase the demand for air travel. Iles (2005, p.17) affirms that, "Service quality, embracing reliability, punctuality, safety, convenience, comfort and security should be the first responsibility of a transport undertaking to its customers". Air transport will therefore continue to play a role in connecting people with industries in the globalised world.

## **1.5 Research Methods**

This study will use the qualitative approach. The key element of qualitative research according to Taylor, Bogdan and DeVault (2015) is that, “the researcher looks at settings and people holistically; people; settings or groups are viewed as a whole” (p.11). The qualitative nature of the research will aid in gauging perceptions or the responses on the physical impacts in a comprehensive manner. The qualitative method will take away the complete rigidity of the quantitative data and it will be complemented by conceptual diagrams in order to aid in the reduction of key concepts. The qualitative method will thus be suitable as it will allow the researcher to have workable data and also gather additional views that may not be seen on the quantitative method. Qualitative research requires a diverse data collection mediums which can guide on the needs, desires, views and behaviour with the hope that the researcher will be able to highlight the glaring trends and issues from the diverse research participants (Madrigal and McClain, 2012). These are the key trends that will be assessed and used to provide key planning interventions to mitigate the impacts of airports.

### ***1.5.1 Desktop Approach***

Literature will be vital in understanding the theory of the key themes that emerge from the topic. Literature is a great tool for validating the research study that has been carried out. Mixed types of literature will be used to ensure that the research remains objective and it also offers a holistic view and understanding of the topic. This will be through gaining balanced perspective from academia, technical experts in the field, understanding perspective and agenda of key decision makers as well as corporate industries and residents. Policy documents will aid in understanding the current interventions and future development plans within the Ekurhuleni Municipality. The intention of using multiple sources of literature in the research is aimed in building the rigor of findings.

#### ***(a) Academic journals***

Books will provide the theoretical background in order to build the understanding of the topic holistically. Theory from books will be used as a backbone in understanding key themes that are vital for research which span from global cities, role of transportation, regulatory systems within cities and other spatial planning concepts. The source of reading books will mainly be from the planning, space, and spatial distribution discipline. The source of books should

provide adequate understanding on spatial development and the history of the transport sector.

Journals will be used as the basis of current trends occurring in the planning space. Academic journals will be used to review current trends in airports and spatial planning all around the world and also provide examples and case studies of airport orientated developments. Journals bridge the gap between purely academic books by providing necessary balance of theory and practical application. This is due to the nature of journals as in most cases researchers publish experimental findings and analytical essays. Case studies prove to be a great mode to gain in depth insight on a subject (Sage, 2013). Journals are therefore important method of gathering critical opinions and also assessing the information within an area.

***(b) Newspapers, Media Interviews and Aviation Magazines***

Newspapers will provide supplementary documents about the impacts of O.R Tambo International Airport. It will also provide plans from key stakeholders, and public opinion on the topic. Newspapers are able to provide views of current information from various sources; necessary supplementary data for the statistical analysis. Media interviews in various magazines and newspapers will aid in understanding the most current plans and trends which have not been necessarily been formally documented. These magazines will predominantly be in the field of engineering, city planning and management, aviation development and business. Magazines are good mediums in gaining supplementary views from residents and business industries on their perceptions of key concepts and developments.

***(c) Airport Archives***

Airport archived information will aid in understanding the growth and spatial changes that have occurred at O.R Tambo International airport to date. Archived information will illustrate the build-up of the airport within these fifteen years. Careful consideration of historical information is required to understand the process of adding spatial layers to get O.R Tambo International to be the airport that it is today. The areas of interest within the airport archives would be spatial and land use changes of the airport from 2000 until 2015. It will further assess the connected complimentary modes of transport available at O.R Tambo International Airport. Information pertaining to spatial patterns and transport routes will also be sourced. Airport archives will provide pivotal information and clues that will aid in the assessment of

ACSA's strategic decisions and also the reasons behind changes in the physical structure of O.R Tambo and its surrounding areas.

***(d) Grey Literature: Planning Development Frameworks and Policy Documents***

Various development frameworks and land use plans will be requested from Ekurhuleni Municipality. These include the Metropolitan Development Framework, Integrated Development Plans, and Municipal Budget Plans to name a few. These frameworks will assist in understanding the influence of the municipality in the spatial formation of the city. It will also investigate as to whether plans are actually translating in the practical environment. By understanding the planning space one may mitigate planning issues that arise in the future. National and International development tools ranging from the Millennium Development Goals and South Africa's National Development Plan will also be sourced to evaluate their influence on the municipal planning working tools.

***1.5.2 Single Case Study: O.R Tambo International Airport***

This research will be in a form of a single case study. This study will explore and evaluate the spatial influence O.R Tambo International has on Ekurhuleni Municipality area. According to Creswell (1998), the case study method becomes an ideal method of researching due to its ability to uncover rare occurrences and it is also inherently imbedded and bound by time and place. This research will also be diagnostic in nature. Bless and Smith, (1995, p.48) articulate that, "Diagnostic evaluations are designed to inform researchers and project managers about the present situations within communities, highlighting current problems, trends, forces and resources, as well as possible consequences of various types of interventions". A diagnostic evaluation will be necessary in assessing the spatial trends and spatial issues within O.R Tambo International Airport and Ekurhuleni.

## Location Map

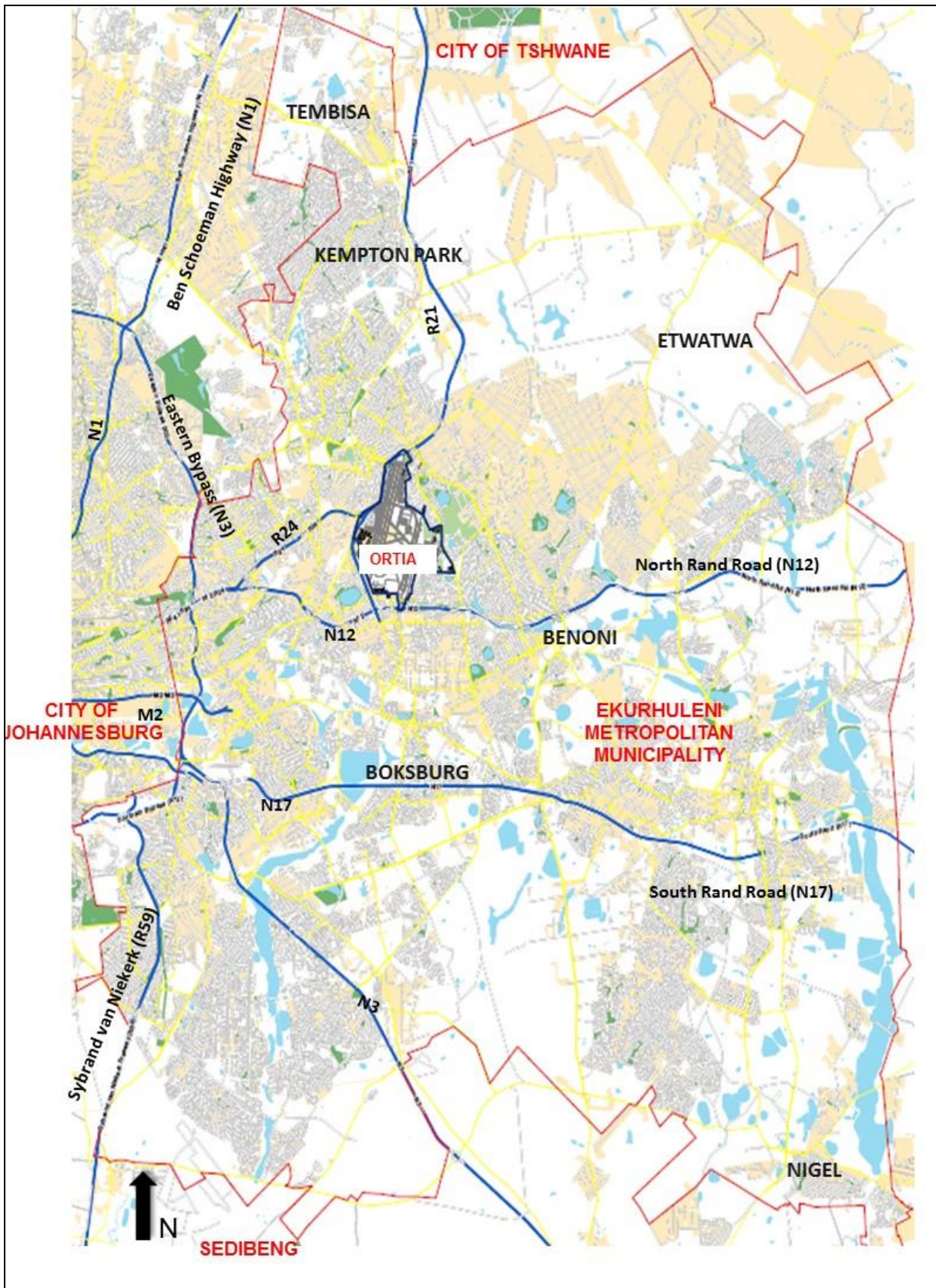


Figure 2- Map Showing O.R Tambo International Aiport with the context of Ekurhuleni Metropolitan Municipality

Source: ACSA, 2015 and edited by researcher

There will also be efforts in the study to describe the kind of spatial impact and transport networks that are influenced by O.R Tambo International Airport. The study is also explanatory in nature because it seeks to comprehend why airports have a physical impact on the current environment. The data that is collected will be condensed into information that may be analysed. For the qualitative information, the data would be analysed in a simplified format that would be able to highlight current trends and comparisons. Colour coding may also be used to analyse and map out current role definitions within the area and analysing content will assist in highlighting themes that are evident (Neuendorf, 2002). When the conclusion of the findings is being conducted, the findings from the respective airports would be compared and trends would be noted. There would also need to be government statistics, company annual results and various other media sources that would be required to authenticate the findings.

O.R Tambo International Airport is the chosen area for the case study because, over and above it being the busiest airport in Africa in terms of passenger flows and throughput, it is also the airport that has drawn significant attention in South Africa after it was proposed to be the catalyst of the proposed first aerotropolis in South Africa. The case study radius will be on Ekurhuleni in general with much deeper studies will be done on the metro core which covers key nodes like, Kempton Park, Boksburg and Benoni. This area has been selected area of coverage has been influenced by Kasarda's views that impacts of the aerotropolis are generally evident within a 30 km radius from the airport (Kasarda, 2006). The 30 km radius around the airport also covers the key nodes of Ekurhuleni which are the hubs for the key business centres in the area.

The criticism that emerged on single case studies has been, however the use of multiple methods of investigation and analysis will reduce the potential of skewed findings. Tellis (1997) highlights limitations of this study method to the focus on single case study as being restraining for the researcher to arrive to a broad conclusion. The way in which this challenge is overcome is through the use of other research methods to anchor the study. The research methods that are stated above, more especially academic journals will authenticate this research process.

### ***1.5.3 Interviews***

Interviews will be used intensively in the research method. As this is a qualitative research, this research method seeks to gain more reflective and in-depth understanding of the subject. Mc Namara (1999) who is an expert in interview research supports this notion and views “Interviews as particularly useful for getting the story behind a participant’s experiences. The interviewer can gain comprehensive information around the topic” (p.1). The main subsections of interviewees will be the residents and officials involved with spatial development within Ekurhuleni. Other central interviewees would be key stakeholders at ACSA and Ekurhuleni Metropolitan Municipality.

The ‘general interview guide approach’ will be the interview structure that will be followed in this study. The guide approach is described by Mc Namara (1999) as being intended to ensure that the same general areas of information are collected from each interviewee; this provides more focus than the conversational approach, but still allows a degree of freedom and adaptability in getting the information from the interviewee”(p.4). As the research format that is used will be supporting the qualitative nature of the research. The structure questions will allow for the collection of key trends but the open dialogue manner of conducting interview gives room to pursue supplementary insights and opinions.

Interviews will be conducted with officials occupying various positions within the organisation that are within and work closely with Ekurhuleni Metropolitan Municipality. The sample that is selected for the interview process is based on the judgement sampling process. Business Writing Services (2011), which is the most recommended business writing website, describes this mode of sampling also known as ‘purposive sampling’, as striving for the selection process to be done through the basis of experience and knowledge of the business. This mode of sampling is not mathematical or specific but allows one to be directed to an area based on knowledge (Business Writing Services, 2011).

The selected organisation will be mostly based on literature reflections and those who hold close association to the projects within the area or are aligned to key characteristics of emerging trends identified in literature review. It will also be focused particular on area decision makers that may assist in answering the research question. Efforts will be made to also interview companies that plan to shift into the core area of Ekurhuleni by virtue of being identified as aviation related business. The interviews within companies will be conducted within arranged meeting times. The estimated time for each interview would likely be

approximately 60 minutes, the structured questions will be sent to interviewees prior to the arranged meeting schedule.

The structured questions would be able to prepare the respondents so that the expectations from the interview are clear. This will rid the issues of corporate confidentiality and it will give them the freedom of investigating issues to be discussed pertaining to their respective companies prior to the scheduled interviews. One of the disadvantages that has been highlighted is this mode of sampling is the potential personal bias in selecting sample and also can be wasteful as too large samples are usually selected (Business writing Services, 2011). This will be counteracted by ensuring a specific and more directed sample and also selection of companies will be based on the available information received and their role within Ekurhuleni.

<b>Interviewee</b>	<b>Company</b>	<b>Reason for selection</b>
<b>Responsible for Airport Planning- Town Planner</b>	ACSA	Spatial Changes of ORTIA from 2000 to 2015.
<b>Business Development Specialist</b>	ACSA	Understands the strategic decisions of the organisation and are also key stakeholders in development initiatives.
<b>Divisional Head of Special Projects in City Planning</b>	Ekurhuleni Metropolitan Municipality	Land use changes and Relationship between ORTIA and EMM.
<b>Chief Executive</b>	Denel Aerostructure	How ORTIA impacts business?
<b>GM Commercial</b>	South African Airways	How ORTIA impacts business?
<b>Chief Planner (consulting for EMM)</b>	GIBB Engineering	Understanding the MSDF 2015 of EMM.
<b>Transport Planning</b>	Department of Transport	Interaction between different modes of transport and EMM.
<b>Strategic Planning Manager</b>	Passenger Rail Agency of South Africa	Understanding the relationship of planning the Gautrain and Aerotropolis concept.
<b>Senior Town and Regional Planner</b>	Aurecon	Understanding the Aerotropolis Masterplan



Residents within Ekurhuleni will be the second respondents from which input will be required. Residents are not expected to have full understanding of spatial concepts, however remains critical to gain the spatial input from both residents and officials in order to holistically comprehend the physical impacts within the surrounding area. The reason being, aerotropolis and airport cities have a dual role of uplifting the economic situation of residences and also creating efficient businesses around airport. Residents would also be provided with the questionnaires and the interview would be partly structured.

Interviewees will be selected on a random selection basis. This is to allow for a broader insight from residents from all walks of life within the area. Cochran (1977) defined the random selection process as giving an equal opportunity to the whole population to be selected. The sample will however be clustered according to the different locations within the development core triangle of the Ekurhuleni Metropolitan Municipality (Boksburg, Kempton Park and Benoni) and there will also be an inclusion of a sample in Tembisa which will be the nearest township within the development core. “The stratified random sample allows for the population to be subdivided into subpopulation. These subpopulations are not overlapping and they together compromise the whole population” (Cochran, 1977, p.89).

Whilst doing the interview additional insight from interviewee and also other behavioural observations of the respondent will be noted. These interviews are intended to be complementary to the literature review. There needs to be an emphasis on encouraging public participation in planning. It is suggested by Marshall and Campbell (2002) that more public participation may enhance the respectability of the planning.

Key stakeholders that are critical in the interview process will also be members of the Ekurhuleni Metropolitan Municipality and also management of ACSA at O.R Tambo International Airport. This will give a deeper understanding of the rationale behind the planning framework and strategies that have been proposed in their environments.

## **1.6 Ethical Considerations**

When conducting research:

You will need to ensure that no harm occurs to these voluntary participants and that all participants have made the decision to assist you with full information as to what is required *and* what, if any, potential negative consequences may arise from such participation. Those who choose not to participate must also be given the same information on which to make their decision not to be involved (Polonski, 2004, p.53).

The issues that may need to be managed are some of the sensitive questions that will be asked during interviews. Questions relating to financial earnings will be required rather in a range than enquiring the exact amount. All questions asked during the interview will be voluntary; interviewee has an option not to answer the question if one is uncomfortable. There are a number of ways in which participants can be harmed; physical harm, psychological harm, emotional harm, embarrassment which is viewed as social harm (Polonski, 2004).

As part of the research method, the researcher may use photography, careful attention and permission will be obtained prior to taking a photograph of any object, space or a person. This will ensure that one adheres to required guidelines whereby photography is not permitted as airports as generally highly regulated and security conscious environments. Interviewees may also decline being photographically documented and in this case, it will be noted as a request; and in this case observation and noting of body language will be used as a substitute to photography.

Another important element is the consideration of what is described as academic fraud. “Academic fraud involves the intentional misrepresentation of what has been done. This would include making up data and/or results from the data or purposefully putting forward conclusions that are not accurate” (Polonski, 2004, p.64). When dealing with the findings it is vital that the researcher is not biased and results are not misrepresented to suit personal agendas. Detail and care will be taken in the compilation of the data and as the researcher will keep an objective view of outcome without pre-empting preferred or envisaged outcome of the study.

## **1.7 Limitations of Study**

Though the study would have been on the spatial impacts of airports in the developing countries, the study area is limited to the immediate area surrounding O.R Tambo

International Airport. This area is restrained within the Ekurhuleni urban development boundary. Additionally, observation will not extend beyond the borders of Ekurhuleni into the adjacent cities. This follows the conventional thinking applied by Kasarda (2006) that the aerotropolis impacts of the airport in its immediate environment are likely to be experienced within 30km from the centre of the airport.

There will be theoretical coverage on global debates of impact of airports can be viewed in various cities across the world. The research will however not draw findings beyond the Ekurhuleni Metropolitan Municipality in the illustration of understanding the impacts of airports to other cities within South Africa and Africa as a whole. This research will not further assess if airport ownership structure be it privately or public-owned has any effect of impacts experience within surrounding areas. Although there is hope that a diverse and random sample of interviews from residence from 'all walks of life' will be received, there will be no direct attempt to link the commercial livelihood of interviewees with the extent in which the impact will be experienced. This research is aimed at using O.R Tambo international Airport within Ekurhuleni as a summary of global debates around understanding the spatial relationship of airports and their surrounding areas.

This study will be useful in interrogating space and its impact on 'built' and 'social' form. The understanding of space has been widely complex with different disciplines applying their own interpretation of space. This has been criticized as the gap between the understanding of space in architecture and social sciences has created a societal fragmentation (Madanipour, 1996). Perry highlights the importance of an integrated understanding of spatial theory incorporating the social philosophy by expanding that, "it is social relations of power that manifest in both the material and immaterial" (Perry, 1995, p.141). There is consequently a requirement for spatiality to be understood in its overall system within both the physical and social paradigm. Although this study will offer an integrated perspective of the spatial discipline, it will not venture into the perceptions of mental space. Mental space rather links to the philosophical debate that space is as perceived to be the intellectual interpretation of space (Madanipour, 1996). This dimension will seek the understanding of individual psyches of which this study does not intend to interrogate.

Ultimately, the inferences of study are to critique and expand on existing literature of spatial impacts from airport orientated developments and social orientation. It however does not seek

to create a theoretical framework on the basis in which spatial impacts within areas surrounding the airport should be assessed. The concept of space in its own, is complex and broad. Geographer, Robert David Sack gives perspective that, “Geographic space is seen and evaluated in different ways, at different times and in different cultures” (Sack, 1980, p.3). The requirements of judgement of what spatial requirements should have a degree of leverage for altering according to study contextual area, dynamics and era.

## **1.8 Outline of Chapters**

This research report is comprised of five chapters. Chapter two will be the literature review. The literature will review the debates of the impacts of transport on surrounding areas. It will further highlight the major themes that emerge from literature. The study will focus on the different arguments put out by authors on the aerotropolis theory, integration and also reference on the significance of airports in spatial patterns of an area. In focusing on the physical impacts, it will also review a philosophy that arises on the airport city theory, global city theory, compact city theory and competitive city theory. The conclusion will be able to integrate all the key elements that have emerged from theory. A summarised analysis of elements that have transpired from the review will finalise this chapter. This chapter will aid in guiding the research with an extensive hypothetical background of which can be compared to the findings.

Chapter three will follow with the case study of O.R Tambo International Airport. This chapter will be able to give the profile of O.R Tambo International Airport. It will assess the developments of the transformation of the Airport into an aerotropolis. It will also take a key focus of all the progress and developments that have occurred in the area from 2000 until 2015. These developments would have been reviewed for theoretical backing in the literature review. It will also enquire into the true impacts of O.R Tambo International Airport on the Ekurhuleni Metropolitan Municipality. This chapter will be concluded by reviewing the key characteristics of the aerotropolis. This chapter aims to aid in giving clarity on the current status of the immediate areas surrounding the airport.

Chapter four will focus on the research framework that will be used to collect the field work in the study area of Ekurhuleni area and O.R Tambo International Airport. The materials within the field work will aid in answering the research question and the sub questions of study. This chapter will be concluded by noting all the observations and findings from the

field work at O.R Tambo International Airport. This will be by aligning the key findings and considering consequences of airports.

Chapter five will conclude by looking at the planning actions required to mitigate any harmful impacts and at the same time, boost the constructive impacts of airports. This is the final chapter and it will summarise all the key findings of the study and provide recommendations. Within this chapter, all the sub questions should be answered.

## **CHAPTER TWO: GLOBALISATION, AEROTROPOLIS AND THE INTEGRATION WITHIN CITIES**

### **2.1 Introducing the Key themes of the Literature Review**

This chapter will focus on the literature which analyses the relationship between airports and surrounding environments. It will introduce the policy of liberalism and its consequence. It will lead to the issue of globalisation and how it has built up to the current location, functions and forms of modern cities. The chapter will first review the emergence of globalisation which has given rise to growth of airports. It will then shift to the microscopic view of Gauteng detailing how neo-liberalism principles have created the need for cities to be competitive. This chapter will then explore some of the city branding practice that is a result of global cities and competitive city theory. From the key themes that transpire from this literature, it will further probe the relationship of cities and economic development.

This chapter will then shift to exploring global cities. It will explain Gauteng's adoption of creating regional competitiveness through the Gauteng City Region. This will be a significant build up in understanding the implications of transport in economic development. With the unpacking of the aerotropolis, it become essential to evaluate the heart of the aerotropolis- the airport city. This chapter will subsequently interrogate the functions of cities focusing on competition, industries and networks that they embody. The focus will then shift to how integration of transportation enhances the new urban fabric.

The chapter will further unpack the urban forms that have derived through the emergence of globalisation. It will reflect on the compact city theory that is reflected as a sustainable city model. It will also reflect on the prototype of these city structures and the relationship between airports and these city forms. The concept of the Aerotropolis and its key drivers are probed. It will focus on the debates that surround the legitimacy of the Aerotropolis concept. It will then move to explore the localization implications that are created from the development of competitive cities and subsequently aerotropoli. This will place focus on clustering and agglomeration theory practices.

The theory in discussion will be analysed so that there is an ability to draw out common themes and outcomes. The chapter will be concluded by giving perspectives on the key trends that have been noted.

## **2.2 Neoliberal Policy Environment and its Ramifications**

Neo-liberalism is a theory of political economic practices proposing that human well-being can best be advanced by the maximization of entrepreneurial freedoms within an institutional framework characterized by private property rights, individual liberty, unencumbered markets, and free trade (Harvey, 2009, p.22). The history of neo-liberalism is linked to the privatisation and commodification of public assets, a strong wave of financialisation and the management and manipulation of crises (Harvey, 2005). The state, within this context plays a key role of state redistribution by becoming a prime agent for redistributive policies which ensure that they reverse the flow from upper to lower classes of society (Harvey, 2005, p.163).

In SA, neo-liberalism has emerged in the form of the Growth Employment and Redistribution (GEAR). The GEAR strategy was reconstructing the South African economy by focusing on speedily developing the economy in order to generate jobs over 400 000 per annum by year 2000 and seek redistributive methods of spreading the economy by favouring the underprivileged (Department of Finance, 1996) The envisioned measure of attaining growth would best be promoted by freeing the private sector from the shackles of the biased racist logic and constrictions of the country's apartheid past (Michie & Padayachee, 1998).

GEAR aligns itself as an integrative strategy to the Reconstruction and Development Programme (RDP) by indicating that it will supplement the policy in the delivery of basic human needs and resources (Department of Finance, 1996). Michie and Padayachee (1998) however highlight that at the macroeconomic level the framework does not incorporate disadvantaged groups within the strategy. They expand that,

The GEAR strategy advances no strategy in respect of the most disadvantaged sections of South African society, especially women in rural areas. Under the heading of social and sectoral policies, education, health, and welfare policies and programmes are discussed (and dismissed) in a few paragraphs (Michie & Padayachee, 1998, p.628).

This reflects the issue of global structures overlooking the local issues whilst pursuing global competitiveness.

GEAR also pushes for the consolidation of trade and industrial policy reforms and relaxed exchange controls and strengthening competition with the hope of stimulating investment (Department of Finance, 1996). This is aligned to the global aviation reforms that resulted to the deregulation of airlines. The implementation of the deregulation of airlines act has had a significant paradigm shift in the aviation sector. In turn, within the planning practice, the decentralization of national spatial units due to globalisation and neoliberalist practices of deregulation and privatization have introduced new spatial unit scales (Sassen, 2005).

Andrea Goldstein who is a Senior Economist at the OECD Development Centre elaborates the deregulation process as taking the resulting sequence,

Following the CAB liberation of entry and the 'so-called' discount fare experiment of the mid 70's, US regulatory reform started in earnest with the 1978 Airline Deregulation Act, that led to the free entry of all carriers (1982) and to the complete elimination of regulations on fares, routes, destinations and frequencies by 1983 (Goldstein, 2001, p.224).

The new developments and creation of the airline industry into a free market industry through deregulation resulted in airline travel becoming more affordable. This has greatly stimulated the role of the transport mode, as there was a drastic increase of the number of people and cargo able to use these airlines as transport mode.

Linked to neo-liberalism is also the idea of globalisation.

Globalisation is defined here as a set of economic and political structures and processes deriving from the changing character of the goods and assets that comprise the base of the international political economy—in particular, the increasing structural differentiation of those goods and assets (Cerny, 1995, p.596).

The impact of globalisation has made the world borderless. Globalisation has increased the forces in business not to only focus on the economic forces regionally but focus on the global impact. Literature in the 1980's still reflected on the focus of creating economic advantage to be within the regional metropolitan environment. Firms in most manufacturing industries receive more productive advantages from being located at cities in a metropolitan area than at



very large cities. (Nakamura, 1985). However, there has been shift in the understanding and importance of geographic distribution of the central business area. CBD's have now become major international business centres configured by technological and economic change rather than the geographic centrality of traditional CBDs (Sassen, 2005). In whichever way centrality of commercial activity is defined, united areas of doing business be it, virtual or tangible are still critical. Studies reveal an important point that "centrality of the urban areas had a greater effect on levels of employment" (Tripl, Grillitsch, Isaksen & Sinozic, 2015, p.2028).

Globalisation in different contexts has taken different meanings, yet it has become a general observation that the effects of globalisation has created the expansion of networks and distance amongst countries to become minimal. Rodrigue (1996) has observed that,

One is not able to appreciate the full effects of globalisation without fully understanding the impact transport has for its opportunities to be fully realised. The emphasis on global literature is always place on technology (by means of creating connected smart cities), transnational bodies and trade relations (p.56).

Further evidence of globalisation is observed in super bodies like the United Nations also have significant influence on national policies worldwide.

It is acknowledged that globalization has been supported by improvements in the transport technology and major investments in transport infrastructure. Transports plays a significant role within the space of globalisation.

Potter (2010) supports the view by highlighting that the process of globalisation is taking place and this is substantially through the advance in the transport industry. The reduced cost of travel has contributed to the reduced unit cost of the shipping of goods. O.R Tambo International Airport is well placed to deal with global elements. It embodies the required infrastructure and connectivity required by the fast-moving pace of the world.

The organisation and connection of transport takes an important step within the location decision in a globalized economic environment. Hence, the rise of transnational corporation power and influence globally is attributed to the process of economic globalisation (Westaway, 2012). With the transnational corporates, there is even a concept of transnational innovation. Director of the international centre in international management and law and the

Senior researcher in the innovation institute in Germany involved in the field of research and development have observed characteristics of this transnational innovation being, “intense market and technological interactions, interactive technology transfer and cross-functional and multiple learnings (Gerybadza & Reger, 1997, p.9).

This level of integrative research and development probably would yield to even greater economic prosperity. However, those who are critical of globalisation argue that the impact is exaggerated and in some instance, it undermines the notion of adaption products in order to suit time and place. John Holloway, who is lawyer and Marxist positioned sociologist in conjunction with co-author Phil Hubbard, expresses the significance of context and time by using an example of the global food chain McDonalds. They say that, “after all, even if McDonald’s restaurants are similar everywhere, it does not mean that they are identical (e.g. a McDonald’s in Tokyo sells Teriyaki Burgers and they may even go further by having different target markets on each location” (Holloway & Hubbard, 2001, p.25). The additional observation that is made is that even though people engage in far reaching space due to expanded global technologies, media and transport; majority of people lead their lives that are based around a limited radius of places that are important in their lives (Holloway & Hubbard, 2001). This further emphasises the importance of studying human connection with their immediate environments.

Also globalisation is said to be creating further social and global inequality of wealth. Sassen (2005) does note that there is a disproportionate distribution of the concentration of global financial markets with more than half of these being located in the global north. The World Commission on Social Dimension of Globalisation was founded by the International Law Organisation (ILO) in 2002 were established to be an independent body focusing on the need of people dealing with the different facets of globalisation (ILO, 2004). World Commission on Social Dimension of Globalisation (2004) is similarly echoing concerns of globalisation because economic prospects are unequally shared, which leave the poorest further marginalised. Sassen (2005) also adds on that global connectivity has not created what would have been expected outcome of inequality between and within cities, there have been no observed social benefits of this nature when connectivity is universalised. South Africa has also been plagued with inequality gap widening further between the rich and the poor.

### **2.3. Hype -Mobility Paradigm as a consequence of Neoliberalism**

The emergence of neoliberalism has influenced a change in the perception of mobilities. The fast paced world of globalism has made mobility one of the key subjects spoken about in the 21<sup>st</sup> century (Hannam, Sheller & Urry, 2006). Even within the past, mobility has always had a critical role in shaping the idea of security, identity and citizenship (Cresswell, 2012). In order to assess access granted by mobility, the new mobility turn is mapped according to material movement, representation and practice as it grants analysis on the interconnectivity of these elements (Cresswell, 2010). This fast paces mobility turn is described by geographer, Cresswell (2012) as, “an integrated approach to the movement of people, things and ideas across all scales” (p. 651). This as a result has brought about a boundary-less and more lively society that is further intrinsically intertwined.

Although mobility adds to a more dynamic environment that responds to the age of neoliberalism; the key consequences that come with the fast access is the issue of politics and power. Cresswell (2010) views mobility as being experienced and accessed differently within social relations. Hannam, Sheller and Urry (2006) expand the view by stating that the “Dreams of hyper mobility and instantaneous communication drive contemporary business , advertising and government policy while also eliciting strong political critique from those who feel marginalised or harmed by these new developments” (Hannam, Sheller & Urry, 2006, pg.1).

This interlinked environment brought about the paradigm shift to more complex mobilities and does conversely inflate the impact of the unintended consequence linked to interconnectedness. Mobilities magnify social ills as the world is no longer limited by territorial boundaries and can rather spread on a global scale. Exploring as a means of slowing down mobility, when necessary, has become one of the critical issues that will need to be addressed in modern literature in order to avoid chaos and disorder (Hannam, Sheller & Urry, 2006).

### **2.4 Competitive City Theory- Global Stomping Ground**

In the quest of globalising, cities have had to adopt competitive strategies to aid in the attraction of investment and economic and developmental growth. Airports became spaces

which hold a wide range of activities that assist in driving economic activity. The key drivers of economic development are infrastructure, investments within the area and also airports. Harris (2007) and Begg (1999) elaborate that cities measure competitiveness in an effort to benchmark their strengths against another city. The overall indicator of competitiveness within cities being an improved quality of life and higher standard of living (Begg, 1999). However, Harris (2007) further explains that, “cities do compete but they also depend on collaborating with each other. Each city provides the market for the output of all the others, so each has an interest in the prosperity and economic expansion of its competitors (p.6).” Huggins and Clifton (2011) also support this view by noting that competitiveness results in city regions comparing and contrasting by means of improving each other. Harris (2007) expands that although cities competed, their competitiveness was determined and under the control of the central government.

The introduction of competitive cities is bringing a new concept of urban entrepreneurialism in spatial planning (OECD, 2007). In summary, these entrepreneurial elements hope to foster and encourage economic development. New age cities require the government to play a different role to one that they are accustomed. Senior economist at the World Bank and a global expert on industrial development, innovation and competitiveness, Zhihua Zeng (2016) highlights that central government is required to maintain stakeholder relations and create a conducive business environment by being proactive in shaping policies and also playing a facilitative role. Begg (1999) observes that urban policies should enable and facilitate the shift towards competitiveness with the local government sphere being granted more autonomy nationally so that they can adopt a more creative approach.

Kresl (1995), who is the author of various books in economics and subject expert on economic strategies, has made a clear intention to demystify ‘urban competitiveness’. The key attributes that Kresl focuses on when dealing with city competitiveness are:

- *Jobs created should be high-skill, high income jobs;*
- *Production should evolve towards environmentally benign goods and services;*
- *Production should be concentrated in goods and services with desirable characteristics, such as high income elasticity of demand;*
- *The rate of economic growth should be appropriate to achieve full employment without generating the negative aspects of overstressed markets;*

- *The city should specialize in activities that will enable it to gain control over its future, that is, to choose among alternative futures rather than passively accepting its lot;*
- *The city should be able to enhance its position in the urban hierarchy.* (Kresl, 1995, p.51).

The notion of competitive cities have changed the paradigm of city planning and require that local government now have more autonomy in planning requirements. Harris (2007) attests that, “the idea of a city competing presupposes a degree of autonomy, a measure of decentralization of powers of urban management that often lacked” (p.5). Porter (1996) also makes a clear point that economic value of cities should not be diminished for business competitiveness as cities play a necessary role in determining and supporting market competitiveness. The thriving market in an area cannot look at its efforts in isolation without acknowledging the role of city facilitation.

Underpinning city competitiveness is specifying the city’s purpose. City identity guides the understanding of the performance indicators that can be used to evaluate success. In the context of Ekurhuleni, Johannesburg is one of the adjacent cities that it benefits from being in close proximity. Johannesburg is the economic hub of South Africa and contributes and stimulates significant traffic into the city. With Ekurhuleni’s ambiguous identity, the city is leveraging strongly on the brand of the City of Johannesburg to attract traffic flows.

The one area which is perceived as useful is specialised economics zones. Zhihua Zeng (2016), Harris (2007) and Begg (1999) all attest to the fact that in order for a city to be competitive, the city must be able to develop its own local assets within the correct context. Zhihua Zeng (2016) emphasises that, “specialised economic zones can be effective instruments to promote industrialisation implemented properly in the right location” (p.2). Begg (1999) stresses context, industry specialty and economic structure as significant for city competitiveness. There is however a contradiction to some theories as observed in Begg (1999) that innovation is at the fore of city competitiveness and that cities only grow when they are specialising with growing industries.

It is highlighted that competitive city should not be perceived in the tradition competition perspective where it is expected that it will equate to a ‘zero sum game’. The ‘zero sum

game' in economics game theory simply explains the notion that the total benefit to all parties participating in the game, always reach a summation of zero, equating to player benefits being only at the equal expense of others'(Guillermo,1995). Due to its '*win or lose*' nature, one shortfall of the zero-sum game is that it does not become an appropriate environment for policy deliberation (Puetter, 2016).

Zhihua Zeng (2016) and Harris (2007) also expand that competitiveness in the urban environment occurs regionally and even globally. Sassen (2005) highlights that cities are preferred sites for the production of these services, particularly the most innovative, speculative, internationalized service sectors, even at time information services are place bound due to combination of resources. However, there is also cooperation amongst cities through specialisation and exchange of goods inevitably results in cities enhancing each other's economic value and capacity (Harris, 2007).

The formulation of the Gauteng City Region (GCR) is the recognition of the need for cooperation and enhancement within a region. The researcher for GCRO, Greenberg (2010, p.25) explains that, "the city-region concept is theoretically based on a reduction of competition and a rise in cooperation to coordinate economic activities in the region". This brings about the focus of gaining economies of scale regionally to be able to compete in the global platform.

#### ***2.4.1 Branding within Competitive Cities***

Within the globalized world, cities have faced inter competition amongst each other. World Cities are in competition for many components, namely, economic livelihood and attention, talent pool, innovation and creativity (Konijnendijk, 2010). This has led to a quest for cities to find ways of differentiate themselves to attract trade investment and people within the space. Cities are said to have evolved from a random promotional enticement of cities to applying a marketing as part of public planning tool box of instruments (Kavaratzis & Ashworth, 2005).

Therefore, cities are regarded as products which can be used to entice people similarly to the case of corporate branding. A branding study by Lucarelli and Berg (2011) reflected that more than half of city branding models that were proposed in European cities were based on traditional branding and marketing models. This reflects the transition of cities now

integrating with various commercial disciplines in order to remain relevant in a globalized world. One prominent examples is the branding of the city of Amsterdam in Netherlands into the 'I AMsterdam' brand. "I AMsterdam' is the motto that creates the brand for the city and people of Amsterdam" (Amsterdam, 2017, p.1).

City branding is regarded as a mental function. "Place branding centres on people's perceptions and images and put them at the heart of orchestrated activities, designed to shape the place and its future" (Kavaratzis & Ashworth, 2005, p.505). Dinnie (2013) reflects a concern that cities should be acknowledged as the diverse and complex places they are and marketing should not take a linear focus into a single industry when engaging in place branding. This brings about caution to the positioning of Ekurhuleni as stringently aviation-orientated brand. Ekurhuleni may need to find a way to incorporate other industries of expertise and future memorable experiences so as to not lose the dynamic element of the city.

Although corporate branding bares resemblance to place branding, one should bear in mind that with democratic nations, a single clear identity becomes difficult to reach. Kavaratzis and Ashworth (2005) explain that this is due to, "the open expression of alternatives rather than concealing them within a spurious communal unanimity" (p.511). It is therefore critical for even the identity of the area to be inclusive and also created through an inclusive process with all stakeholders. The city brand should still resonate with city residents and attempt not to be alienating or exclusionary.

## **2.5 Shifting towards to Global Cities**

One of the requirements for competitiveness has been the creation of a global city. These days, the recognition of cities as having a global status are viewed as an imperative aspect. There are various ranking agents which grade cities according to the economic performance amongst other variables. Urban change towards global city status is perceived as a modern city requirement which is attractive and forward thinking. Sassen (2005) defines a global city according to their function, "national and global markets require central places in which globalisation can be done" (p.35). Focusing on industries that are contributing to commodities that are required for operations and organization of global economic systems anchored through cross border networks (Sassen, 2005). The global city which is at times recognised as the 'World City' are cities that have significant importance in the global economy (Robinson, 2002).

Ekurhuleni seeks to embrace the global city image:

- It will initially work on cultivating a global brand;
- Carry out a pragmatic approach in execution of projects and focus on education, logistical and logistical aims of the Aerotropolis;
- Streamline governments processes to facilitate local and international investment; and
- Establish an authority with broad based powers that will be responsible for the Aerotropolis (Ekurhuleni, 2015, p.19).

Cities have formed cross boarder networks in order to connect for economic prospects. These cross-border connections come across all realms of industries from political, social and economic benefits (Sassen, 2005). The transnational corporates play a significant role in the formulation of these cities, with some outsourcing non-core areas of their business to different parts of the country whilst the core is maintained in-house. Goldsmith (2000) reflects on the importance of globalisation on space and how its significance has been proven over time. He summarizes that, “Students of urban affairs remind us that international trade, exchange rates and patterns of innovation affect spatial form” (p.39).

The modular cluster phenomenon which is being adopted in industry is also adding an important element to connecting globally. The modular cluster relies on various parts of the manufacturing process of goods to be placed in different geographic area. This phenomenon independently relies on the global connectivity of communication, transportation to ensure the correctly composed end product. The more dispersed individual firm’s operations are in different countries will introduce a level of complexity and require strategic central functions of coordination, servicing and managing of the network of functions (Sassen, 2005).

Transnational companies in global cities have been acknowledged to have created changes in economic, political and financial barriers in many developing countries with the hope of attracting foreign investments (Westaway, 2012). However, the author is concerned about the role in which transnational corporations may have on human rights and the country’s authority, even more so in developed countries. She feels that these corporations may in fact be overstepping on sovereignty of these countries by making countries compete against each



other with the end result being the transnationals receive favourable policy and regulations which would ordinarily not be within countries laws (Westaway, 2012).

### ***2.5.1 Global City Region (GCR)***

Another quest is that of creating a Global City Region. The Gauteng City Region (GCR) programme became the successor to the Growth, Employment and Redistribution (GEAR) national strategy which was formulated in the post democratic South Africa. “The GCR is South Africa's economic heartland. It holds 13 million people and generates a third of the country's GDP, on 2% of its land area” (GCRO,n.d.).

The Gauteng City Region includes cities outside Gauteng that still have economical and infrastructure and movement ties to Gauteng, like Potchefstroom, Emalaheni, Secunda, Rustenburg and Sasolburg (GCRO, n.d.). South Africa has embraced this shift through the formation of the Gauteng City Regions (GCR). The Gauteng City-Region is perceived to be, “an integrated cluster of cities, towns and urban nodes that together make up the economic hub of South Africa anchored by the three large metros of Ekurhuleni, Johannesburg and Tshwane” (Wray, 2010, p.39).

The GCR was formulated in recognition that, “the global spatial location of economic growth increasingly focuses on cities and their immediate surrounding regions” (Greenberg,2010, p.20)to build Gauteng as an integrated and joint mapping governance structures are required as social, economic and ecological factors do surpass borders (Greenberg, 2010). The formulation of the GCR is the recognition of the need for cooperation and enhancement within the region. The researcher for GCRO, Greenberg (2010, p.25) explains that, “The city-region concept is theoretically based on a reduction of competition and the rise of cooperation to coordinate economic activities in the region”. This brings about the focus of gaining economies of scale regionally to be able to compete in the global platform.

In order to ensure adequate research and analysis base of the region, the Gauteng City Region Observatory (GCRO) was established. The GCRO was established in September 2008 as a partnership between Gauteng Province, University of Johannesburg and University of Witwatersrand with links to knowledge councils, higher education institutions, private sector think tanks, research NGO's and information exchange and learning networks within the city

region (Wray, 2010). The intended purpose was clear and created shift in operational procedures with government through the introduction of stakeholders that ordinarily did not exist in the decision making processes. Greenberg (2010) confirms “that governance needs to broaden its base to more formally incorporate other key decision makers, in particular the private sector, with its economic decision-making power” (p.21). Therefore, neoliberal globalisation was an integrative factor that South Africa needed to consider, as competitiveness was critical for the countries’ growth and development (Greenberg, 2010).

In response to the emerging global trends Gauteng Provincial Government have formed an Industrial Development Zone (IDZ) linked to O.R Tambo International Airport. The IDZ’s strategic intent is to promote foreign direct investments in added value and export orientated manufacturing industries (Gauteng and Ekurhuleni, 2015). There has also been an introduction of learning regions which aid in the upskilling within the city. With the majority of citizens not going beyond matric, training centers grant an opportunity for skills gain (Ekurhuleni, 2016). The Ekurhuleni Artisan and Skills Training Centre and the recently opened state of the art, Denel Aircraft Simulator Training centre will support the vision of positioning Ekurhuleni as a world class city ( Ekurhuleni, 2016).

In terms of performance as the GCR, the position that O.R Tambo International Airport will be to become the gateways for the region to global markets (Ekurhuleni, 2015).With over 76 international routes, of which 62 are in Africa, will grow foreign direct investment into the region and beyond (Gauteng &Ekurhuleni, 2015).It will have a linked Gauteng Industrial Development Zone (GIDZ) which seeks that promotes fixed direct investments in value-added and export-oriented manufacturing industries (Gauteng&Ekurhuleni, 2015). In order to support the region, O.R Tambo international airport is expected to expand to meet the capacity demand of passengers and freight; with the support of efficient roads, hotels, retail and offices in the surrounding areas (Gauteng and Ekurhuleni, 2015).

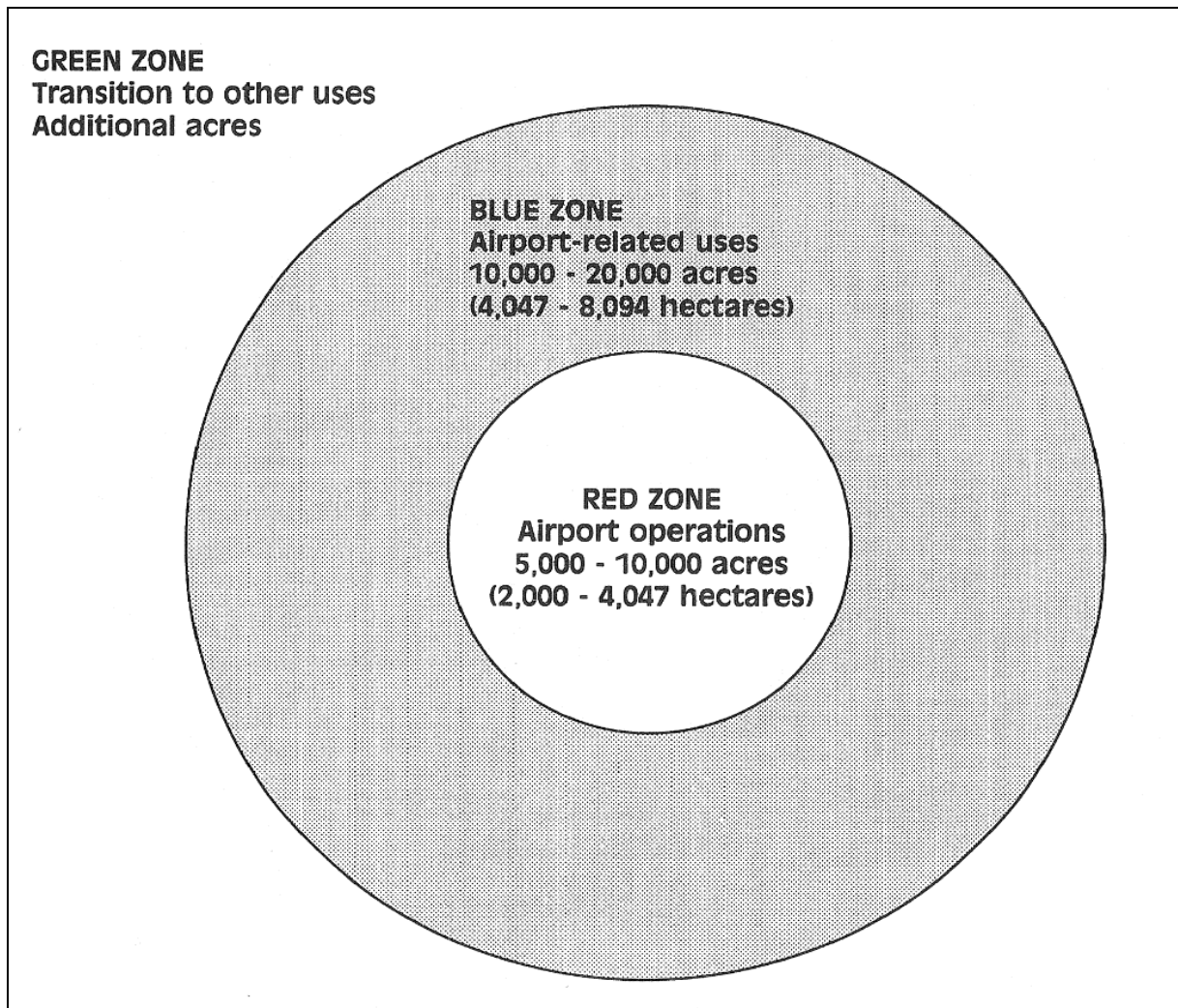
## **2.6 Airport City Theory**

The emergence of the Ekurhuleni Aerotropolis has led to O.R Tambo International Airport being considered as the heart of the aerotropolis (Gauteng Provincial Government and Ekurhuleni, 2015). O.R Tambo International Airport is in itself transforming into a multi-use space that may be regarded as its own self-sustaining city- the airport city. The airport city

concept is basically a term that encapsulates the idea that airports have transformed into their own cities with different functions. Conway (1993), who is recognized as the founder of the concept, defines the airport city model as one that is able to maximize the use of air transport by supporting other spaces within the airport. They are created in such a manner that they are able to yield optimal opportunities from the airport establishment.

From a development perspective, the precursor of the Airport City was the launch of the first trade free zone in the 1960's, offering duty free shopping (Kasarda, 2008). This brought about passenger attractiveness to the airport which made other airports follow suit. By the 1990's the commercial activity had quickly moved out of the terminal buildings into surrounding areas (Kasarda, 2008). Conway (1993) similarly recognizes the importance of other transport modes within the airport city and acknowledges that airport centric development does not form in isolation.

Figure 4 below shows the model as conceptualized by Conway on how airport cities are formed. The city radiates from the core as the airport forms the heart of the city.



**Figure 3- Airport City Model reflecting the Different Zones and Land Use Allocations**

**Source: Conway, 1993**

The nature of these airport cities is perceived by Aeroscape (2013) as having been conceptualized by modern architects and technocrats whom came up with ideal city master plans for development. Airport cities again bears the resemblance of the by capturing 20<sup>th</sup> century urban planning principles. Significant influencers are the likes of modernist era architect, Le Corbusier’s concept for the ‘City of Tomorrow’, which placed a strong emphasis on the separation of functions, connectivity and accessibility (Aeroscape, 2013). The Airport City shares significant ideological similarities with the modernist and post-modernist planning principles (Aeroscape, 2013).

The Airport City is again likened to follow the garden city and suburbanism principles. The garden city concept described a self-contained city which would be enclosed by the

permanent belt of agricultural land which had proportionate areas of industry, residential and agriculture as conceived by Ebenezer Howard (Reps, n.d). The core objectives identified in the garden city concept also link to commercial prosperity with hopes of creating more and better employment for their talent pool, to increase purchasing power for the industrial population and to also encourage enterprising of various industries within the area (Reps, n.d).

The enclosure of Garden Cities by industries reflect that they were primary advances of the commercialization of cities occurred. In turn, the Airport city has strong commercial prospects as well and the basic drivers of the model are recognized as follows:

1. Airports need to create new non-aeronautical revenue sources, both to compete and to better serve their traditional aviation functions;
2. The commercial sector's pursuit of affordable, accessible land;
3. Increased gateway passengers and cargo traffic generated by airports; and
4. Airports serving as a catalyst and magnet for landside business development (Karsarda, 1998, p.5)

The airport city is linked to the aerotropolis through the concept of the airport corridors (as seen in figure 3). The airport corridor describes the developments through the access way between the airport core and industries within the central business district. These corridors also seek to spatially develop through stimulating commercial activity and infrastructure in this critical linkage between the airport and city into a more integrated zone (Freestone & Barker, 2011). Maurits Schaafsma, as senior planner and significant contributor of the airport corridors model, created a concrete spatial construct which connected Schiphol Airport to Amsterdam's Zuid, the city's primary sub office zone, south of the city's center, connected to the airport by a central infrastructural spine (Aeroscape, 2010). Likewise Within the aerotropolis development in Ekurhuleni, corridor developments and road infrastructure have become the key focus (Ekurhuleni, 2010).

Airports are inspired by the importance of centrality and are considerate of the spatial importance for human and commercial relations. Airports still cater for the modern life and trends as nowadays, airports offer a full range of functions including retail malls, conference facilities, leisure areas, business parks, or sports grounds, often located outside the airport's property line in adjacent areas. This holistic functional approach has

made airports appear like small self-contained cities (Kasarda, 2008). These renderings and the underlying airport city plans are reminiscent in their spatial clarity and expression of the Italian ideal city of the Renaissance. Just as with new airport cities, no historic considerations or geographical idiosyncrasies had to be taken into account in their planning' (Aeroscape, 2010).

Figure 5 below analyses all the airport city concepts that have been applied in Airport development and they have linked them to the urban planning principles in which concepts resonate predominantly. The airport city and aerotropolis share strong links with modernist and post-modernist urban planning principles.

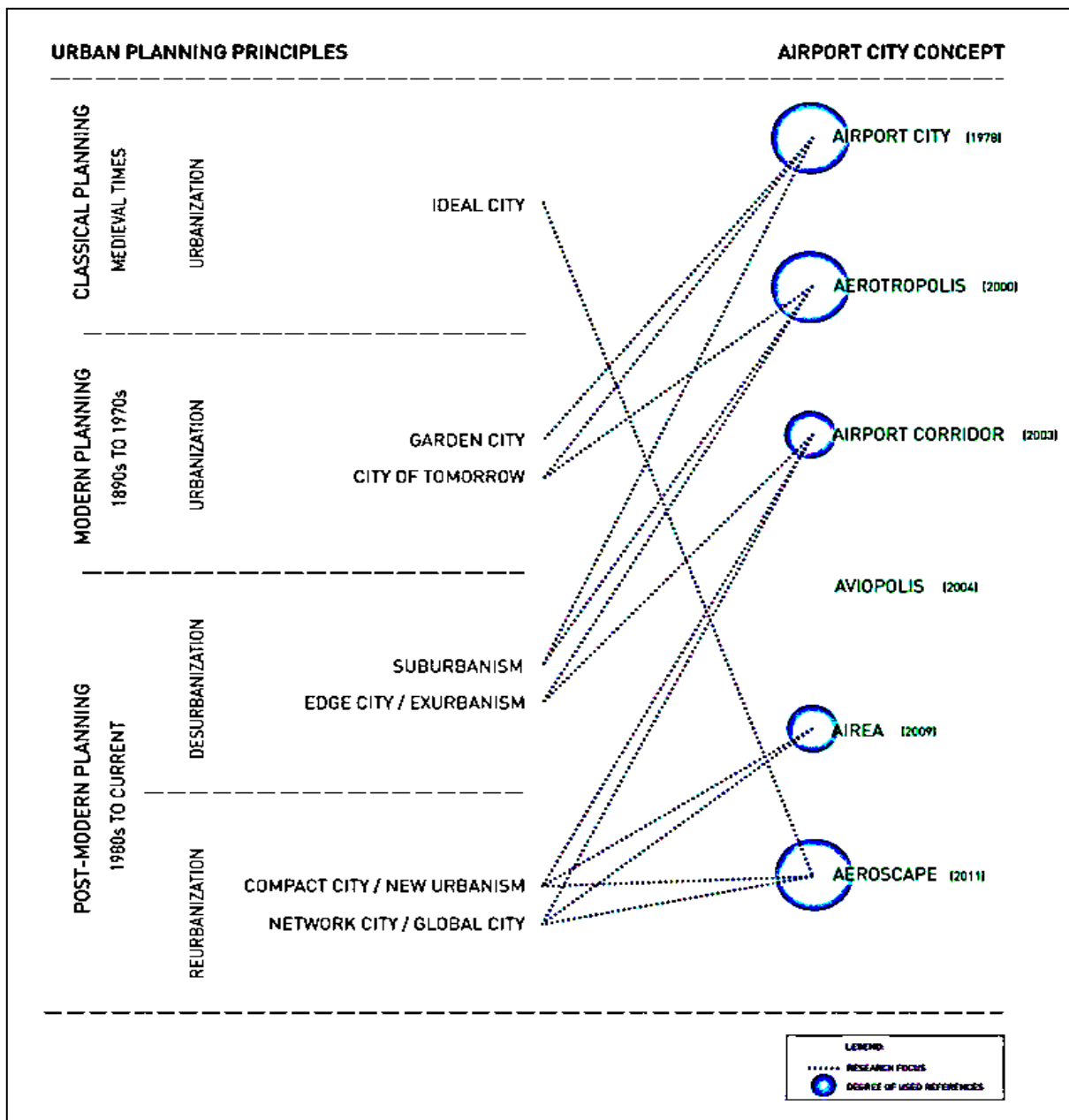


Figure 4- Framework Describing the Links between Urban Planning Principles and Airport City Concept

Source: Aeroscape, 2013

The resemblance of the airport city to the urban principles of suburbanism and edge cities leave it open to criticism. This concept describes that there is a shift from the central urban areas to develop the sub urban areas (Gainsbororough, 2002). Suburbanism have been critiqued as contributing to urban decay and also encourages sprawl. They argue that this model forges for the decentralisation of activities which weakens and threatens the vitality of the city centre (Downs, Mc Cann, Mukherji & Burchell, 2005). The city also has to find itself focusing on extensive service delivery infrastructure in order to be able to service and extend

services to these areas that may ordinarily be far reaching (Downs *et al*, 2005). Kasarda and Lindsay (2011) also express the cannibalisation of city centres by the airport city by encapsulating their views as, “The airport leaves the city. The city follows the airport. The airport becomes a city” (p.134).

Some of the critique on the airport city is that it requires to consider many factors in order to be successful. Amongst these elements, the airport city will have to be able to a global competitor, it will need to have:

- Strong local and regional economy to provide a solid base for traffic;
- Specialized suppliers and large local markets;
- Adequate economic profile of the region, to fuel the aviation node and potentiate non-aeronautical activities;
- Available supply of highly skilled labour (Peneda, Reis & Macário, 2010, p.12)

Ekurhuleni is currently experiencing a skills issue whereby the majority of its citizens do not have education beyond matric (Ekurhuleni, 2016). It is also revealed that there is a lack of higher education institutions within the area (Ekurhuleni, 2015). The city has even identified that in the future, there is a great opportunity for a campus that would cater for multi-institutional university that would serve industries related to airport orientated developments (Gauteng and Ekurhuleni, 2015).

Another element of consideration is that airport cities would also need to be globally competitive as they are being benchmarked with other airports worldwide. This requires businesses within these cities to be able to reduce the production costs for export orientated productions and logistics (Peneda, Reis & Macário, 2010). Ekurhuleni operates in the environment of where labour markets are highly regulated by the labour unions. The World Economic Forum (WEF) survey revealed that labour and employer relations in South Africa are extremely uncooperative and wage negotiations lack flexibility (WEF, 2015).

The Department of Labour (2014) revealed that the “overall the number of working days lost per 1 000 employees increased from the previous three years (2010 to 2013)” (p.5). A total of 670 working days per 1 000 employees were not worked in 2014 due to work stoppages. This may imply that there will be increased production costs within Ekurhuleni compared to other airport cities in the world.



## 2.7 The Significance of Air Transportation in Economic Development

Rodrigue (1996) has made an observation that, “transportation is one of the least visible but critical components of the global economy by supporting a wide array of movements of passengers and freight between nations” (p.1). While most of the transportation and economic literature focuses on roads, there has been significant research on economic impacts of air transportation. With each era, there is a transport trend that has been driving the economy and the movement of goods.

The role of air industry could already be observed from the 1920's in the air mail industry however the aviation industry was limited by capacity and range to make further impact on passenger travel (Rodrigue, 1996). David Banister and Joseph Berechman are esteemed Professors in the field of transport studies and economics respectively. They expand that the shift from one transport to another in more developed countries rather leads to a shift in economic development to the new node rather than to create or develop further economic opportunities (Banister & Berechman, 2000). There is a clear connection between transport and economic development; however, the direction of the connection remains blurred. However, Vickerman, Spiekermann and Wegener (1999) are clearer about the role of transportation within economic environment. They explain that, “transportation improvement, particularly those seen to result from infrastructure investments, thus not only serve as main objective of promoting competitiveness but can also be seen as main instrument of achieving the goal” (p.2).

The new economies which have been formed are served through the knowledge economy. With the emergence of this new economy that is service orientated, there is a strong focus for people to fly more often than the traditional economies. Sassen (2005) acknowledges that airports will be central to the global economy by foreseeing that “far from neutralising geography, regional grid is likely to be embedded in conventional forms of communications infrastructure, notably rapid rails and highways connecting to the airport” (p.37). However, the formulation of any transportation orientated improvement should have an end goal in mind. “Accessibility is not simply a desirable good by itself, but a means to an end, in this case economic activity and social cohesion” (Vickerman *et al*, 1999, p.13).

Economic growth reflects that in increased activity of businesses along with increasing affordability of the air transportation will increase air traffic demand. The 'give and take' between air transport and the commercial feeder will be the single most critical combining thread of the concept. From the current activity occurring in Ekurhuleni, the aerotropolis will have to show stimulation of air transport through businesses allocated within the aerotropolis. In turn, aviation industry will have act as an invigorator of commercial activity due to its proximity.

## **2.8 Relationship between Urban Form and Transport**

As the old principle in architecture, coined by the post-modernist architect, Louis Sullivan says 'form follows function' (Sullivan, 1896). It too becomes interesting to analyse if the aspect of urban form is guided by the transport needs of the population. Urban formation is closely related of the traffic mode that is on offer within the area. Changes in urban form are offered as the most important factor in explaining choice of travel mode (Pooley, Turnbull & Adams, 2006). "Transportation and land use planning decisions interact. Transport planning decisions affect land use development, and land use conditions affect transport activity" (Litman, Victoria Transport Institute & Steel, 2015, p.5).

Some authors do not perceive this relationship as being one affecting the other, however, the relationship between land use and transport is perceived to be reciprocal and equal. Hull (2011) shares that, "spatial planning acknowledges the interdependency between land use and transport patterns and other public policy measures" (p.71). In some instances, an activity analysis has been mapped around transport hubs certain trends started to emerge. Smith (1971) explains that "industrial activity is seldom if ever found evenly spread over the earth's surface, or distributed in random fashion" (p.23). This implies that there is a pattern that may be observed when these developments occur. He further elaborates that there may be random urban development that forms but this occurrence is usually minute with most development of industrial plants being typically grouped within certain locations (Smith, 1971). The direction of the relationship remains unclear as relationships between transport and land use are complex, with various interactive effects ((Litman, Victoria Transport Institute & Steel, 2015, p.5)

As stressed by Genevieve Giuliano (1989) from the Institute of Transport in California that the relationship between land use and transportation are not only key factors to understanding

the nature and development of urban form, but also have intrinsic policy implications. The role in which land use policies and regulatory system planning in shaping urban pattern may not be ignored. Hull (2011) explains that the regulatory system can be a powerful tool to restrain and influence the travel behaviour of individuals through development location policies. Policies may utilise these regulations and policies to create more efficiency and to also generate greater income. Ekurhuleni has an opportunity of using location surrounding O.R Tambo International Airport as a tool for competitiveness, leveraging off strength of being in close to air transport.

Dunning (1997) confirms that, increasingly, the location of industry is being determined by their ability to organise spatially isolated and spatially concentrated activities. However, Salingaros (2005) enlightens that in order for cities to have more meaning, “clustering is supposed to occur among linked human activities, and not strictly between houses and a road” (p.5). This brings a new dimension to the relationship of urban form and transport shifting it more towards encouraging a connection between urban form and human activity. Therefore, planning bodies within Ekurhuleni should seek to be purposeful when consideration of activities people would engage in around airport.

With the institutional form taking the fore in the transport and land use planning, there is also significant politicisation in implementation of projects. Planning professor Robert Cervevo (2013) highlights a growing issue in which elected officials would opt to rather chose projects which are larger in scale, offer job opportunities and also rather within the time frame they are elected to be in office in order to gain voter confidence. This practice may compromise planning prudence as the reality highlights that land use and transport integration is only evident in a longer time frame beyond a ten-year period (Cervevo, 2013). It was alarming however that in a city case study commissioned by SACN (2016) on South Africa cities including Ekurhuleni, reflected that municipal decisions were unduly influenced by powerful lobby groups outside city governance structures for personal interests.

## **2.9 Towards Compaction: Is it towards Sustainability?**

In order to be able to function in the competitive manner, cities have taken a distinctive form. Exploring the recognized sustainable efficient city model has become a necessity for competitiveness. The compact city model has become one that is considered to be responsive to the needs of globalisation. The compact city theory describes the urban development that

came with the post-modernist way of designing cities. Rogatka and Romos Ribeiro, who are part of the Urban Planning Institute of Slovenia, give the history of the compact city theory as “a reaction to the great increase in sprawling suburbs after the Second World War” (2015, p.122). It started off as a city renewal initiative that promoted, “dense settlement patterns with access to public transport, plethora of dwellings, business development and public services” (Hofstad, 2012, p.9). The OECD (2008) alerts planning institutes the need to conserve resources as by 2050, 86% of population in the 35 OECD countries will be located in cities. The key characteristics of the compact city are the proximity and density. The urban structures are also closely linked to the transport system. It also hopes to achieve more accessibility for those looking for local services and also for employment opportunities.

The compact city also is also perceived as a fair compromise between suburbia and ultra-high density mega cities. Salingaros (2006) critiques suburban sprawl as having become a “self-generating, self-fulfilling machine that produces an enormous amount of mechanic movement but not conducive to natural human actions or need” (p.2). In turn the high urban structures are perceived as having heavy energy reliance which rely on the assumption that global oil price will remain cheap (Salingaros, 2006). He commends compact city for the less rigid zoning. The compact city therefore becomes the intermediary between the two urban concepts.

The compact city has been pride as the most sustainable city development. The OECD (2012) which reports extensively on city development initiatives supports this view by adding that, compact city policies may help in achieving urban sustainability initiatives. The Compact City is perceived as offering significant benefits in terms of economic, social and environmental sustainability. This will be an interesting dynamic to be able to see to play as it is in direct contradiction to the environmental impact caused by the aviation industry. The compact city model is commended for being able to contribute economically and also stimulate economic benefits based accessibility to local services and the smaller space in which things occur imply that there is better access to infrastructure. Hofstad (2012) affirms the link of compact cities and sustainable development by identifying the compact city as a response to sustainable development.

Rogatka and Romos Ribeiro (2015) affirm that we should not assume that the compact city is referring to the physical size of the city but rather the physiological compactness by stating

that, “a compact city does not mean a small city... a compact city means a well-designed city and a well utilized space for people” (p.129). Kasarda (2013) is very clear on the idea that the proximity and impact of the aerotropolis is within the 30km radius. This definition could give cities such as Ekurhuleni food for thought to contextualise the model.

Ideologically, the compact city is supposed to become an all-encompassing compact for all urban practices. It is supposed to have a positive impact on all realms of society within a city including social, environmental and economic impacts (OECD, 2012). However there appears to be a degree of favouritism or cherry picking when it comes to the elements taken into consideration. Hofstad (2012) highlights that the compact city theory does take all impacts into account but at the same time not all hold the same level of priority. There also remains no single comprehensive model that applies to one city (OECD, 2012). Economic elements take precedence and the environmental and social elements are not strong but they remain still evident (Hofstad, 2012).

With this level of prioritization that is occurring in cities, environmental aspect is one that is being observed as being least considered in compact city planning. The disadvantages of the compact city that have been highlighted are the noise levels and higher emissions within the city due to the typically densely developed nodes with a mixture of functions (Hofstad, 2012). In the case of the aerotropolis, this will even be enlarged by the higher noise pollution and air pollution from being located in close proximity to an airport. Salingaros (2005) argues that the anti-urban features of modern cities have taken away the sustainability of the compact city. The focus on people has parted from the city model and there has now been an emphasis on fast movement facilitated by highways, which takes away from the traditionally pedestrianised and low speed nature of urban centres (Salingaros, 2005). In the context of Ekurhuleni there is also a strong emphasis on creating highways that will allow for the free movement of cars and even evident with the upgrade of the R21 along the R21 corridor, the planned Thami Mnyele Corridor connecting Tembisa and Vosloorus and Thelle Moerane Corridor connecting Vosloorus and Nigel (Ekurhuleni, 2016).

Michael Neuman, who is an associate professor in urban planning at Texas AM University, founder and chair of the Sustainable Urbanism Certificate Program, does not see the perceived relationship between compaction and sustainability and believes that sustainable city development principles run counter to the compact city principles. He believes that

compact city has one fundamental respect - which is just focusing on the process of creating the city rather than the form the city will take (Neuman, 2005). He also questions the impact it will have in terms of the proximity and reduced trip or mobility in other trades. He elaborates that specialist industries will remain within the periphery which will always require travel independent of the compactness of the city (Neuman, 2005). Ekurhuleni will need to consider that specific industries will always be place specific; be it for operational ease or access to production. Even with the compaction of the aerotropolis by terms of size, there are still going to be industries which would not be appropriately placed within this context.

## **2.10 Visiting the Core of the Aerotropolis Theory**

In the promotion of the global city region, Ekurhuleni has adopted the idea of the aerotropolis. Gauteng and Ekurhuleni (2015, p.7) distinguish the aerotropolis from the traditional metropolis as having dynamic links to global markets. The aerotropolis in Ekurhuleni is ambitiously expected to create over 581 000 jobs by 2050 and attract extensive global investments into South Africa (Gauteng and Ekurhuleni, 2015). The aerotropolis concept is widely acknowledged to have been coined by John Kasarda. It is viewed that the aerotropolis concept may be a refinement on work that had been previously done by McKinley Conway in unfolding economic significance of airports (Toole, 2011). Kasarda (2008) does acknowledge that the airport city concept originates from McKinley Conway's 1977 book, 'The Airport City and the Future Intermodal Transportation System'. In a nutshell, this book described how aviation-linked commercial development would evolve at and around airports, including logistics facilities, office parks, retail complexes, and residential airparks (ibid,2008,1). With both the founder and the driver being American citizen, it is evident that the United States of America was in the forefront of the development growth of the concept (Kasarda, 2008). In the present day, the aerotropolis has spread widely in developed countries first moving from Europe up to the Asian and Middle East countries. It is now estimated that there are about 42 aerotropolis worldwide and list continues to grow with developing countries also adopting the concept (Kasarda, 2008).

Figure 3 below shows the model as conceptualised by Kasarda on how airport cities are formed. The city radiates from the core as airport forms the heart of the city.

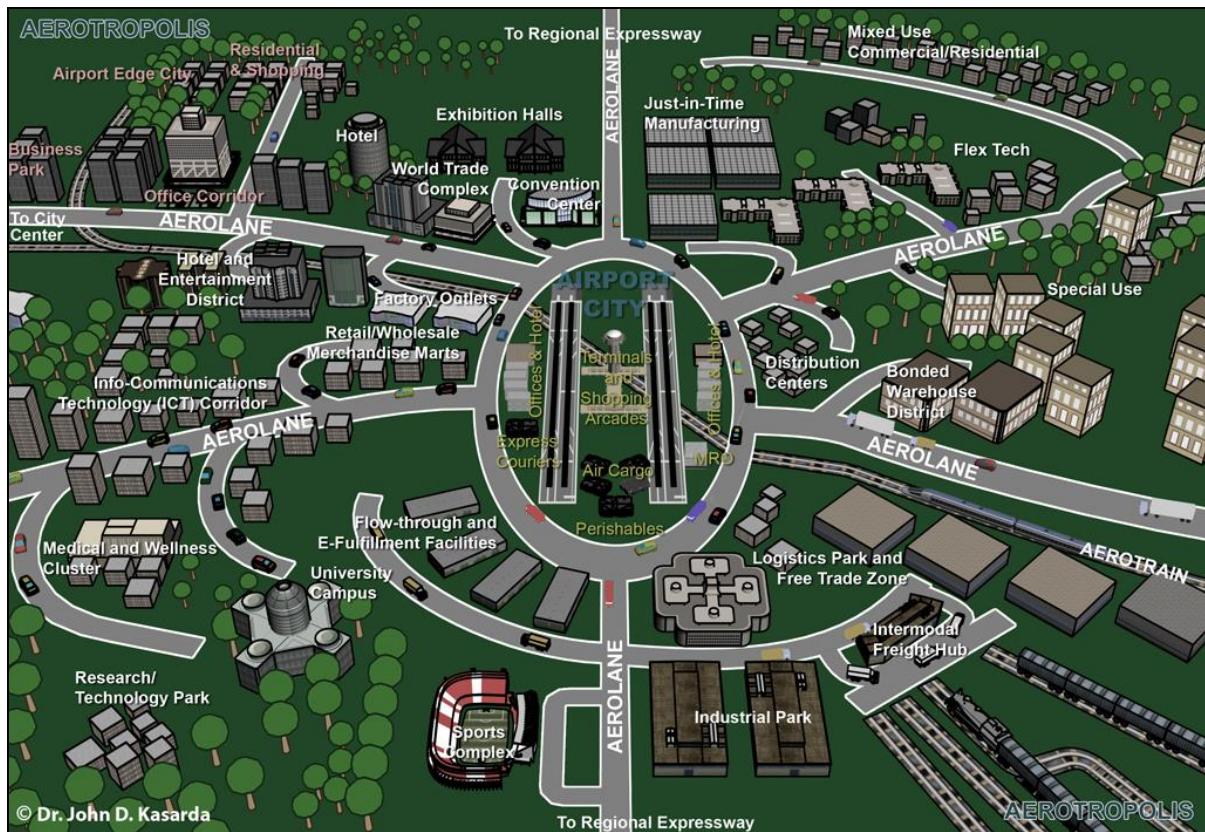


Figure 5- John Kasarda's Conceptualisation of the Aerotropolis idea with the Airport City Core

Source: Appold & Kasarda, 2014

In present age, the theory of the Aerotropolis has been taken to the fore by globalisation. “Led by a convergence of aviation, globalization, digitization, and time-based competition, the worlds of commerce and supply chain management are rapidly changing” (Kasarda, 2005, p.2). Cliff Hague, who is a Professor of Planning and Spatial Development at Edinburgh University and had previously chaired the Built Environment Forum in Scotland and the Commonwealth expert group on urbanisation has observed the diminishing national and regional boundaries of trade that have been a result of globalisation (Hague, 2006). The emergence of the knowledge economy has also placed to the fore the need for fast tracked delivery of good as well as the agility in services rendered. This is viewed as having a significant competitive advantage and it at times superseded the need for good quality or lower prices within businesses currently (Kasarda, 2000). The Aerotropolis therefore has become the preferred node for time sensitive and or perishable products that require the seamless connection and network required by these businesses (Kasarda, 2013).

The Aerotropolis proves to be a significant catalyst for job creation. The Aerotropolis is viewed as playing a dual role in providing support through aviation for businesses close to

the airport and in turn in drawing these businesses within close proximity to the airports also stimulate the increase in airline travel and cargo (Kasarda, 1998).

Kasarda (2008) informs using Netherlands' Aerotropolis which is linked to Schiphol International Airport that, "over 60,000 people are employed at Schiphol, which integrates multi-modal transportation, regional corporate headquarters, retail shopping, logistics and exhibition space to form a major economic growth pole for the Dutch economy" (p.10). Countries that do employ the aerotropolis model are also focusing on the economic contribution it will provide. Kasarda (2008) also attests that airports are undergoing a significant transformation, taking on commercial functions previously reserved for private enterprise and spatial forms previously reserved for cities.

Aerotropoli that have been developed included office centres, hospitality businesses and retail in addition to entertainment venues at passenger terminals. Airports have incorporated other aviation-oriented commercial activities such as hospitality, office and retail complexes, conference and exhibition centres, and time-sensitive goods processing (Kasarda, 2009; Hong Kong Airport Authority, 2013). Kasarda (2008, p.13) views that the "economic impact has been measured up to 60 miles from some major airports". These mixed use commercial hubs promise to offer global access to technology which is critical in the knowledge economy. Kasarda (2008) further envisions that "advanced information processing technologies and multi-media telecommunications systems served by high-density fiber-optic rings and satellite uplinks and downlinks will evolve around airports, instantly connecting companies to their global suppliers, distributors, customers, branch offices and partners" (p.31).

The aerotropolis model appears to furthermore appeal to customer's needs. This is based on an observation that airports are able to capture travelling customer over and above the local customer. This was also observed in the Kuala Lumpur Airport in Malaysia in which the retail, office and leisure Gateway Park is able to attract both the locals and the travelling market (Kasarda, 2014). Although there is a schematic model of how the aerotropolis precinct should look, as seen in figure 3, each city is also able to tailor make aerotropolis requirements according to customer base. This level of customer centricity is crucial in business success and businesses that are customer centric tend to be 60% more profitable than those not focused on their customer (Adobe, 2015). This level of city tailoring is able to



provide and give each city a unique brand and competitive advantage that is still anchored in the idea of aviation industry being the key link to all activities.

Kasarda acknowledges that in order for an aerotropolis to function well, the planning will need various stakeholders. Those which have been identified for optimal results the bringing together of airport planning, urban planning, and business site planning in a collaborative manner, so that development is economically efficient, sound design principles, and environmentally and socially sustainable (Kasarda,2008). This becomes a critical element as Schlaak (2010) cautions that lack of collaboration amongst key stakeholders including planes, government, private investment and airport owners has led to some airports left without a unique identity and meaningless sprawl rather than being the bustling multimodal and integrated hubs. Peneda, Reis and Macário (2011) add another dimension in functional synergies required in the Aerotropolis - identifying synchronization of infrastructure, land use, marketing and branding and spatial planning beyond the airports as being vital.

Many types of physical infrastructure should be in place to enable airports to meet their new dual roles of transportation hub and regional catalyst for economic growth (Keast, 2012). These pins down heavily on the requirement for hubs like Ekurhuleni to be able to have adequate infrastructure and access to move goods within these areas easily. The aerotropolis is embedded on integration and offering different mobility options with the key objective of offering ease of movement and convenience to users. The aerotropolis is optimised by corridor and cluster development, wide lanes and fast movements. In other words, form follows function. Kasarda (2008) explains that “airport expressway links (aerolanes) complemented by airport express trains (aerotrans) bring cars, taxis, buses, trucks and rail together with air infrastructure at the multi-modal commercial core (the airport city)” (p.14). Overall, those who hailed this mode of development thought of it as forward thinking and an almost futuristic way to reshape modern cities.

Those whom are sceptical about the aerotropolis model frown upon it as a concept derived out of a capitalist system without any consideration of the social consequences of the model. Bridger (2015) whom has recently formed a collective by the name Group Against the Aerotropolis Movement (GAAM) has lambasted that,

The aerotropolis may well result in economic growth, but local small and medium sized enterprises are marginalised as the development serves the growth and profits of

transnational corporations including aircraft manufacturers, airlines, oil companies, construction, concrete and tarmac firms, security firms, international tourism and hotel consortia and global retail chains selling global brands (Bridger, 2015, p.2).

The exact characteristic of the model attracting both local and travelling customer becomes the very sore point of this model. An example of Canada's Edmonton Airport with a mega store mall located in the landside threatens to drain the local economy as local residents enjoy better access into the aerotropolis rather than supporting the local stores within the metropolis (Bridger, 2015). MIT research, as seen in a Huffingtonpost media article, highlights the economic exclusion of the aerotropolis as it reflects that over half of the Fortune 500 headquarters are located within 10 miles of U.S. airport hubs. This compares to 29 percent of all U.S. business establishments (Kasarda, 2015). Bridger (2015) further argues that aerotropolis creates "corporate dominance and profits, resulting in widening inequalities, worsening poverty and ruination of ecosystems" (p.4).

The ideal area to develop is likely to be in a green field due to occurrence of resettlements in brown field developments. Greenfield types of urbanisation, as witnessed in aerotropolis form of developments, encourage planning ills such as urban sprawl (Bridger, 2015). Consequently, in the event that a brown field has been identified, there seems to be displacement and lack of social justice to the community. This was one of the complications identified in the development of the Hong Kong Aerotropolis development. Community was resettled without any form of compensation. Kasarda also alluded to the fact that due to China's status of being an autocracy it often exempts the state not face the public and environmental deliberations that are common in South Africa which is a democratic state (Toole, 2011). It therefore leads to the marginalisation of communities that are governed by these types of political systems.

Generally, the strong focus on corporate globalisation within the aerotropolis model leaves those the local community as observers in the project. Mostly, airport authorities and foreign investors are given high degree of autonomy of how it is best to strategically formulate projects of significant economic impact (Bridger, 2015). It will be critical to assess community involvement from the residence interviews within Ekurhuleni area on the Aerotropolis project.

Toole (2011) who is also a co-editor of an African Magazine on cities, *City Scapes*, also highlights the community exclusion in Ekurhuleni by depicting the impact that the aerotropolis would have on informal traders and small enterprises. He shares his view that the aerotropolis will have no benefit for those who participate in the economy in the lower levels. Toole (2011) also feels that the true value of the aerotropolis contribution to trade may be overstated. This is highlighted by journalist and co-author of the aerotropolis visionary book, *'Where we will live next'*, Kasarda with Greg Lindsay states that between 1975 and 2005, global GDP rose 154%, while world trade grew 355% and air cargo grew by 1395%, these growth rates should be placed in the context as with the \$3 trillion traded globally, only 1% of cargo is transported by flight (Toole, 2011). This reflects that the world still heavily relies on other forms of cargo carriage to support trade. This should also serve as a lesson to Ekurhuleni that industry targets are very specific for the aerotropolis model.

The airport city changes the environment immediately surrounding the airport. It serves as the multimodal, multifunctional central business district of an extended aerotropolis, anchoring aviation-enabled trade in goods and services and driving it throughout the broader metropolitan region (Kasarda, 2015). The product in which are main focus within the aerotropolis is predominantly perishable products and those which are time sensitive with typically having high value to weight like in the form of technological gadgets (Kasarda, 2015).

By virtue of being anchored around the aviation industry there is sustainability and environmental issues that have come to the fore. The aviation industry is an energy intense industry with heavy reliance of fossil fuel in the form of jet fuel. The aviation industry is being the second largest transportation sector after collective road transportation (World Business Council for Sustainable Development, 2004). Even with aircraft technology improving fuel efficiency, the 1% fuel efficiency improvement will be surpassed by the 5% annual growth of industry (Kahn Ribeiro *et al*, 2007). This carbon intensive form of transportation becomes a general concern from energy conservation and also the quality of life threats as aviation also creates significant noise and air pollution.

Bridger (2015, p.5) restraints that,

Aerotropolis projects also escalate the local environmental damage inflicted on people and the environment surrounding airports: noise and a cocktail of health damaging

pollutants emitted by aircraft, additional air pollution from high levels of road traffic, community severance due to road building and decimation of birdlife in order to reduce the risk of bird strikes.

The aerotropolis, which is an urban renewal programme at a large scale may be considered to be a mega project. Mega-projects are defined broadly as projects which transform landscapes rapidly, intentionally, and ways, and require coordinated applications of capital and state power profoundly in very visible (Gellert & Lynch, 2003). Historically these schemes have been criticised for their negative environmental and social consequences. They have been specifically attacked for displacing low-income and ethnically different populations (Orueta & Fainstein, 2008). The social relations on the worksite are hierarchical, with differentiation among grades of workers reinforced by ethnic, national, gender, and/or racial stereotyping (Gellert & Lynch, 2003).

### **2.11 Relevance of Integration Theory and Clustering within an Aerotropolis**

With the emergence of the aerotropolis, the understanding of optimal economic spatial distribution of industries has become crucial. Cities have been acknowledged as spaces with complex and diverse activities in which diverse social groups exist (Fincher & Jacobs, 1998). The variety available within cities has been developed to stress the independent role of diversity in enhancing economic competence (Quigley, 1998). The global world now requires an integration of services in one area for responsiveness to business needs. The driver of these forces lies within the connectedness of people and creative means by which people from different part of the world are able to integrate. This has led to the growth of clustering and an awareness of the need to assemble developments in order to boost economic success. Firms in clusters tend to be more innovative as they have better access to still largely tacit knowledge (Maskell & Malmberg, 2007). Over and above this, theory encourages plants to locate near to each other because of agglomeration spill overs or local amenities (Maurel & Sedillot, 1999). This results in solid growth of leading firms and the entry of new firms which drive further industry.

In most industries, scale economies, which result from the spatial concentration of firms in the same industry and the effects of localization economies, do exist (Nakamura, 1985). This rapid look on models of location choice stresses the importance of interdependence of firms'

location choices, in particular through spillover mechanisms that contribute to centripetal forces (Maurel & Sedillot, 1999).

Quigley (1998) reflects that the, “economies of scale in production give rise to higher density living and commuting arrangements we call cities” (p.136). The concept of clustering has even resulted in the coining of the term – ‘external economies of scale’, which go beyond looking at organizations internally. This term explains the manner in which firms are able to achieve cost savings when they operate in the context of the larger economy. Rysman and Greenstein (2004) however reflect on the standard models in market completion; that firms tend to differentiate from each other as such that they tend to disperse in the production of space. It is reflective that even with market competition traits, it is the macro economical external economies of scale that still attract companies within a similar space. Planners Maurel and Sedillot (1999) concur with this analysis as they explain that “this tendency towards polarization is reinforced by external economies that create interdependence between firms’ location choice” (p.577).

Rosenthal and Strange (2001) noted three fundamentals of agglomeration that have been most prominent in the theory as: knowledge spillovers; labour market pooling; and input sharing. These are generally caused by the agglomeration effects of either localization economies or urbanization economies. The key focus of analysis will be the urbanization economies model. The localization is defined as the advantage firms have in the same industry, and urbanization economies that are common to all firms (Maurel & Sedillot, 1999). The urbanization of economies accrues to a firm from the level of overall economic activity spatially concentrated in an area (Nakamura, 1985). Ekurhuleni is seeking to rather focus on transforming into the aerotropolis in which the model focuses on diverse industries located within the same area. Even with the formation of a cluster unit it is still encouraged that the Ekurhuleni aerotropolis cluster region still interact with industries outside the cluster. Trippel, Grillitsch, Isaksen & Sinozic, (2015) attest that, “Firm heterogeneity can be increased through learning with non-cluster firms both locally and globally” (p.2028). Therefore, the learnings of Ekurhuleni that once formed the Aerotropolis should still seek knowledge beyond the area in order to enhance its competitiveness, in terms of the overall effects of the model.

It has been analyzed that urbanization economies, although still important, have lesser effects on productivity (Rosenthal & Strange, 2001). The form of economies arising from localization economies of scale, due to spatial concentration of activity within industries, is of particular

importance as they tend to yield higher productivity (Rosenthal & Strange, 2001). This may be as a result of Nakamura's observation that firms involved in light industries largely experience more urbanization economies in productivities while localization economies are more substantial to firms in heavy industries (Nakamura, 1985). This reflects the requirement for clear deliberation on the scale of businesses within the realm of the aerotropolis to yield the best productivity levels within Ekurhuleni. Already, the O.R Tambo Industrial Development Zone (IDZ) opportunity identified is creating a Jewellery Manufacturing Precinct. This precious metal beneficiation focused IDZ will incorporate incentives to attract international business and will focus on the following industries;

- Manufacturing of integrated circuits;
- Computer hardware (chips, pc boards and storage devices);
- General Electronics; Telecommunications Equipment; and
- Avionics & Defense Equipment (GGDA, 2014, p.46).

As the aerotropolis will be a transport orientated development, it is noteworthy to reflect that it is perceived that transport has a significant role on the choice of location for industry. The geographic scope of these effects suggests state-level transportation modes i.e., train, truck, and barge. Transport may play an important role in the location patterns of industries sensitive to shipping costs for production and output to market (Rosenthal & Strange, 2001). This becomes a vital lesson for Ekurhuleni as industries that are placed within the area will need to see advantages in being located close to the airport.

Transport integration was one of the areas identified as being the strategy to the successful aerotropolis. The strategy to develop the Aerotropolis required a complete integration of air, sea, road, and rail transportation modes (Swanepoel, 2011). The zoning of the area will need to reflect the appropriate industries. This phenomenon may not affect more of the existing industries but rather those that are new of which the aerotropolis intends to attract. This may have an adverse effect on the overall agglomeration benefit. This would be due to disregard of the cluster's competitive advantage as its ability to generate new knowledge and exploit the existing knowledge, which results in innovative activity (Gancarczyk, 2015).

Integration theory has also been caught up in the transport sector. "Intermodal transport is transforming a growing share of freight distribution across the globe. Large integrated

transport carriers provide door to door services through a sequence of modes, terminals and distribution centres” (Rodrigue, 1996, p.4). Intermodal transport enhances the economic performance of a transportation system by using respective modes in the most productive manner (Rodrigue, 1996, p.4). Cervevo (2013) positions that, an efficient and well managed city, should minimize the need to travel and enable residents to spend time more productively. Due to the aerotropolis development in Ekurhuleni Metropolitan Municipality, the province plans for an interconnected transportation and logistics hub to enable effective mobility of goods and passengers within Gauteng; stamping the district and O.R Tambo’s position as Africa’s Gateway (Gauteng Provincial Government, 2015).

Rather than automobility planning, accessibility planning should be encouraged. Connectivity takes precedence over distance when accessing locational accessibility (Cresswell, 2010). Accessibility planning takes into consideration the social and sustainability element as accessibility takes into consideration the efficiency and convenience in reaching frequently visited destinations (Cervevo, 2013). Niu, Ding & Knaap (2014) concur with this view that access to public transportation appears to stimulate firm births in all sectors that were part of the Maryland clustering case study. Ekurhuleni plans to create access to a range of public transport systems; including the Bus Rapid Transit (BRT) and also the linkage of the three provincial airports of O.R Tambo International Airport, Lanseria Airport and Wonderboom Airport (Gauteng Provincial Government, 2015). Therefore, in the realm of accessibility, land use and transport have to be in synchrony.

Salingaros (2006), a mathematician who translates his work into architectural and urban theory, reflects the great oversight in which planners and designers at times refuse to distinguish between good and bad urbanism. He elaborates by stating that, “It is a great pity to see cities in the developing world try to self-destruct as they try to imitate the images of the dysfunctional western cities. Bangkok and Shanghai are destroying the traditional connective geometry of their cities” (Salingaros, 2006, p.7). He further advocates for less rigidity in zoning codes in seeking more integrated cities. He emphasizes there should be a shift in roads to determine developments. He gives an example that depicts that human interaction is more with activity rather than the journey by stating that, “Human beings do not link to a road: they link to work, school, church, medical facilities, etc...” (Salingaros, 2006, p.5). The aerotropolis model aims to create a mixed-use space which would hopefully resonate with the connective that some modern cities have lost.

There is also a requirement for an awareness of the difference in social groups within society. Fincher and Jacobs (1998) reflect concern that the integration theory at times may be negligent to the diversity of human interactions. Although the Aerotropolis is focusing on yielding better economic opportunities, the human and cultural diversity should not be neglected. The diverse nature may contribute to the growth of the city. Heterogeneous features of modern cities enhance the natural growth and its competitive gains are not insignificant (Quigley, 1998).

Importance of upward and downward causation in specific stages of cluster evolution should take human agency into account. It is then important to realize that human agency has many forms. Individuals, (teams of) entrepreneurs and firms leaders are certainly of vital importance for the emergence, growth and transformation of clusters” (Tripp, Grillitsch, Isaksen & Sinozic, 2015, p.2039).

All stakeholders within the Ekurhuleni aerotropolis will become critical transformation agents. Overall, all the interventions within any development need the local government to be in the forefront on how they intend to build industry within the area. It is pivotal for local government to identify properties of these types of economies and to create industrial policies for stimulating the city or region (Nakamura, 1985).

## **2.12 Concluding Remarks**

The literature review reflects that Neo-liberalism policies are a recognizable force which has become intertwined with our daily lives. Globalisation has created a virtual network that forms a connection to all spatial forms. Faster modes of mobility have increased in demand in order to respond to the needs of globalisation. The most significant product of globalisation has become the need for cities to compete. South Africa has heeded the call with the formulation of GEAR. Competition has now led to the creation of new urban structures that are desperate to fight for their dominance.

The literature indeed reveals that it cannot be denied that there is a relationship between urban form and transport. The theory revealed that throughout the stages, there has been transport modes that influenced spatial patterns. These specific choices of mode however is seen to originate from an amalgamation of factors. With each era, the available technology, availability of resources and most efficient means of travel determining the choice. With this



backdrop, the aerotropolis is indeed a response to the changing dynamics of the urban environment. Even new technological advance in teleconferencing and other global communication technologies will not threaten the growth of aviation. Most telecommunications advances promote additional air travel by substantially expanding long-distance business and personal networking, a portion of which leads to face-to-face meetings (Kasarda, 2013b). The accessibility of air travel and the fast-moving pace as a consequence of globalisation will indeed result in the aviation industry having an impact on urban spaces of the 21<sup>st</sup> century.

The cities of the postmodern chapter are aggressive in nature. It is capitalist order occurring at a superfluous scale. They place a strong focus on those whom are thriving and there is mild regard on those who cannot maintain the fast pace of the rat race.

With all the theory that has emerged ranging from integration, clustering, compact city, competitive and global theory; the economic factor has taken precedence over all other spheres of planning. Cities are striving for economic competitiveness and Gauteng City Regions is Gauteng's response to global rivalry.

A world of paradox has been created. There is a creation of clustered environments that have fragmented social experiences. These much clustered environments are formed with tunnelled vision that does not consider power of regional collaboration. Trippel, Grillitsch, Isaksen and Sinozic, (2015) attest that, "limited appreciation that has been given thus far to the role played by the wider regional environment, the influence of factors at higher spatial scales and the ways by which agents and their activities impact the evolution of clusters" (p.2028). This may be influenced by the fact that many indicators of competitive sectors may be so aggregated; they heighten the appearance of competition and conceal collaboration (Begg, 1999).

On the second note of paradox, there is the concern on the maintenance of identities of cities while competitive cities claim to incorporate city branding as part of the planning instrument. Although there is reliance on the city branding to market places, the airport cities have now left most passengers with the 'sameness' in experiences. Walking through airports terminals globally gives the repetitive and connected experience with little feeling of uniqueness. Landing from one airport city to another does not offer a new essence of the area. The O.R

Tambo International Airport City has an even larger problem of being adopted to a fragmented city that has not figured its identity.

With the Aerotropolis being a product of global cities, it has placed strong focus on driving a strong economic environment and the creation of employment. However, it is critical to unpack the beneficial parties within this arrangement. The main body of companies located within the aerotropolis are transnational companies. The Ekurhuleni Aerotropolis Strategy trails a similar path and the scale of impact on local business may have been overlooked in the creation of these spaces. This instance reflects that the aerotropolis indeed may be following the global order driving even a greater rift of inequality and exclusion within its environment.

New urban environs have become a melting pot of different people. The literature reflected that improved economic opportunity will inevitably attract new people. This will indeed have a great impact on the on the social space order within the environment. Major cities have emerged for global capital, transnational labour and translocational community, thereby creating a new political environment and culture (Sassen, 2005). These cultural and political dynamics will be something that most of the old inhabitants are not accustomed. These may be the first products that are reflecting the creeping of gentrification and displacement.

The Aerotropolis model needs to focus more time exploring all the other elements that impact society. The dissatisfaction from social and environmental activists on the potential environmental impacts needs to be rectified. The aerotropolis, like the compact city model, has opportunity to offer a sustainable model. However, this requires planning to go back to basics. This requires the intrinsic focus on the intended person the space is designed. This space also needs to focus on all human experiences for enhancing the space. This model almost makes a fundamental error identified in spatial planning theory of disassociating physical space from the social space (Madanipour, 1996). Focusing on the physical form, and thereby the space that is optimal for economic generation. This approach will inevitably lead to some social complications within the environment.

Although globalisation has been reflected as denationalizing countries, government is still required to play a critical coordinative and managing role for policy shaping within cities. Cities need to ensure deliberate and well-structured governance frameworks. It is already

reflective that there are silent powers that have influence over government bodies for personal gain. Literature review has reflected that this influence may even come from the hand of transnational companies aiming to get good commercial arrangements from host environments. Therefore, the guiding framework and long term policies will assist the vision of cities so that there are diminished zones that could be influenced. The integrative and multifaceted city structures need a robust institutional framework and aim to maintain state sovereignty.

Airports have become an important aspect of world cities and the review has shown that the industry will continue to grow. With all the trials that face the aerotropolis, it cannot be ignore that planning needs a solution on how to conceptualise developments surrounding the airport. Therefore, the formation of spatial form around the airport is inescapable. Kasarda (2013b) affirms that some aerotropolis form deliberately and some spontaneous. It is therefore critical that planning is still in the forefront of offering solutions for this new urban space. The creating of an 'aerotropolis' impulsively may come with additional urban challenges that come with unplanned developments.

## **CHAPTER THREE: O.R TAMBO INTERNATIONAL AIRPORT WITHIN THE CONTEXT OF EKURHULENI METROPOLITAN MUNICIPALITY**

### **3.1 Introduction**

The previous chapter gave a review of how all the different theories interplay with the formation of space around the airport. This chapter will start off by giving an overview and the history of O.R Tambo International Airport as is the central focus to the study. It will then introduce the municipality in which O.R Tambo International Airport is located by enlightening on the history of Ekurhuleni Metropolitan Municipality. This will be done to explore the role of O.R Tambo International Airport within Ekurhuleni Metropolitan Municipality. In order to understand the function municipalities have, this section will also highlight guiding policies within different tiers of government that influence planning tools at municipal level. It will also focus on understanding the goal and visions that inform the Ekurhuleni Metropolitan Municipality.

The chapter will unpack the industries that drive the economic contribution of Ekurhuleni Metropolitan Municipality and also understanding the catchment area which O.R Tambo international Airport serves. It will then go into detail discussing the layout and businesses within O.R Tambo International Airport. It will also uncover accountable parties in decision making within O.R Tambo International Airport.

Focusing on a micro level, the study will at this point provide demographics of the activities that take place within the O.R Tambo International Airport precinct. It will also try to unpack the immediate economic industries and contribution of O.R Tambo international Airport. This section intends to shed light on the spatial projects and systems available within O.R Tambo International Airport. It will also touch on the transport plans and development plans and projects of Ekurhuleni Metropolitan Municipality.

Finally, this section will reflect on the relationship between Ekurhuleni and O.R Tambo International Airport within the proposed Aerotropolis Metropolitan Plan. Finally the chapter

will conclude by highlighting key observations and trends emerging from the case study on O.R Tambo International Airport within the Ekurhuleni Metropolitan Municipality.

### **3.2 History of O.R Tambo International Airport**

O.R Tambo International Airport (ORTIA) is the international and biggest airport in terms of passenger numbers in Africa (ACSA, 2015). It receives 20 million passengers for the airport which is double the size of the second biggest airport in South Africa (ACSA, 2014). ORTIA was opened in 1953 under the name Jan Smuts International Airport. It was at that point named Jan Smuts Airport after South Africa's apartheid era Prime Minister, Jan Christiaan Smuts (ORTIA, 2016). At the inception of the South African democracy, the elected governing liberation party, African National Congress (ANC), renamed it Johannesburg International Airport in 1994. In 2006 the airport was renamed to honour the memory of one of South Africa's national heroes and icons, Oliver Reginald Tambo (ORTIA, 2016). The now deceased Oliver Reginald Tambo was an anti-apartheid politician and also served as the president of the African National Congress (ACSA, 2006).



**Figure 6- Aerial View of O.R Tambo International Airport**

**Source: ACSA, 2016**

### **3.3 Location of O.R Tambo International Airport**

O.R Tambo International Airport is located within the Ekurhuleni Metropolitan Municipality in the province of Gauteng. It lies at an altitude of 1,694m above sea level in the Johannesburg suburb of Kempton Park (ORTIA,2016). Ekurhuleni has an approximate population of 3.35million inhabitants (see figure 8). It is still being forecasted to see a steady growth to 3.8million inhabitants by 2030 (Ekurhuleni, 2015). It is the second most populated

municipality within Gauteng, with the City of Johannesburg being the first, with 4.4million inhabitants in 2011 (Statistics South Africa, 2016). Exports from Gauteng are also concentrated in the City of Johannesburg and Ekurhuleni with the two municipalities contributing an estimated 80% of the total regional exports (OECD 2011). These cities are part of the Gauteng City Region which accounts for more than 33%of the economic muscle of South Africa (GCRO,n.d.).

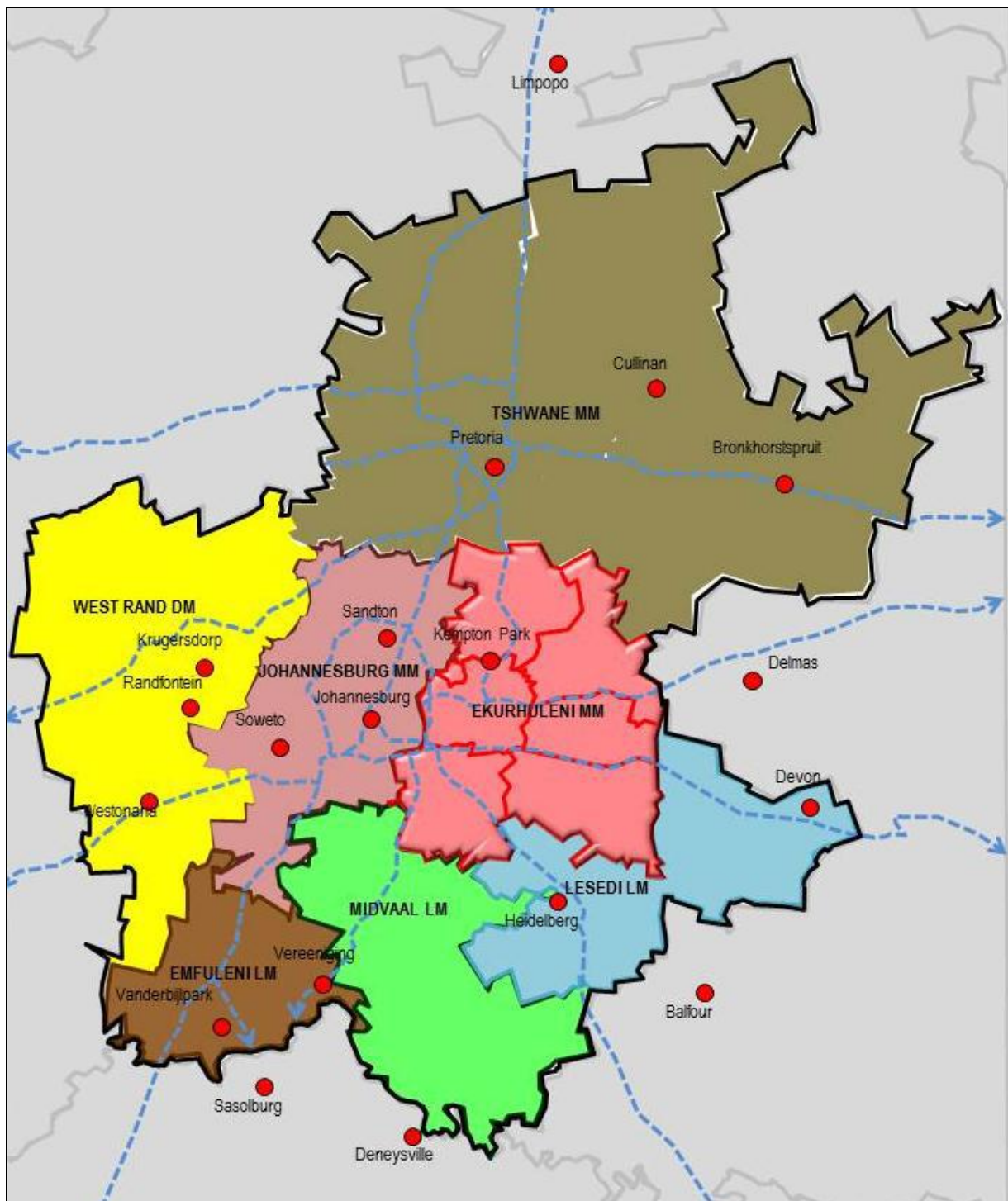


Figure 7: Reflecting EMM within the Setting of Surrounding Cities of Gauteng

Source: EMM (2015)

Above and beyond Ekurhuleni, O.R Tambo International Airport serves a number of the greatest central business districts (CBD's) within Gauteng. It is within a 30 km drive from Johannesburg and the Sandton CBD. Another significant city within the radius of O.R Tambo International Airport is the City of Tshwane Metropolitan Municipality. Tshwane is recognised as the political administrative capital of South Africa. As O.R Tambo International Airport offers the largest connections for passenger travel, it plays a significant role in facilitating movement to these business districts and the role of the airport may even go beyond.

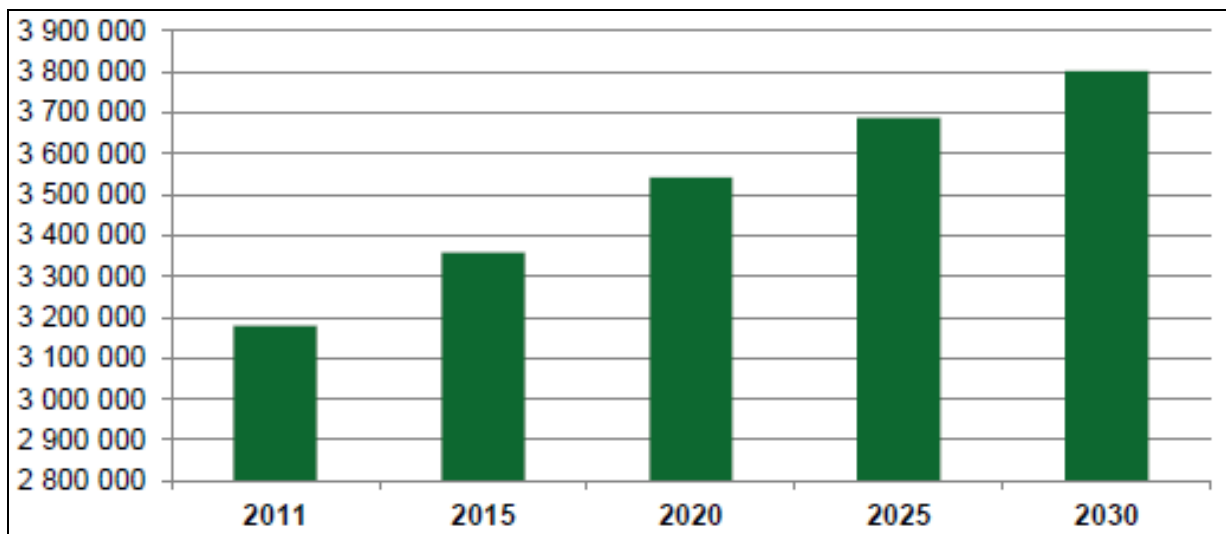


Figure 8: Showing Population Size and Forecast of EMM until 2030

Source: EMM (2015)

Overall, Ekurhuleni grew at a rate of 1,8% on population size between 2003 and 2013 (SACN, 2016). As reflected by the State of the Cities Network (SACN) (2016) migration census, the net migration trend reflects that in the period between 2006 and 2011, Ekurhuleni was the region that received the most in-migrations (see figure 9 below). The movement out of the city is significantly lower resulting in a positive net migration.



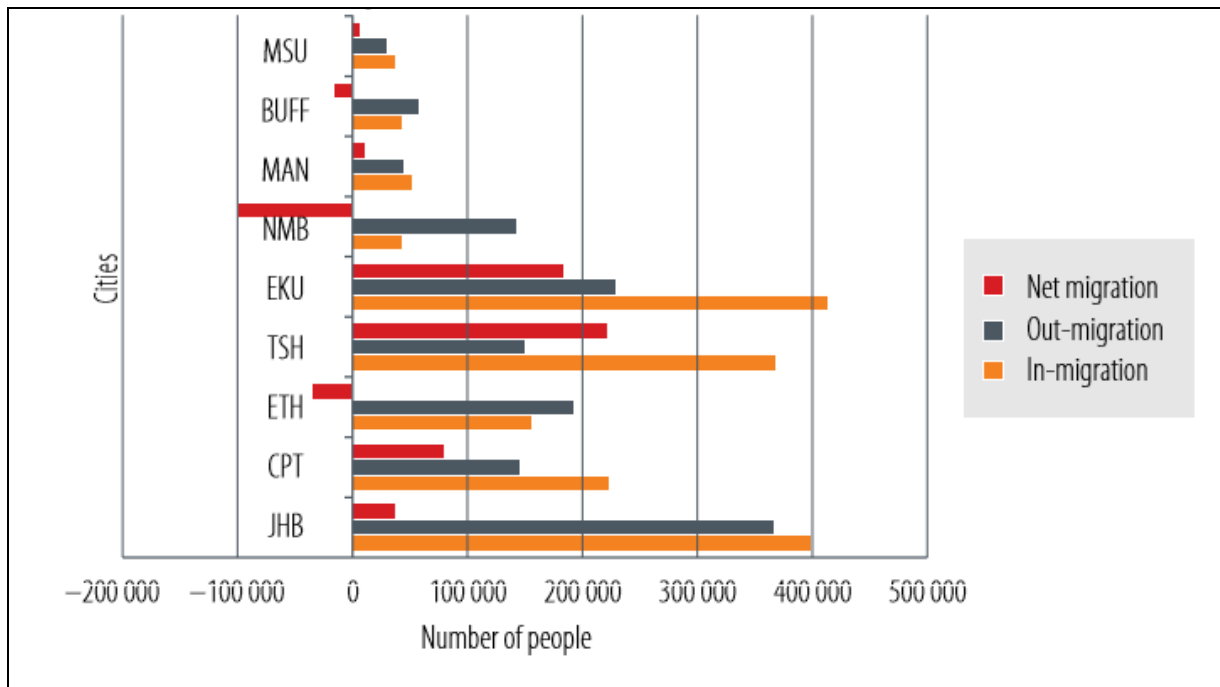


Figure 9: Immigration Figures for SA Cities from 2006-2011 (Census)

Source: South African Cities Network, 2016

Ekurhuleni has the second largest working population of 2,2 million, just being surpassed by City of Johannesburg with 3,2 million (Stats SA, 2013). It has experienced an unemployment rate of 28% (Stats SA, 2013). “The diverse nature of the economy of Ekurhuleni means that employment opportunities are likely to arise in a considerable range of sectors” (Gauteng Provincial Government, 2013, p.54).

### 3.4 Guiding Policies of Municipalities in South Africa

The Millennium Development Goals (MDGs) are the global initiative that influences the planning function of municipalities. The millennium development goals are formulated by the United Nations (UN) to try achieving improvement in global human rights with the stipulated date of attaining these goals being 2015. The general objectives were to alleviate poverty, eradicate disease and exclusion; whilst promoting gender inequality, lack of shelter, education and environment (UN, 2006). Since going beyond 2015, the United Nations has worked on the next set of objectives under the banner of, Sustainable Development Goals (SDGs) for 2030. Similar to the MDG’s, the SDG’s will have an impact on national policy formulation.

Equally at the national level, the National Development Plans (NDP) also highlight the country wide objectives and strategy for South Africa. To touch briefly on South Africa's National Development Plan – it is to eliminate poverty and reduce inequality by 2030 by creating an inclusive economy and building capabilities and strengthening state capacity whilst drawing energy from South African population (South African Government,2016). The National Planning Commission (NPC) also emphasized on the role in which transport led developments will play by expanding that “new urban development and infrastructure investments should be focused around corridors of mass transit and around existing and emergent economic nodes, applying internationally accepted principles of transit-oriented development” (NPC,2011, p.285). The NDP then informs the vision, which in Gauteng is mapped out as the ‘Vision 2055’ document.

The vision then translates into mechanisms required by the planning function of the province. Within the provincial sphere, there is the Gauteng Spatial Development Framework (GSDF), Gauteng Employment Growth and Development Strategy (GEGDS), Gauteng Spatial Development Perspective (GSDP), Gauteng Climate Change Response Strategy (GCCRS) and Gauteng's 25 year Integrated Transport Master Plan (GITMP25).

At municipal level, each municipality must provide for an Integrated Development Plan (IDP). “The IDP's were a contextual response to challenges facing the post-apartheid government – in particular to get a new system of local government working” (Harrison, 2006, p.186). The Spatial Development Framework (SDF) which focuses on the land use management systems are minimum requirements for the IDP contents (Harrison, 2006). The Municipal (SDF) will additionally need to be in line with the provincial spatial plans. In the case of Ekurhuleni, Gauteng Spatial Development Framework would be the reference tool (as seen in figure 10).

The SDF acts as a policy synchronization instrument offering framework to guide investments within the area which is in line with the international approach to spatial policy making (Harrison, 2006). Planning practices within South Africa reflect that there is influence and cooperation with transnational bodies which is representative of being part of the global system.

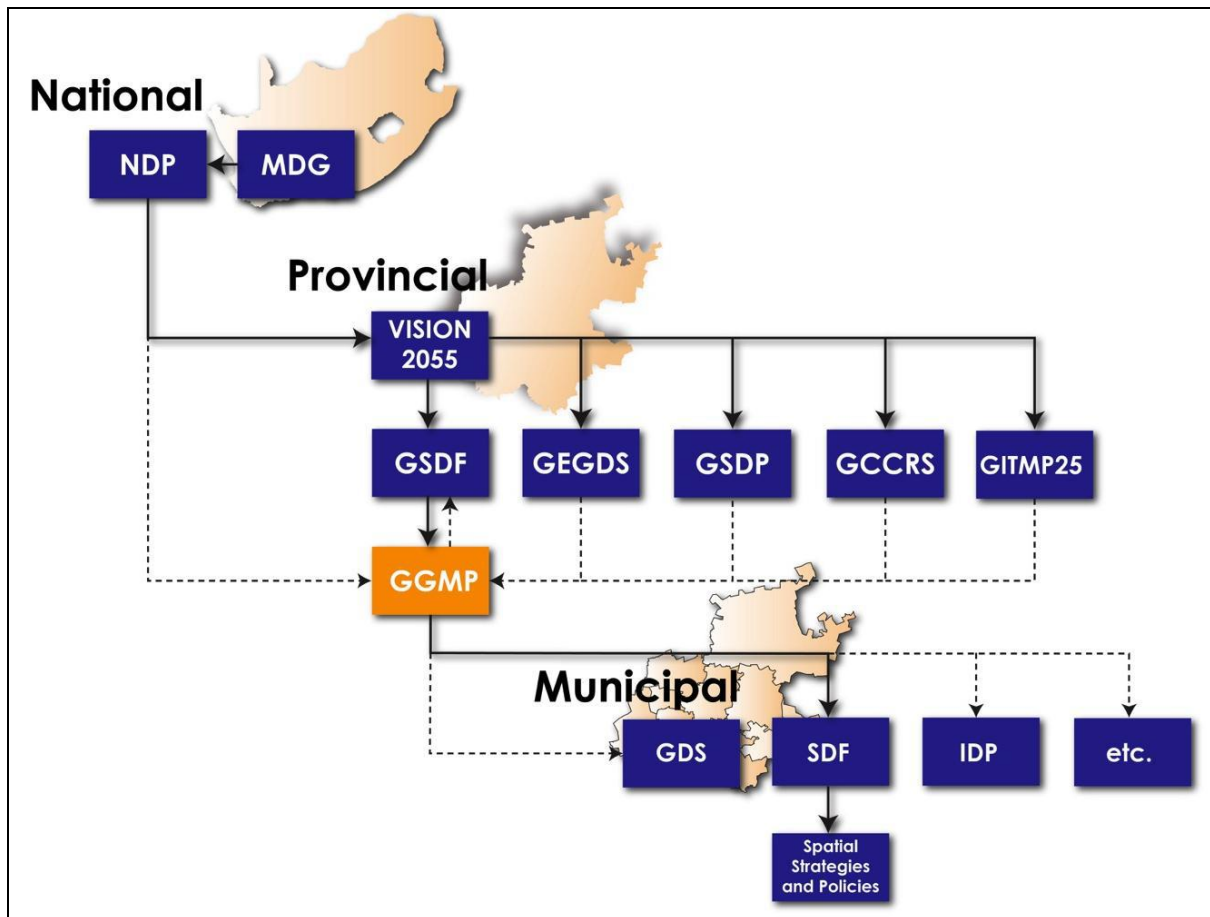


Figure 10: Relationship of Planning Instruments and Interaction within Different Spheres of Governance

Source: EMM, 2015

The relationships between the spheres of government in South Africa has been set with clear distinctions on the executive author and power in each dimension of planning (Constitution, 1996). Although there is effort to connect the bigger strategies that include the NDP and the MDG into the provincial and local government frameworks and strategy. The GSDP has historically been reliant on each municipality to provide the MSDF which would all then be consolidated into the GSDP (Gauteng, 2011; Gauteng, 2016). This ‘bottom-up’ and at times ‘top-up’ approach leads to fragmented space planning. This highlights the lack of an integrative body and holistic planning within the provincial level. The province also sees the different strategies and frameworks as independent policies which are not integrated into the GSDP. Though there is effort to create distinct and accountable area for each element of planning, it is still critical for cohesion to be formed in order to align all city plans for regional enhancement.

### 3.5 Vision and Goals of the Ekurhuleni Metropolitan Municipality

EMM intends to take a stepped approach in developing its vision until 2055. From now until 2030, EMM is focusing on being a delivering city. From year 2030 until year 2055 it focuses on being a capable city. From 2055 and beyond, the city will focus on becoming the Sustainable City. The reason for the gradual approach in achieving these goals is taking cognisance that the basic delivery of services with Ekurhuleni will still need to be resolved (Ekurhuleni, 2015). Once the city is able to deliver all services, it can then be able to build capacity. Eventually once adequate capacity and basic service delivery is met; the city then will ensure all sustainability deliverables is met.

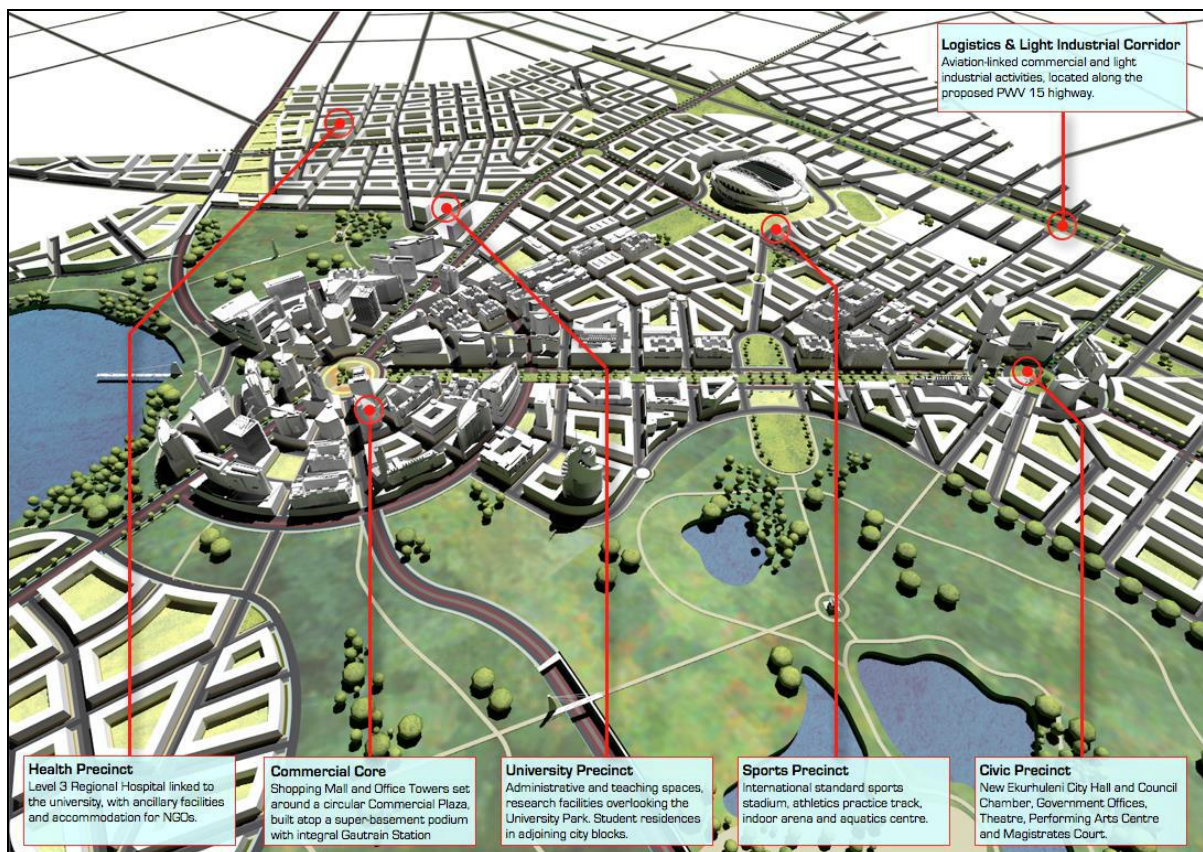


Figure 11- Draft Conceptualisation of the Ekurhuleni City

Source: Ekurhuleni, 2015

The municipality hopes to facilitate job generation from reindustrialisation (Ekurhuleni, 2015). The key focus of industries in South Africa has been mining. However, the decline of the gold market has made it pertinent for South Africa to diversify to other economies. This has resulted in the refocus into the manufacturing industries in the previous decades. The

spatial development framework of Ekurhuleni recognises that there have been previous efforts to industrialise the municipality hence it articulates requirements as reindustrialising the city. The city also wants to adopt effective cooperative governance and a more sustainable urban integration (see figure 12).

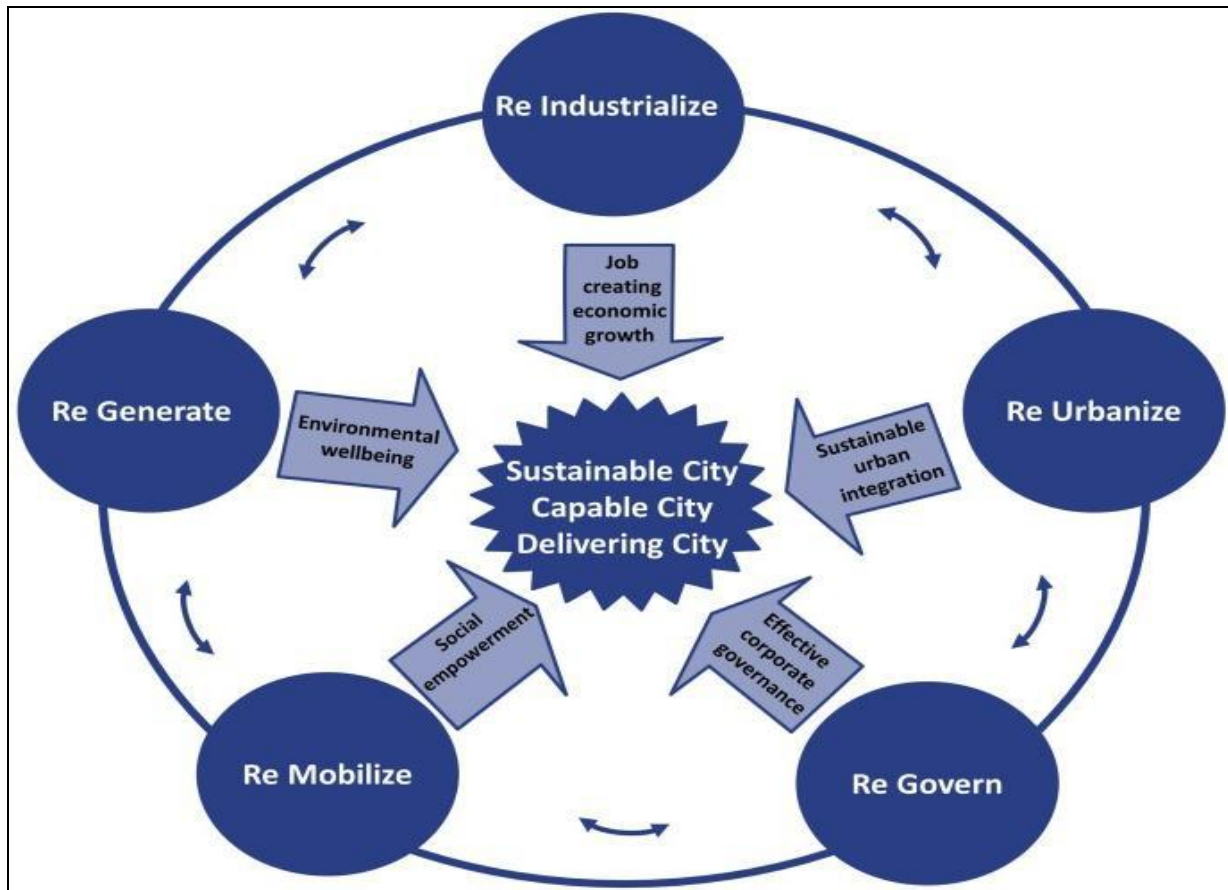


Figure 12- EMM Strategy and Vision for the City until 2055

Source: Ekurhuleni, 2015

### 3.6 Economic Contribution to the Region

“Often referred to as Africa's workshop, Ekurhuleni also has the country's largest concentration of industry for the production of goods and commodities” (Welling, 2012, p.1). “The comparative advantage of Ekurhuleni is its industrial and manufacturing base (called the industrial heartland of Africa)” (Ekurhuleni, 2015, p.16). In Africa and in South Africa in particular, the ORTIA gives the metro tremendous corporative advantage.

The largest sector within Ekurhuleni is manufacturing; which accounts for a R40billion economic contribution (Ekurhuleni, 2015). However, the manufacturing activity contribution has shrunk considerably in Ekurhuleni between 2004 and 2014, with a sector contraction by 9.3 percentage points (Gauteng Provincial Government, 2015). This reflects that

manufacturing still is a critical economic driving source (Rogerson, 2015). This has been acknowledged in the MSDF with special focus in creating additional logistic hubs and industrial areas to cultivate and revitalise this sector (Ekurhuleni, 2015). The second leading sector is the financial services sector. This sector is perceived as an area of potential and has emerged as one of the largest contributors to Ekurhuleni's economy. Gauteng Provincial Government has aired views that the financial sector is a "strong sector, which continues to grow, is also good for attracting foreign direct investment to the corridor" (2015, p.63).

The least performing sector is the agricultural sector with a contribution of R763 million in 2015 (Ekurhuleni, 2015). According to IHS Global Insights, the agriculture sector employs less than 1% of people within Ekurhuleni (Gauteng Provincial Government, 2015). Ekurhuleni's Municipal Spatial Development Framework (MSDF) is also focusing on zoning more areas for agricultural development so as to not place heaving reliance exclusively on one industry (Ekurhuleni, 2015). The vast land available and good weather makes further agricultural farming another opportunity to be explored in Ekurhuleni (Gauteng Provincial Government, 2015).

### **3.7 Transport Connectivity of Ekurhuleni Municipality O.R Tambo International Airport**

The connectivity of Ekurhuleni will be improving even further with the proposed Integrated Rapid Public Transport network (IRPTN). This Ekurhuleni IRPTN, as well as a new O.R Tambo Public Transport Network will offer even greater transport network of Ekurhuleni through the upgrades of national and provincial routes. The Gautrain rapid rail system has links the airport with Sandton and is extended to Johannesburg and Pretoria (ORTIA, 2016). Ekurhuleni is confident that it can, in fact be regarded as the transportation hub of South Africa (Ekurhuleni, 2015).

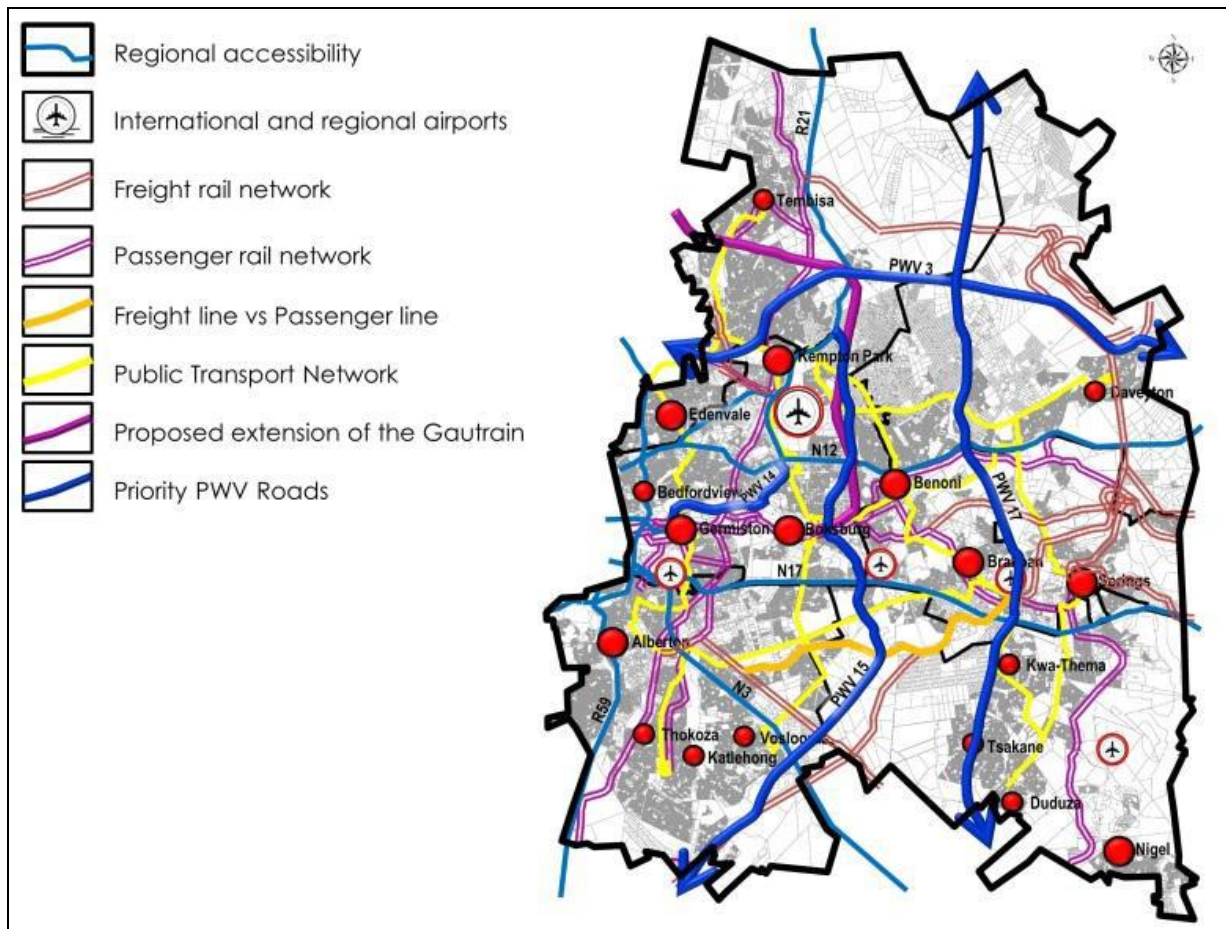


Figure 13: Planned Transport Networks and Existing Transport Infrastructure at EMM

Source: Ekurhuleni, 2015

### 3.8 Industrial Development within Ekurhuleni Municipality

Industrial developments within Ekurhuleni municipality are located within a 30 km radius from O.R Tambo International Airport. Within the immediate landside of O.R Tambo International Airport, there is also significant concentration of industries and economic activity with Pomona, Jet Park, Isando, Alberton and Boksburg (Ekurhuleni, 2015 and Gauteng Provincial Government, 2013). Ekurhuleni (2015) revealed the importance of noting the future spatial structure of Ekurhuleni and the Industrial Development Zone (IDZ) initiative being pursued by the collective effort of the Department of Trade and Industry (DTI), the Gauteng Department of Economic Development (GDED) and the Ekurhuleni Department of Economic Development”.

Tang (2008) views the Industrial Development Zones (IDZs) as a current phenomenon created to attract investment and increase exports adjacent close airports and ports with good

infrastructure and lenient policies for foreign investment in order to boost industry competitiveness. ORTIA is one of the four IDZs designated with the others being seaports along East London, Port Elizabeth and Richards Bay (Tang, 2008). This initiative will see the land which is located north east of O.R Tambo international Airport being developed to encourage new industrial activities. This affirms that the immediate environment of O.R Tambo international Airport will continue to have significant clustering of industrial activity within Ekurhuleni.

Some previous studies and efforts were done with the emphasis on reindustrialising Ekurhuleni. Some targeting to encourage the far-reaching areas of the municipality, to also contribute economically. Such projects included the Wadeville-Alrode Industrial Corridor and the Industrial Revitalization Strategy for the Far East Rand areas of Nigel, Springs and Brakpan which was done in the year of the municipalities inception in 2000 (GGDA, 2014; Ekurhuleni, 2015). Ekurhuleni (2015) acknowledges that these two projects remain critical and can be translated currently in spatial and economic issues facing the municipality. Ekurhuleni remains in the top two exporting municipalities in Gauteng with the GVA of 190 (indexed to 100) for the year of 2013; which is 8.2% of national GVA share (Gavman,2016).

### ***3.8.1 Industries within Ekurhuleni***

Over and above being the industrial heartland of Africa in manufacturing, Ekurhuleni has a robust telecommunications business industry. This is due to Ekurhuleni being a convenient location for these businesses based on the connection and swift transport network with other parts of Gauteng through the freeway and railway linkages into other provinces. Welling (2012), believes that the integrated transport infrastructure, electricity grids and telecommunications would be able to compete with cities in the established countries. Ekurhuleni (2015) supports the views of Welling by expanding that “This corridor offers a myriad of investment opportunities in a wide range of sectors, including telecommunications and business outsourcing, import and export, manufacturing and processing, transport-related services, office and retail space and industries to agriculture, eco-tourism and conservation” (p.6).

Ekurhuleni is also the home of Rand Refinery Limited, which is South Africa’s only gold refinery (GGDA, 2014). As a result of South Africa still being resource reliant, it has been identified that Ekurhuleni should also try to leverage off this asset. The GGDA has identified



the Jewellery Manufacturing Precinct (JMP) being the industry that will differentiate and propel O.R Tambo International IDZ. The focus on transnational businesses and keeping the area competitive is also reflective on this planned precinct. The GGDA (2014, p.47) explains that, “JMP will comprise mainly of international manufacturers producing their jewellery locally - using local labour and outsourcing some of their manufacturing to local businesses - exclusively for export purposes”.

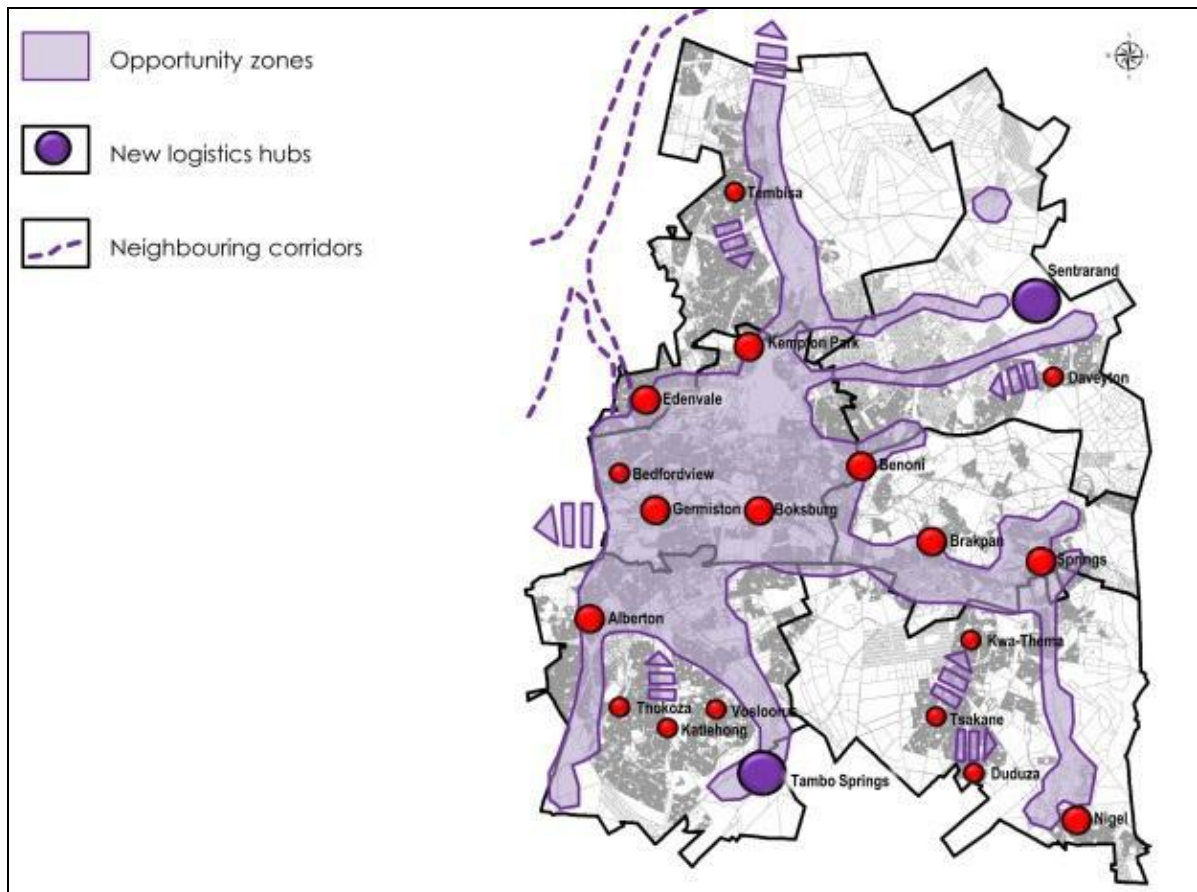


Figure 14: Reflecting Areas Identified as Opportunity Zones and Planned Logistics Hubs within EMM

Source: Ekurhuleni, 2015

### 3.9 ACSA - Ownership Structure and Management of O.R Tambo international Airport

O.R Tambo International Airport is owned and managed by Airports Company South Africa (ACSA). ACSA was established in 1993 with the purpose of it being to acquire, establish, advance, maintain, manage or operate airports (South Africa, 1993). Airports Company South Africa SOC Ltd is mandated to undertake the acquisition, establishment, development, provision, maintenance, management and control or operation of any airport, any part of any airport, or any facility or service at any airport normally related to the functioning of an airport in terms of the Airports Company South Africa Act No. 44 of 1993 (ACSA, 2015).

ACSA is majority owned at 74, 6% by the government of South Africa. As a result, ACSA is a state-owned company and is held accountable by the Minister of Transport (ACSA, 2014). ACSA manages nine airports within South Africa which account for the biggest airports including O.R Tambo, Cape Town and King Shaka Airport (ACSA, 2014). ACSA has been recently been reported to be in the process of concluding a dual management arrangement with Eastern Cape Department of Transport for Mthatha International Airport (Brophy, 2016). This deal will make the airport the tenth airport under ACSA's management.

ACSA still relies significantly in aeronautical activities for its revenues. Aeronautical revenues which are accrued from aircraft landing, parking and passenger fees accounted for R5,8 billion in revenue overall for the 2011 to 2012 financial year (ACSA, 2012). ACSA is however attempting to stimulate landside developments and growth. The non-aeronautical revenue is growing steadily year on year with it now accounting for close to 40% of its total revenue base (ACSA, 2012). The typical examples of non-aeronautical revenue that ACSA is trying to receive is mainly through property development and leasing, retail within main airport building, car parking to name a few. ACSA has made an effort to retain land that it owns and rather develop land within its airports (ACSA, 2014).

### **3.10 Hard Facts and Figures of O.R Tambo International Airport**

O.R Tambo International remains the most important Airport in South Africa and arguably in Africa with more than 50% of the country's passengers passing through the airport (ORTIA, 2016). In terms of passenger flows and throughput; it is also the airport that has drawn significant attention in South Africa after it was proposed to be the catalyst of the O. R Tambo is the busiest airport in Africa in proposed first aerotropolis in South Africa. As already acknowledged in the location section of the study, O.R Tambo International Airport is strategically positioned around South Africa's most critical economic and administrative centres.

The Airport still has capacity to grow its passengers to 28 million (ORTIA, 2015). For ACSA, this accounted for 52% of all passengers handled within its airports (ACSA, 2015/2016). The importance of O.R. Tambo International Airport as a cargo hub is clearly demonstrated by the fact that 82% of the total air cargo in South Africa with over 90% of international cargo is utilising ORTIA (ACSA, 2015).



Figure 15- Figure Showing Passenger Levels Year on Year for ORTIA

Source: ORTIA, 2016

O.RTambo International Airport handled a total of 350 000 tons of cargo in 2015 and it has a capacity up to handle 650 000 tons in annual capacity. Although the airport only employs 1000 employees, ORTIA is thought to generate employment for 50 000 people and over 100 companies operate from the airport in a form of hotels and the terminal retail malls (ACSA, 2015). ORTIA has a capacity to handle 53 aircrafts per hour and it has a commendable on time departure of over 90% (ORTIA, 2016). ORTIA serves over 50 airline carriers expanding across the globe with a touch point in almost all continents except for the Antarctica (ORTIA, 2016). Motor car parking is available for the convenience of the South African travellers who still prefer this mode of transport. The 16 300 available parking bays and free shuttle services are offered to remote parking bays like the long-term parking located outside the airport precinct (ACSA, 2015).

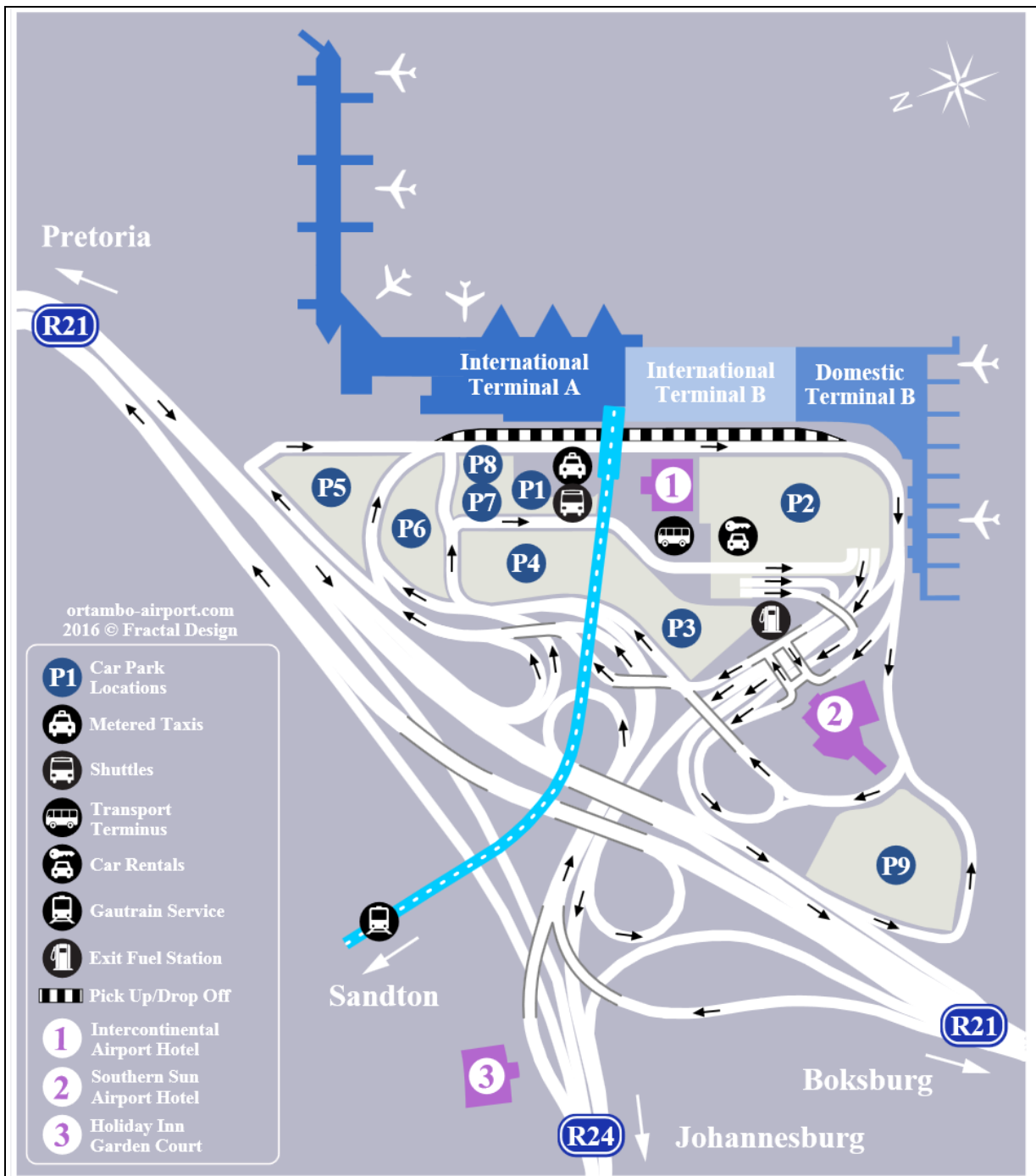


Figure 16: Showing the layout map of ORTIA. The domestic terminal has 90 000sqm of space with the central terminal being 110 000sqm. Total parking area can accommodate 16 300 cars.

Source: ORTIA, 2016

### 3.11 Interaction of ORTIA, Ekurhuleni and the Aerotropolis Masterplan

As an acknowledgment in the manner in which transport continues to influence the dynamics of city planning, Ekurhuleni intends to have its infrastructure development anchored by the potential economic spin offs the airport can bring to the country. The Aerotropolis's overarching objective is to reach economic prosperity through the creation of jobs

(Ekurhuleni: 2015) To meet this challenge, the Ekurhuleni Aerotropolis Master Planning strategy (2015) proposes five overarching principles of; creating strong communities, collaboration, concentrated transit orientated development, connectedness of people and good and creating a competitive city. All these principles are to be interlinked and considered holistically.

With this boundary-less society, connectivity and fast connections will be vital facilitators for businesses competitiveness in the global stage. As airports facilitate the movement of goods and people by air, these spaces have become an enabler for business and accessibility globally. The result of global economies and need for global competitiveness in the 21st century has given rise to creation of aerotropolis.

The Ekurhuleni Aerotropolis Master Plan has been created with similar characteristics as Kasarda's Aerotropolis Masterplan (Appold & Kasarda, 2014). The primary focus of the Ekurhuleni Master Plan focuses on creating economic opportunities within the municipality. It however also wants to encourage and support lively economy and thriving street life along its corridors (Ekurhuleni, 2015).

The Ekurhuleni Aerotropolis Master Strategy is anchored around five principles. These ideologies are interlinked and they inform the vision and become the sounding board in reflecting on fresh concepts that immerge from the city. The key values are anchored around increasing employment opportunities within the municipality and are as follows:

- **community:** build strong neighbourhoods that allow people to realise their full potential;
- **collaborate:** streamlined and effective governance that meets or surpasses global standards;
- **concentrate:** dense transit-oriented development that leverages and complements existing communities;
- **connect:** move goods, services and people efficiently and effectively; and
- **compete:** identify and amplify the value chains that South Africa can dominate in the global economy (Gauteng and Ekurhuleni, 2015, p.6).

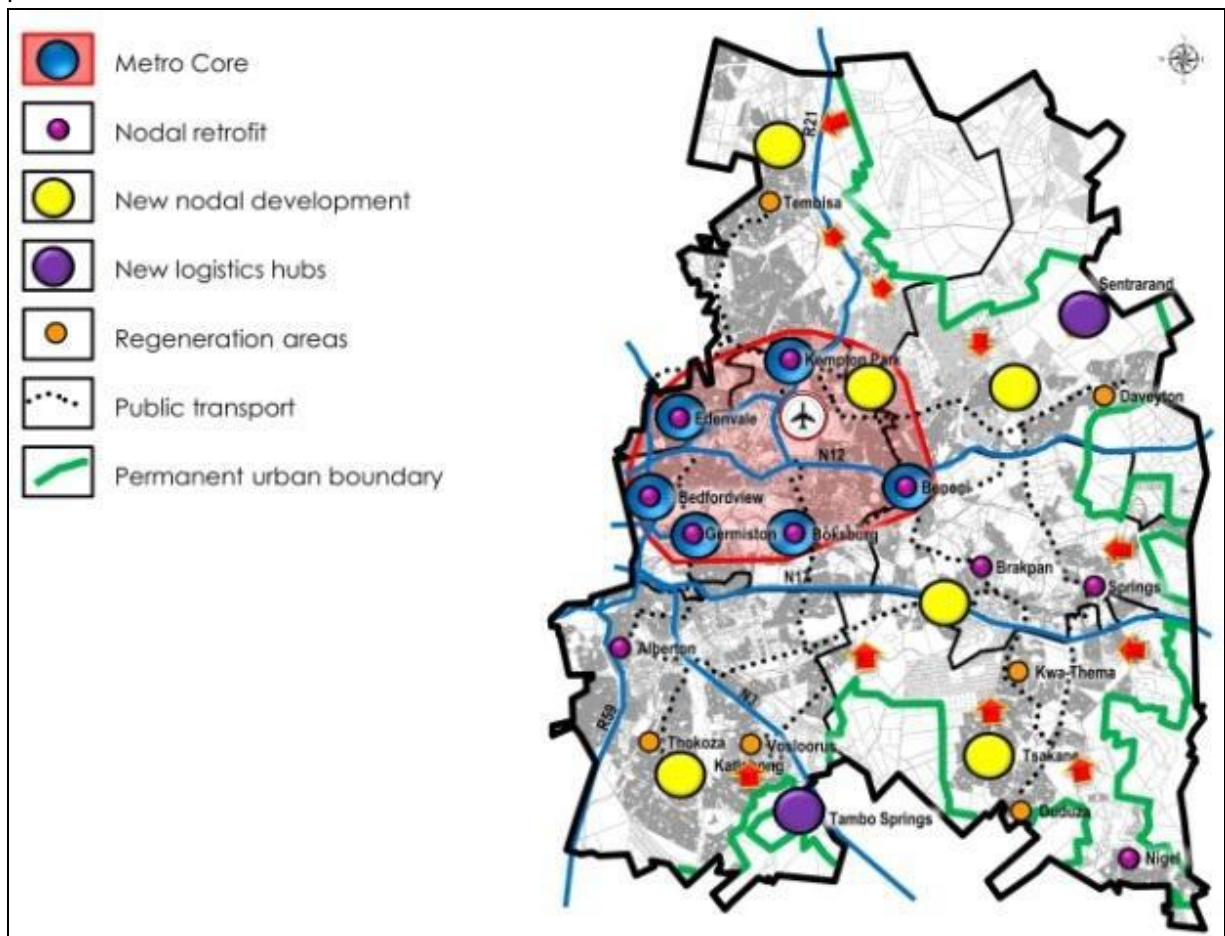


Figure 17: Planned Infrastructure within EMM

Source: Ekurhuleni, 2015

The plans within Ekurhuleni reveals that the city is revealing traits of the aerotropoli. The metro core reveals that it encircles the airport with a strong focus of nodal retrofit on cities located within this ring. Ekurhuleni is adopting strong corridors with some focusing on fast movements and the additional required logistics hubs and nodal developments spread to create and stimulate economic activity in areas outside the metro core ( as seen on figure 17).The city plans also acknowledge the need for regenerative initiatives within the townships in order to uplift activities within these areas. The retrofit within the older town also reflects that Ekurhuleni want to position and portray a different outlook than the current.

The transport plans within reveal that there is a strong focus on creating a network that will enable the city to be accessible. There is a use of multi modal transports is a typical feature of aerotropolis theory that were reviewed in the literature review. The plans reveal that Ekurhuleni wants to strive for connectivity with the encouragement of residents to use public transport. As also discovered in the literature, transport has a big impact on industries

sensitive to transport costs. It has been ensured that the newly planned logistics hubs have access to main regional roads and the freight rail lines. The central core of Ekurhuleni remains the dominant opportunity zones in the city.

### **3.12 Concluding Remarks**

The above case study demonstrates that Ekurhuleni is well on its way to transform into an aerotropolis. The strategies that have been adopted by Ekurhuleni Metropolitan Municipality reflects that they are placing significant focus on stimulating the economy within the area. This is perhaps motivated by the unemployment challenge that is currently facing the city. Ekurhuleni is aggressively driving its industries in order to ensure economic sustainability. The employment is greatly affecting the lives of city inhabitants. Ekurhuleni even scored below average for the Quality of Life for cities within the province (Gauteng Provincial Government, 2013).

It has similarly become vivid that O.R Tambo International Airport plays a noteworthy role in the developments in Ekurhuleni and beyond. O.R Tambo is of strategic importance provincially as well as nationally. At this time, Ekurhuleni is working hard on improving the competitiveness of the city. The implemented Industrial Development Zone reflects that Ekurhuleni is seeking foreign trade and hoping to attract transnational corporates.

There are also efforts to give the city refreshed brand and identity. At the moment, there is a sense of misperception on what is the exact identity the city is meant to embody. The provincial development agency focusing on the single identity of leveraging off from mining resource sector with the 'Jewellery Precinct' and the Municipality focusing on the transport orientated identity through the aerotropolis. City branding theory as seen in literature also cautions against the focusing on isolated areas to market city as it weakens the dynamism of the multi-dimensional city appeal (Kavaratzis & Ashworth, 2005).

It also incorporates global and compact city ideals of connectivity, collaboration and concentration. The MSDF plans indeed are taking into deliberation the presence of O.R Tambo International Airport in its space. When looking at the image of the planned infrastructure in figure 17, it becomes clear that centrality of the area is not determined by geography. It is orientated around O.R Tambo International Airport causing immediate areas surrounding the airport to be considered as the metro core.

The compact city model has been regarded in literature review as a sustainable development model. Although it was still criticised that economic health placed precedence on all other factors, In the case of the aerotropolis, the environmental factor will further be neglected. This city model will rely on a transport technology that is energy intensive. It will be noteworthy to observe if there will be any policies formulated to guard from environmental impacts.

Ekurhuleni is truly the multimodal connective area that is well on its way to becoming an aerotropolis. The city strategy represents the elementary stages of the aerotropolis. The area is striving to offer multi modal transport options within its city. It will be interesting to observe if the city will achieve its value of 'community' which is more inclusive and people-orientated. Reflecting from theory, the achievement of economic prosperity and inclusivity of general inhabitants seem to be trade off rather than a collective achievement.

Ekurhuleni plays a significant role in shaping the city environment. ACSA is also playing a strategic role in the creation of the Airport with the landside developments around the airport. The platforms of interaction and social orders of power will still however need to be explored further within the areas surrounding the airport.



## CHAPTER FOUR: HIGHLIGHTING OF SPATIAL IMPACTS OF O.R TAMBO INTERNATIONAL AIRPORT ON EKURHULENI AREA



Figure 18: Cartoonist Gary Varvels Depicting Dilemma Faced by Environmental Sustainability

Source: Varvel, 2007

### 4.1 Introduction to Key Themes that were discovered in Fieldwork

This chapter will be predominantly based on the key themes from the fieldwork that was done within the focus area of Ekurhuleni. As this was a qualitative study, the researcher will draw the issues emerging from various methods utilized which include, conducted interviews, observations and the mapping information sourced during the fieldwork. This chapter will seek to synthesize all the material that has been collected and aim to group the information with the intention of analysing the common and contradicting issues. This process will be assisted by the 'coding' of the conducted views in order to have a framework of grouping

similar themes within the qualitative study. Coding was used as a useful process in grouping and analysing qualitative research information because gives a great degree of analytical freedom whilst also allows for the interpretation of the rich meaning associated with organizational documents combined which results in a convincing qualitative study (Duriau, Reger & Pfarrer, 2007).

This chapter will be subdivided into five main themes that will touch on the fundamental issues and observations made within the field work. The themes that are contained in this chapter will be:

- Unpacking the Population of Ekurhuleni Municipality within the formulation of an Aerotropolis;
- Changes in the Urban Landscape Associated to the Airport;
- The Becoming a Smart City- Creative Initiatives in Innovation and New Firm Attraction;
- The True Costs of Living in Close Proximity O.R Tambo International Airport;
- Stakeholder Engagement within Ekurhuleni; and
- Identity Crisis facing the City of Ekurhuleni.

The arguments and observations that are made in this section will be used in preparation for the next chapter which focus on the understanding of the role in which planning will need to consider in order to mitigate negative impacts. Upon concluding this chapter, all sub questions raised in the research should be interrogated and retorted.

## **4.2 General Sample Information and the Research Method Used**

Researchers Taylor, Bogdan and DeVault (2015, p.11) explained that, “qualitative study methods allow the researcher to look at people; settings or groups are viewed as holistic and collective to the study”. Within this paper, a similar thinking was applied in order to approach the research in the most comprehensive manner possible. There were multiple research methods that were applied during the fieldwork within the desktop study methods and one on one interviews. The researcher did not only rely on verbal dialogue with respondents, there were also general observations that were made during the interviews.

The residents’ sample of the interviews were taken from three areas within the municipality of Ekurhuleni. The areas in which they were conducted are Kempton Park, Boksburg and Tembisa. The researcher conducted 30 minute interviews with a total number of 21 residents.

The breakdown of the residents' interview areas were seven from Boksburg, six from Tembisa and eight from Kempton Park. This was done so as to ensure that the research has a variation from all the different facets of society within Ekurhuleni. Overall, there was a sample of seven officials that were interviewed within the area. Although the number may appear to be smaller in size, the interviews that were conducted were in-depth in nature. Therefore in total the research received 28 respondents.

The research attempted to receive comprehensive views even though it was limited due to time constraints on gaining further insights from the numerous nodes within Ekurhuleni. Although the residence sample size was of a small scale relative to the general population, the random sampling method assisted in gaining diverse views. This worked for the research because qualitative research model does not place strong emphasis on representativeness but it is still critical to get a random sample or multifaceted sample so as to allow input from a variety of respondents (Sarantakos, 2005).

The consultants and officials that worked closely with Ekurhuleni Metropolitan Municipality were part of the purposive sample that was additionally interviewed. The interview process for the officials was 60 minutes as they would be able to provide an in depth understanding of spatial practices within Ekurhuleni. These respondents provided profound comprehension on the topic based on closer interactions with the municipality. Officials also fully understood the aerotropolis concept better as compared to residents. The overall aim of conducting the interviews was to get additional insights on the key themes that emerged in the theory and the case study.

### **4.3 Theme One: Who Does Ekurhuleni Belong To? Unpacking the Population of Ekurhuleni Municipality within the formulation of an Aerotropolis...**

Globalization has created changes in the manner city structures are perceived. Contemporary city environments are a space of ever changing dynamics in terms of urban form, city profile and also purpose of cities. Global cities have now created a boundary-less world that attract a multitude of different people. This is validating the traditional idea of the territorial good city globalization has come with the unhinging of territorial moorings (Amin, 2006). It has additionally large global network requires specifications beyond individual countries (Deruddeer & Taylor, 2005). Indeed the respondents (both residential and businesses within the area) are seeing a change in the profile of the residents of Ekurhuleni.

#### ***4.3.1 Population Size, Diversity and Density***

Pieter Swanepoel, who is a Qualified Town planner and divisional Head for Specialist projects within the City Planning unit at Ekurhuleni Metropolitan Municipality, affirms that there has been a steady population growth within the years in the City of Ekurhuleni (Swanepoel, personal interview, 27 January, 2017). It is palpable that the City of Ekurhuleni is even foreseeing further population growth within the municipality (see figure 8). Istell Orton, who was the project leader for the formulation of the 2015 EMM Municipal Spatial Development Framework (MSDF), under GIBB Engineering firm attests to the anticipated growth. Orton (personal interview, 12 December, 2016) explains that, “*the MSDF which was developed in 2015 was designed to accommodate a future growth of 6 million people residing within Ekurhuleni*”.

Twenty seven (27) out of the 28 total respondents within Ekurhuleni are also observing the shift in the residential profile in many areas within Ekurhuleni. The impact of the addition of different people within the area is on the other hand perceived differently by officials than it is by the residents. The residents attributed the changes in the population and diversity to the presence of the airport within the area. As it stands between 2001 and 2011, households grew above national average at 36,1% and there are more than 12 different languages spoken within the area (Ekurhuleni, 2016).

Urban studies professional, Ash Amin (2006), questions the existence of a traditional good life in contemporary cities due to, “the displacement of strong and lasting senses of community by multiple and ever-changing social and cultural attachments” (p.1010). Respondent 11 from Kempton Park echoed anxiety that, “*I am scared that that the attraction of foreigners within the area may even attract terrorists into the area*” (respondent 11, personal interview, 18 December, 2016). The Premier of Gauteng, David Makhura (2016) also enlightened that, “Gauteng has the highest percentage of international immigrants with 52% of international migrants and 41,7 % of internal migrants choosing to settle in our cities” (p.1). This reflects the increased diversity within the region that has led to sense of anxiety experienced by residents due to rapidly urbanizing areas.

Officials interviewed all nevertheless welcomed the increased number of people within the city as it has brought a greater pool of employable people. Literature attests that economic

integration through good policies can bring prosperity and the movement of people is an important constituent. The World Development Report of 2009 states that, “Integration can best be done by unleashing the market forces of agglomeration, specialization, migration and not by fighting or opposing them” (p.21).The consultants that work within Ekurhuleni and industry officials were similarly eager about the economic opportunities that are created by the diverse people that are now residing within Ekurhuleni. This was going in line with the hopes of having a diverse pool in which they can attract as a work force. This trend is reflecting that current developments within Ekurhuleni are in line with the theoretical studies of global competitive cities.

#### ***4.3.2 Population Flows within Ekurhuleni***

The population flows within Ekurhuleni are also condensed within the areas that are in close proximity to the airport. There is still a strong divide according to race with 69% of the black community still residing within the township areas (Ekurhuleni, 2010). These township areas are located within the edges of city with longer travel time into the economic opportunities (Ekurhuleni, 2010).The immediate areas surrounding the airport (Boksburg and Kempton Park) are described as the fastest growing areas in terms of population within the city. Respondent 21 from Kempton Park described that, “*Kempton Park town is full of foreigners, especially (those) from Africa. They come to Kempton Park because it’s the first place they get to when they land from their country to South Africa*” (respondent 21, personal interview, 18 December, 2016). Germiston has not been reflected as having significant population growth as Boksburg and Kempton Park (Ekurhuleni, 2016). The lack of road access to O.R Tambo international Airport may be a contributory factor to the node not growing rapidly as its core counterparts.

The township areas have also noted an influx of migrants however it was mainly local migrants. Respondent 17 describes the situation as, “*most of the people who have moved into Tembisa are people who rent backrooms and build shacks who come from the rural areas; they come to look for work since everyone thinks everything is better in Gauteng*”(respondent 17, personal interview, 17 December, 2016). Population within the township areas are essentially dense, with most residential dwellings in the form of the mass ‘box’ housing that was the legacy of the apartheid system.

#### **4.4 Theme Two: Changes in the Urban Landscape Associated with the Airport**

There have been a numerous initiatives that have been taken to boost Ekurhuleni between the year 2000 and 2016. Although most of these urban initiatives came in the form of the Municipal Spatial Development Framework; the Ekurhuleni Aerotropolis Masterplan draft will have the most impact at this point when relating to aviation orientated growth. Stephan Gildenhuis, who holds a Master's degree in Town and Regional Planning, spear headed the Ekurhuleni 25 year Aerotropolis Masterplan draft on behalf of Aurecon. Gildenhuis explains the role of the Aerotropolis Master Plan by stating that, "*What is being done through the Aerotropolis Masterplan is to structure development in order to ensure that the development is efficient and sustainable*" (Gildenhuis, personal interview, 20 January, 2017).

The MSDF and the Aerotropolis Masterplan explicitly describe how they will spatially change Ekurhuleni Municipality. During the interview Orton gave insights into the role of the MSDF within the broader scheme of all other planning tools within Ekurhuleni. Orton described the MSDF as follows: "*The MSDF as a self-sufficient strategy which would be successful in its functionality and sustainability even if the aerotropolis did not exist*" (Orton, personal interview, 12 December, 2016). There are observed common themes that emerge from both the aerotropolis draft plan and the MSDF that Ekurhuleni is starting to follow.

Ekurhuleni, like many other aerotopoli around the world, is now having a focus on more mixed land use developments with elements of extensive densification (Kasarda, 2008). Luyolo Ndlwana, who is the Acting Head of Department at South African Airways and also a resident of Rhodesfield, has also observed a number of trends within the area. Ndlwana gave insights on the conversion of agricultural land into new mixed dwellings, high density developments and also the fact that 60% of the Rhodesfield suburb, located within a 5km radius from the airport, is being earmarked for mostly hotels and restaurants. From a personal perspective he noted with concern the changing character of the neighbourhood and also voiced anxiety on the prospects of resettlement (Ndlwana, personal interview, 5 December, 2016).

As the Aerotropolis master plan draft becomes more of a reality within Ekurhuleni, prospects of displacement may become eminent for him and his family. "Displacement is made to seem inevitable by the practices and modernising ideologies associated with colonialism,

development (capitalist and state socialist), and more recently globalisation” (Gellert & Lynch, 2003, p.20). Harvey (2006) reflects that this dispossession becomes a common phenomenon in urban transformation. The process of resettlement is almost always eminent in such scenarios as history has reflected governments have been given the power to displace established residents for in reasonable housing for high density residential properties, all in pursuit of a higher property tax gain (Harvey, 2006). These perceptions are congruent with the aerotropolis city models, in which those previously located closest to the airports faced being resettled into alternate areas. An example of the resettlement is an international case in Taiwan that was identified by Bridger (2014) on the resettlement of people living around the airport to accommodate the development of the Taoyuan Aerotropolis.

From the Aerotropolis Masterplan to the MSDF, the developments of Ekurhuleni all radiate from the city core of the airport. O.R Tambo International Airport is perceived by Gildenhuis as, *“the biggest asset to Ekurhuleni which drives the economy of the area”* (Gildenhuis, personal interview, 20 January, 2017). Even with the MSDF focusing on creating city compaction and interconnectivity (Ekurhuleni, 2015). Most of the residents however reflected lack of knowledge of the aerotropolis concept, with only three of the 28 respondents having an idea of the concept. This also validates the various insights that emerged from literature that the Aerotropolis model may not be an approachable or understandable concept to all those within the area.

Analysing the Urban elements of Ekurhuleni reflect that there is no unified focus into a traditional metropolis, rather the nodes are spread around the city with a denser node distribution within the proximity of the airport. To most residents, being closer to ORTIA represented a greater chance of employment opportunities and social facilities. The developments are moving towards compaction in Ekurhuleni with up to 85 units being planned per hectare (Orton, personal interview, 12 December, 2016). Orton further noted that, *“Although the urban planning boundary was extended due to developmental pressures, the human settlement boundary is permanent with the defined city border that will constrict human settlement”* (Orton, personal interview, 12 December, 2016). Swanepoel showed that most of the areas beyond the settlement border, more so in the North East of the City are left as green spaces that are reserved for farming practices that may even serve the perishable items suitable for an aerotropolis development (Swanepoel, personal interview, 27 January, 2017).

The Aerotropolis Masterplan draft also reflects that Ekurhuleni has gained inspiration in the spatial layout of Kasarda’s Aerotropolis Model (see figure 3). Kasarda (2013) described that the businesses that should be within the area are those that can target perishable and time sensitive global products. The Ekurhuleni 25 Aerotropolis Master Plan draft also aims for the formation of economic activity clusters which target specific work streams with the aim of building economic attractiveness (Ekurhuleni, 2014). The layout of the master plan also places distinction of the same industry and they have been closely place or grouped in a common area. The way in which these industries are grouped contributed to enhanced innovation within the identified area. Storper and Scott (2003) confirmed the benefits of creating agglomerations by expanding that, “the spatial proximity of large numbers of firms locked into dense networks of interactions provides the essential conditions for many sided exchanges of information to occur, and out of which new understanding about process and product possibilities are constantly generated”(p.583).

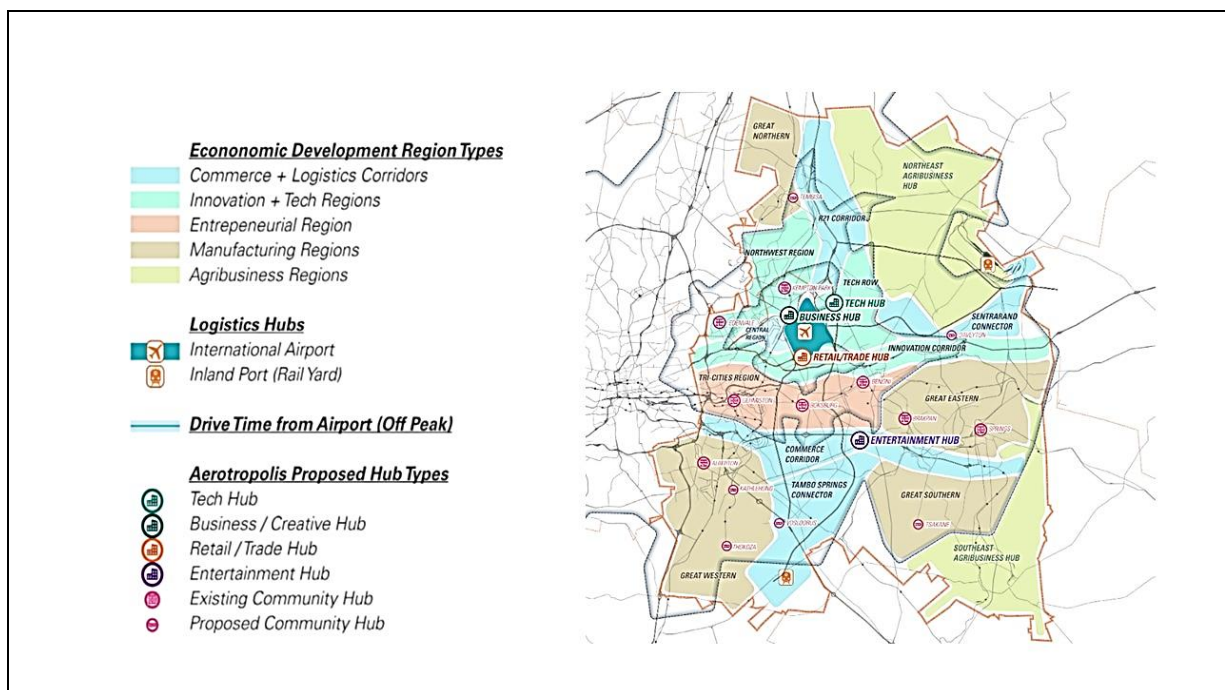


Figure 19- Economic Development Regions within the Aerotropolis Masterplan

Source: Ekurhuleni, 2014

The 25 Year Ekurhuleni Aerotropolis masterplan draft has already been revered and received awards for the design concept (Gildenhuis, personal interview, 20 January, 2017). On the presentation of the plan in the SAPI awards describes that the Aerotropolis plan has spurred



major development projects with in the area. These projects are mixed use in nature and include the Greenreef- Mixed Use- Mixed Income Development, Riverfields mixed use development and Plumbago Business Park and the Carnival Junction Mixed Use Lifestyle development (Gildenhuis, personal interview, 20 January, 2017).The type of developments that are created are all forming spaces that are within gated communities. Respondent 19 from Tembisa echoed that, *“Most of the new developments are within the suburbs. Most of them are estates and apartments... but they are still very expensive”*(respondent 19, personal interview, 17 December, 2016). This reflects that the fear of crime and the creation of these gated communities may result in the exclusion of those that are economically unable to afford.

Even with these revered accolades being received for the project, residents and some businesses are sceptical of the Aerotropolis masterplan due to the time and coordination of implementation. There was lack of confidence in the capacity of Ekurhuleni being able to monitor and supervise spatial formation. Ndlwana is of the opinion that, *“Ekurhuleni is currently following a natural formation. I sense desperation from municipality to deliver by ring-fencing any development in the area without it necessarily dictating it legislatively”* (Ndlwana, personal interview, 5 December, 2016). He added that *“ORTIA has its own intentions that are no way linked to the Ekurhuleni Aerotropolis. These are purely commercial intentions by ORTIA of ACSA. So they are easily hijackable”*(Ndlwana, personal interview, 5 December, 2016).These views reflect the deficiency of confidence in Ekurhuleni’s capacity to execute the Aerotropolis concept.

There are areas with Ekurhuleni that have been identified for development infill. These areas were previously the mining belt; which includes the central part of Boksburg, Germiston, and east of Benoni and north-west of springs (Ekurhuleni, 2010). Three of the four areas identified for landfill are part of the metro core. This is also validated as 23 of the 28 respondents perceived the areas surrounding the airport as becoming more developed. Respondent 10 from Boksburg, who also works at the Airport elaborated that, *“There are has been expansion of existing mall like east rand, there are new malls around the East Rand Mall such as K90 mall. There is also new office parks and residential estates around Atlas road also a number of new hotels in Rhodesfield... When many airport passengers are night stopping or connecting, they prefer to sleep close to the airport”* (respondent 10, personal interview, 14 December, 2016). Ekurhuleni (2010) attest to this and describes that East Rand

Mall is becoming an emerging node with mixed land use and retail with Northrand Road, Trichard and Elizabeth Roads being the spines.

Other noteworthy corridors are the Wadeville and Alrode Corridor and the GIDZ. The Wadeville and Alrode corridor is amongst the biggest projects within the study period of 2000 and 2015 which links city deep terminal, Gautrain Rail link and also the O.R Tambo IDZ (Ekurhuleni, 2010). The IDZ will focus on clustering manufacturing light industries in beneficiation and also the creation of the aerospace park (Ekurhuleni, 2010).

#### ***4.4.1 The Urban Form of Ekurhuleni Municipality***

The city furthermore aims to have some more defined nodes within the suburbs of Ekurhuleni. The Ekurhuleni 25 year Aerotropolis draft plan formulates clusters of common business activity and use transport networks that run along the major corridors (Ekurhuleni, 2014). The MSDP strives rather to formulate lively corridors which will encourage street life in which the residents within the areas are able to thrive (Ekurhuleni, 2015). Most residents also agreed that they have been noting some urban form changes over time. The most significant noting for residents has been the Riverfields mixed-use residential development along the R21 corridor. Fieldwork reflects that four resident respondents are noting warehouse industries along the R21 with the development of the Toyota warehouse being the most notable change. Ndlwana (personal interview, 5 December, 2016) explained that, *“There is a conversion of farm into logistic warehouses and shopping mall. The R21 corridor, which is a result of the aerotropolis acts as a feeder and defeeder of logistics companies”*.

Officials were excited about the developments that were occurring within the Ekurhuleni area and the airport city of O.R Tambo International Airport itself. Mr. Justyen van Zyl, who is a Town and Regional Planner and has worked for ACSA for over 10 years, gave some insights on some of the projects that are taking place within close vicinity to O.R Tambo International Airport. Van Zyl mentioned the Midfield Cargo complex which would be the first dedicated cargo terminal coming into the country. He further enlightened that the airport (ORTIA) is also involved in a beautification process in which they hope that this greening process may assist with improving the identity of the area (Van Zyl, personal interview, 13 December, 2016).

With all these buzzing developments in urban centres of Ekurhuleni, Tembisa and other township areas have however reflected no growth of industries that may be directly linked to the existence of the airport. The airport to the community aids in creating employment in the area. Townships are operating in an autonomous system, rather focusing on business required by those within the townships. Industries within existence in townships include small enterprises focusing on informal trade, spaza shops, shebeens and container terminals for selling cellphones and printing facilities.

#### ***4.4.2 New Developments within Ekurhuleni***

There is significant infrastructure upgrades within Ekurhuleni. There has been significant road expansions that have been noted in the area. The residents of Tembisa acknowledged the expansion of roads in order to accommodate the BRT. Orton shared that, *“the MSDF focuses on the connectivity of nodes and corridors. The greatest example is the R21 corridor, another important development is the startof the PWV15, PWV17. These are planning to create stronger north-south connections which are not really prevalent in Ekurhuleni. The PWV 15 connects ORTIA to the Tambo-Springs Logistics Hub. The PWV 17 would be a developed freight road for regional connectivity”* (Orton, personal interview, 12 December, 2016).

It can also be seen that there is a PWV3 route which is planned as per figure of 13 of the case study. The lower east-west connections of Ekurhuleni are well served in terms of road provisions however northern east-west connections are not strong. The PWV3 route would even serve as a great connection to the conceptual new city of Ekurhuleni close to the airport. When focusing on the development patterns surrounding the airport the developments are skewed to the west side of the airport. This is due to reduced road connection of the airport from the east side of the airport. There is lack of infrastructure and activity within that area (Orton, personal interview, 12 December, 2016).

Transport change has transformed drastically within Ekurhuleni. The Gautrain and the IRTP have made the most evident impact on most respondents. Van Zyl explained that, *“There is a strong focus on compaction, creating density and also improve the current public transport system”*(Van Zyl, personal interview, 13 December, 2016).Road expansions to accommodate the Bus Rapid Transport (BRT), which has been called ‘Rea-Vaya’, has given hope to the residents of Tembisa. The move towards these transport forms reflects a view raised by Orton

that *“the MSDF is focusing on the pedestrianisation of nodes and the creation of Transport Orientated Nodes (TOD). A good space is a compact, pedestrian friendly space with economic opportunities”* (Orton, personal interview, 12 December, 2016). Respondents from Tembisa still viewed taxis as an important form of transport and highlighted its time flexibility as the best selling point. The respondents generally viewed the airport as helping the city develop its intensive road network. Respondent 1 states that *“the Gautrain only comes to Ekurhuleni because of the Airport, if it was not there... it would only go to places like Sandton. It now helps to get the tourists to their destinations quicker”* (respondent 1, personal interview, 14 December, 2016).

Ekurhuleni is working aggressively to develop and upgrade the transport systems and creating industrial corridors within Ekurhuleni. The city is displaying all the key components of an Aerotropolis with all developments pulling towards ORTIA. Ekurhuleni is encouraging connectivity and accessibility that will link to the airport. The respondents reflect that there is a great need for all the different transport systems within Ekurhuleni. The city is also taking strong consideration of creating a metropolis and all future city plans reflect strong consideration of the planned Ekurhuleni City.

#### ***4.4.3 Social Facilities Currently Available within the City and Relevance to Aviation***

Within the space of the study period there has been increase of schools, and clinics within the area (Swanepoel, personal interview, 27 January, 2017). Residents still reflect that there is a deep need for basic services to reach the communities. The residents which came from the traditional suburban areas perceived the available social facilities as being fair. Four of the six expressed extreme dissatisfaction and even expressed a sense of neglect in the dominant developments that are taking place. A 37 year old, respondent 7 from Boksburg, who had previously stayed in Tembisa for nine years, expressed disappointment in the distribution of services within the marginalized areas of Ekurhuleni. She complained that, *“The government is building so many new buildings, roads and malls in the suburbs but go to Tembisa, it’s bad. Townships need to be given as much attention as the suburbs”*(respondent 7, personal interview, 14 December, 2016).

Although some of the social facilities such as schools, medical facilities were available, the condition of these facilities reflected lack of maintenance and resources. Orton also highlighted that, *“In one region there remains a shortfall of 36 schools compared to the*

*capacity required*”(Orton, personal interview, 12 December, 2016).Lack of financial resources and leadership is conceivably the most significant factor highlighted by respondents as preventing urban governments from addressing the needs of the poor.

The developments surrounding that there may be lack of integration between townships and suburbs within Ekurhuleni. There is concerns in a lack of concern of social issues that may be the result of issues being overlooked by the strong focus of economic attractiveness of the development. This was identified in the literature review that in pursuit of crating global cities, issues that contribute to the competitiveness of area take precedence. This however creates an unsustainable situation because the lack of social redress in townships may create further inequality.

#### **4.5 Theme Three: The Becoming a Smart City- Creative Initiatives in Innovation and New Firm Attraction**

The Ekurhuleni Metropolitan Municipality has shifted its focus into creating a smart, developmental city (Ekurhuleni, 2015). Within the creation of the smart developmental city, there is now a strong concentration in creating spaces within the environment that will attract firms that are bringing innovation and new technologies within the area. Ekurhuleni (2014) expands that it requires that, “Major investments in education programs and facilities are essential to building a smart and capable workforce that a globally competitive aerotropolis will need. This master plan proposes a metropolitan TVET university campus, established through public-private partnership, and focused on the most relevant and state-of-the-art skills training that will increase access to jobs” (p.37).In order to upskill the community, Ekurhuleni also intends to introduce the Re:GEN City Initiative. This initiative aims to seek social and economic justice by going to “where the people are” and are intended to bring economic opportunity and unique educational opportunities to underserved populations (Ekurhuleni, 2014, p.6). The city is also working on providing access to all residents with technological platforms that will ensure interactivity. To date, the city has over 900 WIFI hotspots and it has also invested R2 billion on a fibre rollout programme (Ekurhuleni, 2016).

There are also plans in the pipe line for the technology, research and development hub. This has resulted in Denel Aviation group being perceived a potential strategic partner within this sphere for aviation orientated business (Swanepoel, personal interview, 27 January, 2017).

Ekurhuleni is focusing on more of an urban renewal initiative with the hopes of also resuscitating its industries (Ekurhuleni, 2015).

Another significant stride that has been made by the city is improving technological connectivity of the city. As seen in the case study, the city has invested in providing free Wi-Fi in more than 900 public facilities within the city. Respondent 6 from Boksburg highlighted that, *“it is good there is access to free Wi-Fi in the public facilities. What would be better is if it could be rolled out in our homes. At the moment you don’t want to spend too much time in facilities you go to when occupied like clinics and rates offices”* (respondent 6, private interview, 14 December 2016).

The significant strides in innovation and technological investments in Ekurhuleni show that the focus is on creating a world city that will be able to attract the knowledge economy. As part of the GCR, it is reflecting a strong shift from its industrial past to investing in assets that are considered to be essential for the competitiveness of global cities. The future workforce is also being equipped with critical skills that are required by trades within the Aerotropolis.

#### **4.6 Theme Four: The True Costs of Living in Close Proximity to O.R Tambo International Airport**

As discovered in the literature review, another product of the competitive city model is stimulated high demand for living space due to attraction of new inhabitants into the space (Begg, 1999). This increase in the people within the area also fuels the escalation in housing rates and costs; “containment policies push up land costs and also encourage development beyond restricted areas” (UN-Habitat, 2009, p.159). Undeniably, this trend has also been noted in Ekurhuleni as all residents that were interviewed confirmed that there has been an increase in rates and land prices within the municipality. Most of the respondents were of the view that the rates and land prices have been increasing due to the demand that has been driven by the airport as there is a vast demand for land surrounding O.R Tambo International Airport. As a result of the escalating costs, there is pressure for residents to consider moving further out of the metro core.

The biggest factor that would reduce land price of areas around the airport would be the noise and environmental pollution which is perceived to be taking place around the airports. Van Zyl enlightens that *“noise pollution does become an issue for residential areas in close*

*proximity to the airport, and as a result, there is no new development in certain noise contours that would exceed 80 dBA” (Van Zyl, personal interview, 13 December, 2016). Ekurhuleni is however noting that the residential land within close proximity to the airport still continues to be in demand due to the degree of accessibility to amenities. Swanepoel suggests that “although noise generated surrounding airport may be less desirable, the interesting phenomenon within Ekurhuleni is that the city generates the highest income within the noise area. However, there remain a vast number of noise complaints from residents who reside in land zones with noise contours exceeding 70 dBA” (Swanepoel, personal interview, 27 January, 2017).*

Municipal rates are determined by the Municipal Act of 2000; this Act guides principles, processes and means necessary for the progression of municipalities that will enable them to socially and economically uplift communities (Local Government, 2000). The rate allocations may become a way in which one may assess the cities strategic intents and vision. What is interesting to note is that Ekurhuleni has the lowest establishment and rezoning fees compared to the other two metros in Gauteng for property development (GGDA&SAPOA, 2013). This is aligned to creating means of attracting developers and businesses to invest in Ekurhuleni. Although most respondents did acknowledge an increase of property rates only four felt the increases were beyond natural escalation.

Ekurhuleni also notably has the highest water connection rate estimate relative to other municipalities in Gauteng. It is a considerable issue that with the rapid development, infrastructure provisions are becoming strained within the city. Orton even cautioned that *“with the increased density within the nodes, there is also issues of the water capacity. Areas likes Boksburg are in need of major infrastructure investment for water”* (Orton, personal interview, 12 December, 2016). Rateiwa gave insight that, *“Each development requires prior planning and strategy for the provisions of physical infrastructure and services”* (Rateiwa, personal interview, 8 December, 2016).

#### ***4.6.1 Green Initiatives for Identity Enhancement***

There has been acknowledgement of the environmental impact of living close to airports (as seen in the literature review). Ekurhuleni is also augmenting the city outlook by focusing on investing in green technologies. The O.R Tambo Precinct in which the OR Tambo museum is also located, is being positioned as an environmentally friendly area. In an attempt to

cement this identity, Ekurhuleni built its first solar plant of its kind in South Africa. Solar plant Project Manager who was interviewed by Brand South Africa, Tshilidzi Thenga expands that, “The precinct produces about 200 kW of electricity through 860 PV (photovoltaic) solar panels on 2 500 square meters of land, generating enough energy to power about 133 low-cost houses” (Thenga, 2012, p.1). Only 9 of the 28 respondents mentioned the existence of this important stride made by Ekurhuleni. Swanepoel (personal interview, 27 January, 2017) indicated that Wadeville would put the city on the map for green technologies.

The most recent natural disaster occurrence in Ekurhuleni was the flash floods which swept the area. Due to the heavy rains resulted in multiple area within Ekurhuleni being flooded, including ORTIA. This occurrence also revealed another possibility that the maintenance of the rapidly urbanising environment. Boksburg resident aired concerns that, “*the flooding that happened around the Airport was not acceptable, it show that the drain pipes are not maintained regularly (respondent 8, private interview, 14 December 2016).*”

The picture below is showing one of the flooded areas which are key access roads into ORTIA.





Figure 20- ORTIA Flooded After Heavy Rains

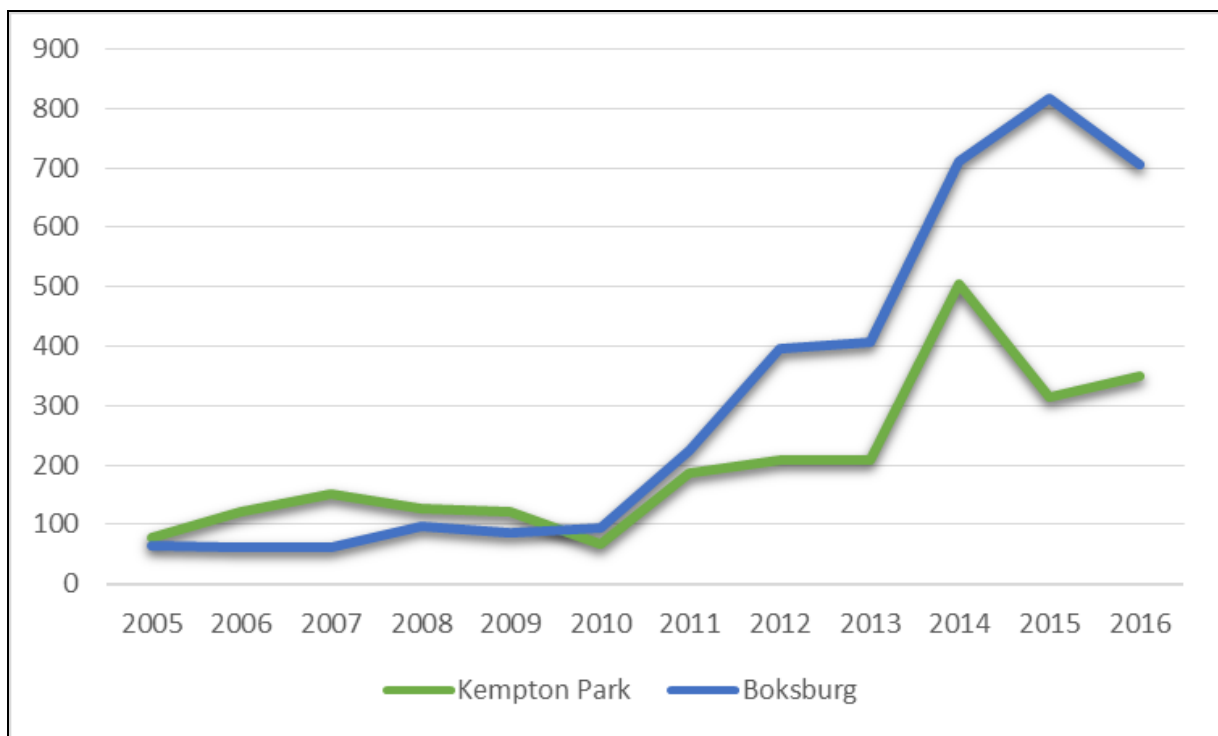
Source: Traveller24, 2016

This reflects the need for rapid expansion of services that will be able to accommodate the additional development requirements.

#### ***4.6.2 Crime and Safety associated with the Proximity of the Airport***

Economic opportunities within South African Cities are masked by the higher levels of crime which are attributed to poverty and inequality (SACN, 2016). South Africa is one on those cities with an unequal societies in the world with an income Gini coefficient range of 0.6 to 0.7 (World Bank, 2016). The intense gap between the rich and the poor is creating a problem of the poor finding unsavoury means of attaining wealth. The Marxist influenced geographer David Harvey enlightens on this dire situation by explaining that ‘Privatized redistribution through criminal activity threatens individual security at every turn, prompting popular demands for police suppression. Even the idea that the city might function as a collective body politic, a site within and from which progressive social movements might emanate, appear implausible’ (Harvey, 2008, p.32).

Crime has also been noted as one of the increasing elements within Ekurhuleni by resident and business respondents. The area in which most residents and businesses have reflected as the area most affect is Kempton Park. A number of the residents were also relating the presence of O.R Tambo international Airport to a distinct type of crimes that occurred within the area. There was a strong belief that Kempton Park as the first point of arrival of foreigners arriving in Gauteng through O.R Tambo International Airport. The crime statistics in figure 21 below show that growth of drug related crimes in Boksburg and Kempton Park reached a steep increase from 2011.



**Figure 21- Drug related Crimes Statistics for Kempton Park and Boksburg**

Source: Crime Stats SA, 2017

It is also a common belief amongst residents and two officials that the drug related crimes are due to the existence of the airport. Respondent 6 expressed that, *“the drug trafficking is escalated by the logistics and trucking businesses around the airport. Kempton Park CBD is now very crowded and filled with drug related crime”* (respondent 6, personal interview, 14 December, 2016). Respondent 7, who resides in Bokburg also aired concern by stating that, *“Crime is especially a problem... Stuff stolen from passengers and sold to residents around the neighbouring places from the airport”* (respondent 7, personal interview, 14 December, 2016).

The crime element will have a deep impact on the outlook of Ekurhuleni. Respondents tried to tie up the issue of drug related crimes to the existence of the logistic firms surrounding the airport. Respondent 11 explained that, *“the airport has Jet Park, Spartan and all these warehouses around it...I would not be surprised that most of the drug trafficking is happening because of the trucking businesses in the area”*(respondent 11, personal interview, 18 December, 2016). All these criminal activities are heightening are also contributing to people resorting to gated communities and heavily guarded spaces within Ekurhuleni.

The circumstances of the change in the living environment may lead to apprehensions being faced by existing communities. Hannam, Sheller and Urry (2006) have suggested that the nature of airport systems have contributed to mobilities of social ills such as urban crimes, the increase drug trade, human trafficking, military trade and even terrorism. Amin (2006) describes the sentiments of communities as, *“They hum with the fear and anxiety linked to crime, helplessness and the close juxtaposition of strangers”* (p.1011). This reflects situation that needs to be managed by the city in order to avoid clatters within the diverse society.

#### **4.7 Theme Five: Stakeholder Engagement within Ekurhuleni**

There are a number of stakeholders who are involved in the planning of spaces surrounding the airport. The perspective of business revealed that they are somewhat aware of the various entities that have been set up that influence the shaping of the environment of the Airport. *“City government is only an actor within urban governance, but it is the most obvious”* (Devas, 2004, p.95). The residents and business respondents all echoed the importance that ACSA as the owner of O.R Tambo International Airport would have on the any developments within Ekurhuleni. ACSA remains a key strategic partner to Ekurhuleni Municipality. These two organisations have formalized interrelations through the Memorandum of Agreement (MOU) between ACSA and Ekurhuleni Municipality (Van Zyl, personal interview, 13 December, 2016).

What indicated as a concern was the lack of involvement of the airlines, more especially the national carrier South African Airways, in the interactive sessions where the aerotropolis project is discussed. According to Appold and Kasarda (2014) airlines are amongst the most important key stakeholders including airport owner and the business and government sector.

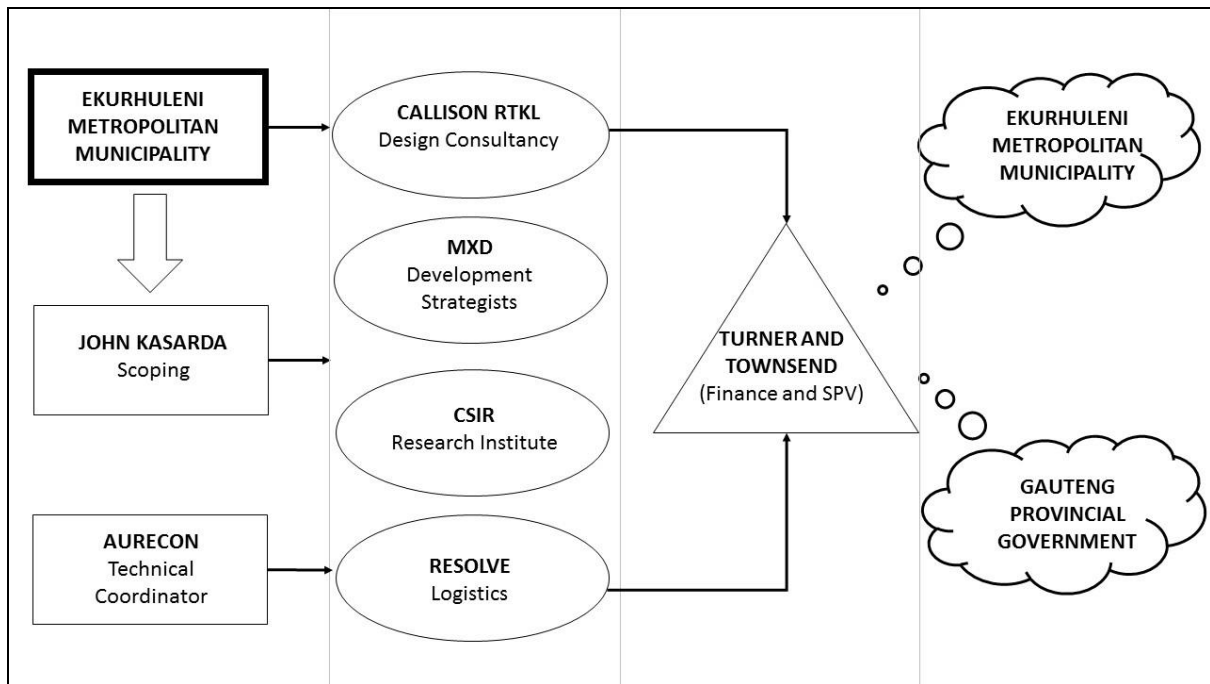
While the aerotropolis represents the functional integration of the airport, its airlines, surrounding municipalities and the broader region, master planning all too often remains siloed (fragmented) in airport not good result for operational efficiencies and overall aesthetics (Appold & Kasarda, 2014, p.19).The fundamental reason for this the stimulation of traffic within the aerotropolis relies on airlines being able to open destination routes.

There are several role players which have been identified as important in the formulation of spatial delivery within Ekurhuleni. They are identified as per below table:

Government	Parastals	Institutions/ Bodies	Private
<ul style="list-style-type: none"> <li>•EMM Human Settlement</li> <li>• EMM Local Economic Development</li> <li>•EMM Environmental Department</li> <li>•EMM Department of Transport</li> <li>•EMM Business Centre</li> <li>•Neighbouring Municipalities</li> </ul>	<ul style="list-style-type: none"> <li>•ACSA</li> <li>•Sanral</li> <li>•Prasa</li> <li>•Transnet</li> <li>•GDAD</li> <li>•ATNS</li> </ul>	<ul style="list-style-type: none"> <li>•Engineering Consultants</li> <li>•Ekurhuleni Spatial Development Committee</li> <li>•Ekurhuleni Business</li> <li>•Airport Safety Forum</li> <li>•SACAA</li> </ul>	<ul style="list-style-type: none"> <li>•Developers</li> <li>•Private Investors</li> <li>•Communities</li> </ul>

The above table reflects that the pool of institutions and businesses involved within the spatial planning of Ekurhuleni is broad. This phenomenon is closely related to the decentralized role that cities are expected to within cities in order to build competitiveness. “The search for increased efficiency and the pressures of competition drive city governments to seek alternative ways of doing things, including building partnership with the private sector and non-governmental organisations (NGO’s)” (Devas, 2004, p.95). As a result, the team involved within the formulation of the Aerotropolis Master plan was a multi-disciplinary team consisting of seven organization providing input into the document.

The team was all given different functions to play within the planning phases of the project with the diagrammatic flow of coordination as below:



**Figure 22- Researcher’s Conceptualisation of the Process Flow Provided illustrating Team involved in the Ekurhuleni 25 Year Aerotropolis Masterplan from Interview with Gildenhuis (2017)**

Figure 22 above reflects that Ekurhuleni Municipality was involved in the inception of the project and initial coordination of the project. Although the inception of project was in Ekurhuleni, after the creation of the Special Purpose Vehicles (SPV) that would be the dedicated authority for the Aerotropolis formulation. There become a political tussle on who should be the owner of the aerotropolis project between the local and provincial government. Gauteng and Ekurhuleni (2016) indicate that they would open the SPV in order to;

- Receive surplus municipal land and developing it for sales or long-term leasing;
- Acquire privately held land at fair market value;
- Raise working capital through borrowing;
- Enter into Public Private Partnerships. (p.19)

The Gauteng Provincial Government and Ekurhuleni are facing a political standoff on which sphere of government the project should reside. “Political conflicts between municipal/state/provincial and central governments can undermine the capacity of municipal governments to respond” (Devas, 2004, p.98). Van Zyl also added that, “*The Aerotropolis project will be successful if there is political support from local, the province and public*” (Van Zyl, personal interview, 13 December, 2016). These politically driven fighting has resulted to the delays in the implementation of the project and creates fragments in the alignment of ideas.

The practical part of public participation becomes a struggle within spatial planning. Some consultants holding the view that there should be a distinction between the public and key stakeholders. *“It’s better to approach stakeholders such as freight, SANRAL, ACSA, Provincial Government, SARS, big businesses and business forums, land owners when discussing regional plans. The work is too conceptual at this stage for public engagement”* (Gildenhuis, personal interview, 20 January, 2017). This view of restriction to public participation must be viewed with caution. “Urban managers have been accused of restricting voice and dissent in urban public life, against the background of growing commoditization, homogenization and privatization of urban public space” (Amin, 2006, p.1018). This also the typical process of mega project community engagement. Communities in a better position to raise questions about a project’s value; but the incubation phase is dominated by optimistic technical staff, largely engineers (Gellert & Lynch, 2003). This creates a marginalization of the citizens in pursuit of the corporatisation of space in neoliberal globalisation.

There was nevertheless engagement with the public on the aerotropolis project and the MSDF. Within the aerotropolis planning, the project team used the ‘dot-voting system’ to engage with the public (Gildenhuis, interview, 20 January, 2017). This engagement is still highly consultative with no robust engagement with the public. Within the ladder of citizen participation the consultative rung of participation is criticized because, “when they are proffered by the power holders as the extent of participation, may indeed be heard. But under these conditions they lack the power to ensure that their views will be headed by the powerful” (Arnstein, 1969, p.217). Fourteen resident respondents also concurred to the view that they were not granted adequate platforms to make meaningful input on spatial changes within the area. This reflects that Ekurhuleni in order to ensure meaningful participation should focus on mediums of participation that guarantee follow through of citizen views.

#### ***4.7.1 Urban Institutions Requiring Stakeholder Cohesion***

Stakeholder coordination is critical in the formulation of these complex spaces. As it stands, the literature review that there are new urban institutions and policies that are requiring collaborative efforts of different spheres of Governance. The significant impact in this area is that Ekurhuleni forms part of the Gauteng City Region. The disconnect within the local and

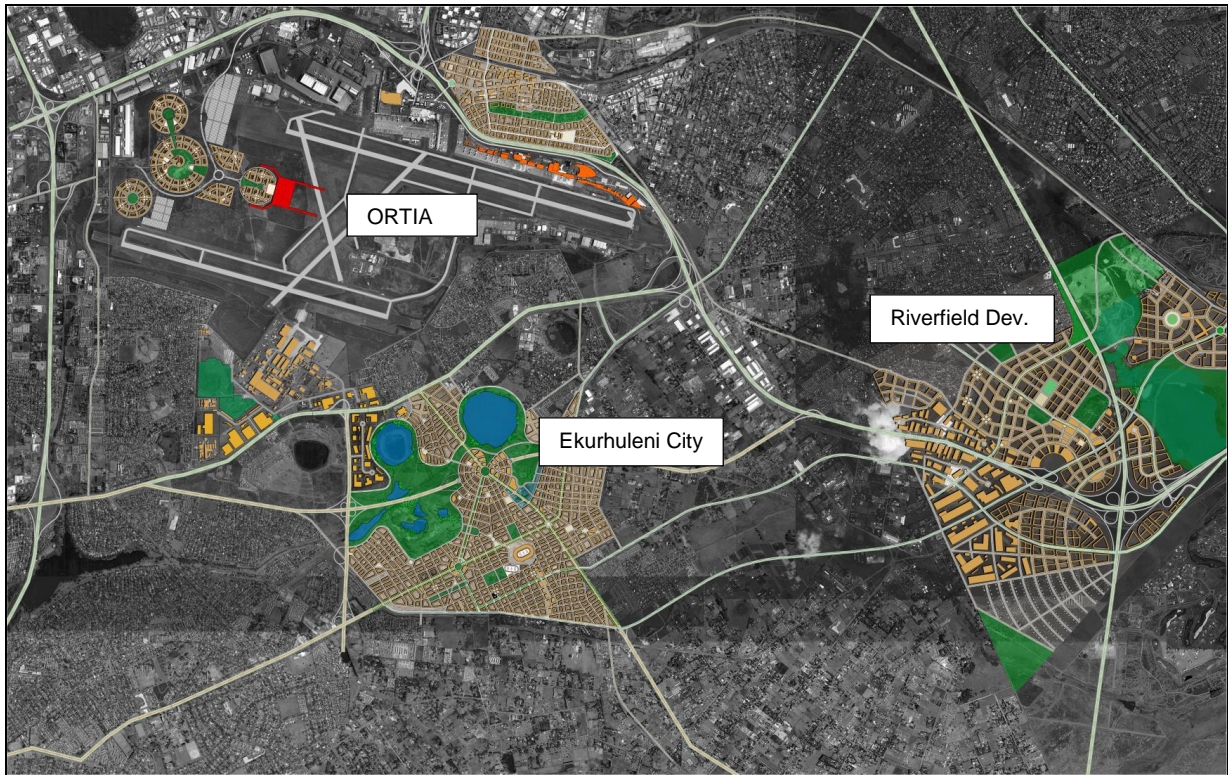
provincial layer of government may result in a lack of coherence in the overall spatial planning which will affect the competitiveness of the city. Policies and government strategies have revealed that they require multiple Public Private Partnerships (PPP's). Participation becomes critical tool for empowering citizens of Ekurhuleni and the literature review stressed the importance of cities understanding the needs of people in spatial development. Integration will be critical in delivering the needs of a competitive city.

#### **4.8 Theme Six: Identity Crisis facing the City of Ekurhuleni**

Aerotropolis is seen as shaper of Ekurhuleni that will aid the city taking a leap into a transformed and modern city. The aerotropolis is seen as a way in which Ekurhuleni can transform itself as a modern city that has its own identity. Reflecting from the literature review on branding that, "Place branding centres on people's perceptions and images and puts them at the heart of orchestrated activities, designed to shape the place and its future" (Kavaratzis & Ashworth, 2005, p.505). The brand positioning as it stands is very weak within Ekurhuleni. One of the respondents, Elsie Rateiwa, who is the business development specialist for ACSA, illustrated the lack of brand positioning by saying that, "*Ekurhuleni could definitely improve on its brand positioning. It is currently being engulfed by the more prominent City of Johannesburg. It seems as there is a general acceptance of Ekurhuleni being an extension of Johannesburg because even the airport code for landing in O.R Tambo International Airport is known as JNB rather than something that relates to Ekurhuleni*" (Rateiwa, personal interview, 8 December, 2016).

There are currently efforts that are being made to try give the city some branding. Some of the initiatives have come from ACSA whereby they are going through the beautification of the area in order to create an identity for the place. ACSA is also considering formulating gates and landmarks and gates within Rhodesfield in order to signal entry into the airport (Van Zyl, personal interview, 13 December, 2016). Orton also explained that, "*There is a development concept open a bridge that would link Kempton Park to O.R Tambo International Airport, it would help with the CBD that is currently running down*" (Orton, personal interview, 12 December, 2016).

"Whilst in formulation of the MSDF, the consideration for creating of a specific brand, there is consideration for a need for a new city (CBD) that would be known as Ekurhuleni City. This area would have a civic precinct that would allow for arts and culture to be displayed within the environment" (Ekurhuleni, 2015).



**Figure 23- Aerial View of the Conceptual Ekurhuleni City illustrating proximity to ORTIA**

**Source: Ekurhuleni, 2015**

As previously mentioned the city amalgamated into one municipality that used to be nine different towns in 2000 (Ekurhuleni, 2015). The fragmented and rather monotone ambience of the areas may be attributed to the city taking time to find a unifying and common thread amongst the different environments. Swanepoel also thoughtfully gave views that, *“it is important for Ekurhuleni to unite under one brand and they are currently driving marketing initiatives to make citizens aware of the unifying brand of the city of Ekurhuleni as a place live work and play”* (Swanepoel, personal interview, 27 January 2017). While there are attempts in creating brand marketing within Ekurhuleni, there remains no long-term branding policy that will guide city identity. This indicates that Ekurhuleni is not yet progressive at this stage to creating a long lasting identity.

In the space of competitive cities, the literature review reflected that contemporary cities have moved from haphazard, short-term promotions of cities to applying marketing strategies than are embedded within the city planning toolbox (Kavaratzis & Ashworth, 2005). This shift into more policy shaping marketing would be able to place the City of Ekurhuleni on par with international competing cities. Respondent 6 articulates that, *“O.R Tambo International*



*Airport has a huge influence as the biggest airport in South Africa. O.R Tambo is the first impression to tourists as they land” (respondent 6, personal interview, 14 December, 2016).*

Brand execution is an element that becomes the silent mark and feel that is depicted and created. In order for the experience to be whole and meaningful it requires complete follow through. The brand should be encapsulating the vision of Ekurhuleni of being a smart, creative and developmental city. The greatest impact of unclear brand is creating disjointed and confused spaces. These spaces will not represent uniformity and the sense of attainment to a common goal. This will inevitably impact the competitiveness of the city.

#### **4.9 Concluding Observations**

The key findings that have materialised from fieldwork are on par with the global theory and trends that are currently affecting areas within close proximity to the airport. Whilst Ekurhuleni is in pursuit of creating the aerotropolis, the city will have to play a role of managing the polarized expectation of business and the local residents. The aerotropolis does hold promises of creating an economically thriving area. However, with all good things, there are also the negative impacts associated with it.

Residents are torn in choice of buying in the economically attractive areas adjacent to the airport that implies facing a trade off with wellbeing that is compromised by the environmental and noise pollution that the aviation industry inherently embodies. The City of Ekurhuleni will be required to rather have a more proactive role in managing spatial distribution in the aspects of environmental and health and safety sides. In all these elements, merely noting on the zoning application that one is buying in a noise prone zone does not suffice as a fair measure. Rather the city should be taking an approach of being preventative rather than remedial.

By virtue of the presence of ORTIA within Ekurhuleni, the aerotropolis is born. The city is starting to show some signs of striving to create of a mixed use and compact city. Conversely, with any urban renewal project, this will also suffer severe teething pains. The reality of the situation is that as the city finds its new identity, residents may face displacement in the process. The constant increases in the land prices and rates will eventually push out the poor from the metro core. The eventual occurrence of this will affirm belief that, “urban restructuring through ‘creative destruction’, which nearly always has a class dimension since

it is the poor, the underprivileged and those marginalized from political power that suffer first and foremost from this process”( Harvey, 2008, p.33).

Most of the trends observed in Ekurhuleni bare resemblance to many global cities which have adopted the airport city model. What becomes contradictory is the criminal element which is illuminating within Ekurhuleni. This trait may be region specific as South Africa overall has a higher than normal crime rate (SACN, 2016). Funding schemes of bridging the inequality gap within the aerotropolis will be critical in creating an environment that is inclusive and at the same time liveable for all citizens. “Currently firms are deterred from investing in township areas by the low skills, limited urban facilities and also by the crime and grime concerns” (SACN, 2016, p.17). It would be an indignity if the aerotropolis would be fully development and still deal with a generally hostile and crime riddled environment. The increased crime of areas within the proximity at Ekurhuleni should be a learning curve for all other regional cities looking at pursuing the aerotropolis model.

Stakeholder engagement within Ekurhuleni has areas for improvement. Finding means of creating more synergy amongst the different spheres of government and other identified key stakeholders is most certainly an area that requires critical intervention from the planning profession. Within a democratized country such as South Africa, Ekurhuleni needs to improve the means of engagement with citizens. The lack of development post evaluation mechanisms may also be another element that creates a deeper disconnect between citizens and the city. Swanepoel did indicate that they are working with the National Treasury to find post implementation project assessment. At the moment the dip stick on testing competence of the city is the re-election of the existing political party into power (Swanepoel, personal interview, 27 January, 2017). This measure of evaluation is not ideal as, “periodic elections are a crude mechanism for ascertaining citizens’ preferences and priorities about services, infrastructure investment and public expenditure, and are often dominated by elite groups” (Devas, 2004, p.113).

By virtue of the aerotropolis creation, O.R Tambo International Airport has a potential of shaping the identity Ekurhuleni espouses. The initial step required is the collective analysis of the city which will eventually need to be formulated into the city policy. Municipalities with airports carry some strong economic and innovation attributes as they on their own, represent the non-territorial environment in which global cities thrive. The outcomes becomes the

juggling of different stakeholders and also satisfying varying needs represented by the multicultural society. The positive attributes of a vibrant economy are welcomed yet the mitigation of the social ills the model perpetuates will require planning intervention.

## **CHAPTER FIVE: EXPLORING THE ROLE OF A PLANNER WITHIN AN EMERGING AEROTROPOLIS**

Today's governance takes place in a more polycentric system of actors in which the state is less dominant than before. The multiplicity of actors complicates policy-making since no single actor is legitimate enough to direct societal change. Consensus is no longer given by virtue of legitimacy granted to the state's action but must be socially constructed. This requires alliances, coalitions and compromises (UN-Habitat, 2001, p.61).

### **5.1 Introduction**

As this chapter is the closing stage of the study, it will begin by reflecting on the build-up of all the other chapters. This chapter will seek to combine all the arising issues and also unpack the contradicting requirements that airports create in cities. The initial subsection will also give key highlights from all the respective countries and summarise all the key findings.

This chapter is also about the interrogation of the key role of the planner within the aerotropolis. The understanding of the role of the planner is critical in the understanding of the planning interventions which may be applied within these environments. Having identified the negative impacts and consequences of aerotropolis environments, this chapter will further attempt to highlight specific planning interventions identified as critical in the mitigation of the negative impacts. It will then expand on the proposed planning solutions that could improve the extent of negative impacts faced by areas surrounding the airport.

The intervention will then be represented diagrammatically with the aid of the conceptual framework and all limitations of solution will also be revealed. Eventually, the chapter will be closed and at this point of the main research questions and sub questions would be answered.

### **5.2 Partnership Framework for Collaborative Planning**

The Partnership framework below reflects the integrative role of the planner as a collaborator. The mobility turn is surpassing disciplines by questioning the preconception that scholarly

boundaries should be dealt with in isolation (Hannam, Sheller & Urry, 2006). The partnership framework is ideal in this environment because of the socio-political inequalities and the upskilling required within Ekurhuleni. The Conceptual Partnership Framework diagram represents all the stakeholders currently within the Aerotropolis planning. It has also included stakeholders that are instrumental in the competence of the model. The framework has grouped the stakeholders according to their common role. The community is critical layer that relies on the constant alliance with the collaborative planner. The collaborative planner should be able to source information from all the different stakeholders, either collectively or within industry groups.

### 5.3 Conceptual Framework Reflecting the Role of Planner as a Collaborator

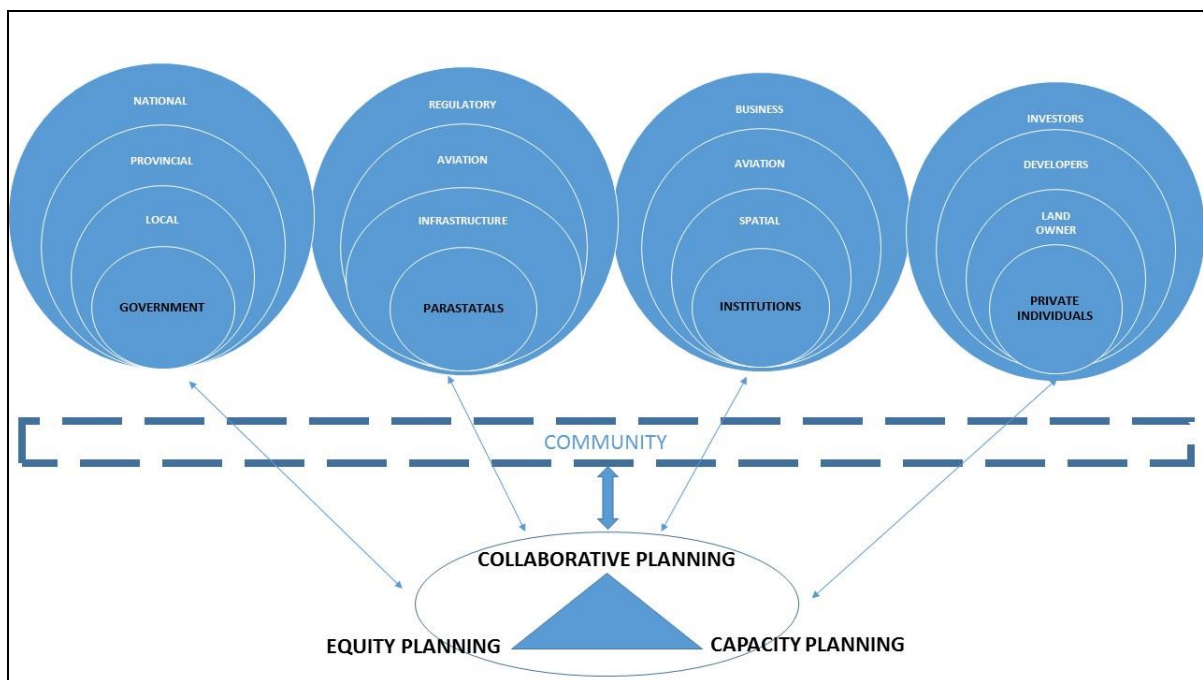


Figure 24- Researcher's Conceptual Partnership Framework depicting the Role of the Planner

This framework combines collaborative planning, capacity planning and equity planning. The collaborative planning will deal with issues of citizen participation and keystoneholder integration. Equity will deal with racial and gender inequality and means of reintegrating marginalised groups in the South African economy. Lastly, capacity building will deal with the upskilling of the marginalised groups so that they are equipped to make meaningful contribution to the economic system.

## **5.4 Proposed Solution to Mitigate the Negative Impacts**

### ***5.4.1 Cohesion of Stakeholders through Communicative and Collaborative Planning***

The formation of contemporary cities represent culturally and ethnically diverse groups of people. As discovered in the case study, Ekurhuleni has been formed through the merger of nine different towns (2015). The Aerotropolis city model includes various actors within its formulation. Appold and Kasarda (2014) expressed that multi- player integration is vital for the competitiveness of the aerotropolis. For that reason, in order to achieve the key requirements of ensuring coordinated efforts amongst different stakeholders and industries, Ekurhuleni will need to place focus on collaborative planning approaches.

The facilitation of participation planning processes in multicultural societies requires the planner to be able to relate to the world of others and also reconcile views from different ethnical and cultural backgrounds (Umemoto, 2011).

Collaboration is already reflected as one of the prime principles that are outlined in the city strategy (Ekurhuleni, 2015). However, the findings are inversely reflecting that this collaboration is not being utilized to its fullest potential in planning efforts. As a result, the field work exposed some fragmentation of different stakeholder, political squabbling between spheres of governance and an oversight of critical stakeholders within the aerotropolis planning phase.

Patsy Healey (2003) attests that “research found many participants in development processes were concerned about the lack of coherence and integrated strategies within a spatial dimension (p.103). Collaborative planning therefore within the environment will have to be balanced with the planner also acting as a communicator. Communication remains imperative at all levels of interaction, as information is regarded as powerful (Forester, 1982).

Huxley (2000, p.373) explains that communicative planning, “shows how knowledge and communication are being deployed by planners, the skills planners display in their everyday work, and the capacities they have to influence outcome”. Sager (2006) places a more pragmatic approach in understanding the communicative relations of communication in economic understanding of transaction costs. He describes transaction costs in communicative planning as:

Transaction costs are incurred when the transitioning parties are brought together for exchange of information and arguments, when procedures are established to make them deal with each other according to informal agreements (Sager, 2006, p.225).

Beyond the communication space, consensus decision processes should be used to ensure the fair decision making. The aim of communicative planning is to encourage the just practice within planning. “Communicatively rational decisions, then, are those that come about because there are good reasons for them rather than because of the political power or economic power of particular stakeholders” (Innes, 1996, p.461). Huxley (2000) cautions that consensus is not achieved automatically but rather planning has to create an environment where individuals can reach agreement by weeding out sources of distorted information within systematically unequal structures. Planners therefore need to enablers and facilitators of the communication within spatial planning platforms.

### **5.5 Critiques of Communicative and Collaborative Planning**

Collaborative and communicative planning theory is showing the potential to stimulate dialogue and create interconnections between Ekurhuleni and its stakeholders. Theoretically it carries the ideology of creating simplistic means of reaching consensus. It is losing the authenticities of the world though in which these arrangements essentially exist. The founder of communicative theory, Habermas is critiqued for not considering the power of systematic bureaucratic processes (as cited in Huxley, 2000). It also lacks contextualisation and understanding of wider elements (Healey, 2013; Sager, 2006). The biggest considerations are the power relations within an environment. Communicative theory evades dealing with self-serving individual, this assumes normal communication relations by hypothesising that through solely communication, a consensus will be reached (Huxley, 2000). Sager (2006) attests to this by expanding that communicative planners criticised for lacking credible strategy for dealing with biased power relations. Collaborative planning also assumes that

there will be a willingness of those in power to let go of current positions of authority (Sager, 2006).

Within communicative planning, informal arrangements hold higher transactional cost. (Sager, 2016). Communicative as act of social life still in the interpretation of the actor's world, unclear how planner capacities connect with wider social transformations (Huxley, 2000). Based on history, the metaphor 'collaborative planning' has been used and misused by politicians and policy makers to describe their ambitions for a new form of governance (Healey, 2013). This suggests that there openness of interpretation and lack of formal unary understanding of the theory. The formalising of the planning processes are critical in creating enabling platforms of communication that carry a reduced consequential encumbrance. "Diffuseness and informality of agreements in many planning processes correspond to the notion of incomplete contracts in transaction cost economics" (Sager, 2006, p.248).

The planner within these environments will need to be progressive in their thinking through exercising professional scepticism. Progressive planners have an understanding of the power of information in the participatory process, and are also able to anticipate that those with political power may distort or misrepresent information (Forester, 1982). In the history of planning, the planning profession did not welcome participation and this has created a gap with residents which has resulted in citizens not being forthcoming to planners in participatory processes (Umemoto, 2001). Apartheid planning even created a greater gap within South Africa. Planners in this environment has to work hard to earn the trust of citizens. This can be achieved through being socially and culturally conscious; even if it requires that planning to get obtain external support from those relatable to the communities.

#### ***5.5.1 Granting Citizens Power through Participation***

The recommendation would be that the level of citizenship is elevated to a level of being considered as a partner to the municipality. This kind of engagement empowers citizens to share planning decisions with the city through joint policy boards, planning groups and devices for resolving deadlocks (Arnstein, 1969). The planner will have to guide citizens in formulating the necessary structures that could engage with the city. Planners are able to influence state of affairs of participation through process as the policy shaper (Forester, 1982).



Even with all the hopes that participation will grant citizens the vigorous power of speech in shaping their environment, there are still short-comings that would need to be addressed. Arnstein (1969) when commenting about community-city partnerships highlighted that, “partnerships work when there is an organised power base in the community to which the citizen leaders are accountable, when the citizens group has the financial resources to pay its leader reasonable honoraria for their time consuming efforts” (p. 221). In the case of Ekurhuleni, communities would need additional coordinative structures and supplementary budgets to remunerate associates of these newly formed structures.

### **5.6 Equity Planning: Ensuring Economic Prosperity is Representative of Area Demographics**

As it has emerged from the literature review, mega projects like airports have the potential of creating social divide and in some instances could drive inequality further. South Africa has already been proven to be an unequal society that is riddled with a history of racial segregation. The understanding of the political systems becomes critical in ensuring there is equal opportunity given to even the marginalised within communities.

The South African Apartheid legacy has left South Africa with deep divisions of inequality between the different racial groups. Ekurhuleni’s demographics reflect that the most dominant races are collectively those that were economically disadvantaged. Ekurhuleni’s population is reflected as having 79% black, 16% white, 3% coloured and 2% Indian (Ekurhuleni, 2016).

It is therefore a socio-political and moral imperative for South Africa to redress racial discrimination in order for the country to achieve economic growth (DTI, n.d.). This is the very basis of equity planning. It assumes that a conscious attempt to carry out redistributive policies in favour of the least powerful and enhancing the avenues of participation, it implies that something is wrong with the normal channels of politics (Krumholz and Clavel, 1994). Henceforth, the application of equity planning becomes an imperative in rebalancing and ensuring the sustainable growth of the city.

Equity planning is primarily concerned with helping the disadvantaged and it operates from a premise that the prevailing democratic institutions are biased against the interests of those at the bottom of the social system (Krumholz & Clavel, 1994). Prominent planners in the field

of Equity Planning reflect that there will always be a link between politics and planning by articulating that;

“Involvement in policy and program formulation inevitably means involvement in politics. This did not put politics into planning; it has always been there....In light of the limited information available to local decision-makers and the shifting political coalitions characteristic of local government, planners with an informed, equity point of view could survive and prosper and even improve the quality of political decision making” (Krumholz & Forester, 1990, p.209).

It is evident that there is need to bridge economic gap between the traditional townships and suburban areas within South Africa. This should be done with the awarding of some of the businesses within the Aerotropolis to those whom were previously disadvantaged by the apartheid system. South Africa has already adopted the Black Economic Empowerment policy. The Department of Trade and Industry (DTI) explains that “the Broad-Based Black Economic Empowerment (BBBEE) strategy is a necessary government intervention to address the systematic exclusion of the majority of South Africans from full participation in the economy (DTI, n.d.).The initiatives that could be considered within this is the traditional black township economic development projects. The business that could be integrated to suit the BEE objects would be within the tourism space, arts and culture, hospitality, retail and light manufacturing industries.

Studies have reflected however in the previous chapters that the aerotropolis project and global cities place global competition to the fore. The implication of this is that the attraction of FDI and pro transnational companies’ incentive initiatives are prioritized (Ekurhuleni, 2015; Tang, 2008). This reflects that regional issues socio-political redress initiatives like BBBEE may easily take the backseat in the context of creating a globally competitive city. Means of ensuring that the uniquely South African challenges are still addressed, requires conscious effort from equity planners to advocate for the economic involvement of previously racially discriminated groups. One element that may be considered is ensuring the business awarding of parts of the concept to be awarded to previously disadvantaged groups. These may also be aided by creating partnerships between international companies and local black businesses.

Respondents have reflected that most infrastructure and social facilities are still within the suburban areas. For example, the standard of schools within townships were poorer, medical services such as clinics were severely under resourced and also there is a general lack of recreational facilities and malls. It was of concern that it was noted in the findings that there is still investor scepticism in investing South Africa townships due to the high crime rate and also lack of infrastructure (SACN, 2016). This therefore requires the cultivation of neighbourhood developments within the area. The city will initially need to place greater effort in ensuring that the image of the townships improves. There would also need to be better initiatives that would encourage the attraction of tourists into the areas. Respondent 17 from Tembisa expressed that, *“We are a township close to the airport but there is not many tourists who come here. Even the chesa nyamas like ‘busy corner’, it is people from around who come. It was only maybe during the World Cup when we had some tourists. Townships like Soweto have many tourists”* (respondent 17, personal interview, 17 December, 2016).

The most significant social facility that has emerged within Ekurhuleni in 2012 is the O.R Tambo Cultural Precinct. The precinct is located in the Wadeville area in Benoni. By virtue of the precinct being named after the struggle icon of which the airport was named after, signifies the beginnings of Ekurhuleni finding the unifying factor and common identity within the area. Although this is a significant stride, only 11 respondents out of the 28 mentioned the presence of the museum. The choice to commemorate the struggle icon whom the airport is named after also reflects the significance of carrying and conveying a uniform story of the icon, starting from the airport, which is at significant touch point for travellers who visit South Africa. The more established South African Airways Museum situated in Germiston was more known by the respondents.

By prioritising rapid facility provisions that would encourage economic generation would be ideal in the field of tourism and also other businesses within small to medium and micro business enterprise (SMME) range. SMMEs are recognized as highly important for stimulating economic growth and easing the burden of unemployment in South Africa (Small Enterprise Development Agency (SEDA), 2016). Ekurhuleni as a region has 71% of its population in working age in which 31% within this range unemployed (Ekurhuleni, 2016). It therefore become critical for Ekurhuleni to explore other mean of economic generation either than traditional employment. The smaller scales of business will ensure that there is a greater spread of the economic wealth within the area.

It is however cautioned that there is a threat of failure in small businesses within developing countries. The Small Enterprise Development Agency (SEDA, 2016, p.10) highlights, “this is most likely because economies tend to house a larger proportion of necessity-driven entrepreneurs, whereas opportunity driven activities are most common in developed countries”. It will therefore be beneficial that Ekurhuleni township developments look at industry opportunities that have already been identified as being attractive in an aerotropolis setting. These services may include arts and culture, information technology, specialty manufacturing, artisan trades, perishable product farming. SMME’s may even be a support industries for the larger primary businesses which would be located within the aerotropolis.

### ***5.6.1 Gender Based Initiatives***

Gender economic empowerment issue is a key issue that would need to have focus within South Africa as a whole. The Department of Trade and Industry (nd) explains that, “Vast racial and gender inequalities in the distribution of and access to wealth, income, skills and employment persist (p.4). As a consequence, our economy continues to perform below its full potential. This becomes even a greater issue within Ekurhuleni as 31,3% of households within the city are female headed (Ekurhuleni, 2016). This places emphasis on the need for females to be able to access and be equipped to access enterprise and workforce opportunities. It would be strongly encouraged that Ekurhuleni works closely with the Gender and Women Empowerment unit (GWE) within DTI. This unit’s key function is to; champion women economic empowerment by encouraging women participation and integration of women owned businesses in mainstream economy (DTI, 2017). The DTI would be able to provide to create networks and identify strategic opportunities within the trade industry of South Africa. This unit invests time researching gender equality and women enterprises within the context of South Africa with the hopes of identifying challenges and opportunities (DTI, 2017).

Women and children are the most vulnerable members of society. In the context of South Africa, “despite education gains, women remain more likely to be employed in low-skilled occupations” (Department of Women, 2015, p.12). Meaningful participation is critical in transforming the city. As already indicated, over a third of households are headed by women. Ekurhuleni should support the participation of women in the economy by creating child care

facilities. Raising participation for women in the economy requires child care and related services in order to assist women to actively seek employment and also be able to keep it (Department of Women, 2015). Ekurhuleni has already identified the problem and are planning to increase in child care facilities within communities in Ekurhuleni will also aid in alleviating the problem (Ekurhuleni, 2016).The supporting recommendation is that these child care facilities projects should be prioritised by the city as this will respond to the needs of the large number of women heading households within Ekurhuleni.

Equity planning is the societal ideal that focusing on uplifting the poor or underprivileged. Within equity planning practices, one has to be conscious that they are boosting people into greater positions than they were ordinarily exposed to in the past. Equity measures without adequate capacity support may lead to initiative failures due to lack of skills, environmental factors and supporting policies to ensure sustainability. Tshetu (2014) identified some critical hindrances to BEE success as lack of funding, information, skills and knowledge. It is therefore critical that equity planning is followed through by the correct individual, institutional and environmental capacity development in order to ensure long term transformation.

### **5.7 Capacity Building for Redistributive Economic Development**

When engaging in the equity planning principles. One needs to ensure that those whom have been previously disadvantaged will have the required skills and capacity to actively participate in the economy. In both upskilling the race and gender equity, one would need to understand the challenges and opportunities available in the immediate environments. Lusthias, Adrien and Perstinger (1999) suggest that capacity development has shifted from strengthening existing capabilities rather more towards enhancement.

The recommended capacity building is the upskilling of these groups. Within the different realms of these looking for employment and those whom would enter the entrepreneurial space may be offered training that is aligned to envisage career path. It was initially proposed that those whom are seeking business owners should partner with international companies. This partnership between local companies and the transnationals should be extended to the exchange of knowledge programmes, on job training and innovation and technological skills exchange. It is acknowledge power dimension may also come to play within these dynamics.

Capacity building through partnership still requires the development of relationships that recognize each partner's diverse strengths, needs and power within the relationship (Lusthias *et al*, 1999). In order to minimise the implications of power relations the entry point of the capacity development should occur in the environmental level. This initiative will require support structures include formal institutions (laws, policies, decrees, ordinances, membership rules, etc...); informal institutions (customs, cultures, norms, etc.); social capital and social infrastructure; and capacities of individuals and organizations under the environment. This will place the legislative framework for skills transfer (Matachi, 2006).

Lusthias *et al* (1999) further describes capacity development as a time sensitive that require consideration of the natural age. It would then be more relevant to focus of the 15-39 year age group in their entrepreneurial development initiatives. This is the group which has been most affected by the unemployment rate and they are still within an age where they have a relatively longer life span to develop their businesses.

Those seeking employment should then be provided with training in the fields that would support the aerotropolis industries. Ekurhuleni should at this point be able to identify industries which would be the backbone of the aerotropolis. Skills development should be formulated after indepth understanding of the projected skills and number of workforce is required to support the growth of the city. After all, "capacity development is about people, their organizations and institutions, developing whatever tools are required to control their own development and create societies that work for them" (Lusthias *et al*, 1999, p.17).

## **5.8 Closing Note**

With collaborative planning, equity planning, and capacity building, Ekurhuleni would be able to meet its vision of being the "smart, creative and developmental city". Hinging on its progress is ensuring it addresses some of the challenges identified in this closing chapter. The planning profession has been empowered to play multiple roles that can shape spatial planning. In a country with a new democracy like South Africa, it is vital that citizens are granted adequate power to spatially restructure cities. Participatory processes should be used for their rightful process of ensuring valuable input from communities to city officials. Participatory planning is perceived as the foundation of a democratic society as it grants citizens an opportunity to participate in their chosen government (Arnstein, 1969). Ekurhuleni's move to the higher realms of citizenship and avoidance of 'symbolic effort'

may be its immediate defence on easing some of the citizen anxieties about the changes within its environment.

Prospects and needs of residents and industries within the immediate surrounding of the airport are divergent. City management will have to manage different expectations from these stakeholders. The economic promise of prosperity will have to carefully deal with the relief of the anxieties of residents. The rapidly changing environment is losing the essence of comforting familiarity with the settlement of multi-cultural societies within the city. Correct engagement processes will also have to be planned for those who will in future face the inevitable resettlement.

Equitable planning practices will also ensure that there is a more sustainable growth through balanced distribution of wealth. The city may even take cognisance of Thomas' principle suggests that, "One modest but tangible way to help bring about equity in the urban context may be to ensure that the ranks of professional planners include diversity in race and ethnicity, particularly in urban societies where severe inequities by race and ethnicity exist" (Thomas, 2008, p.228). When equity planning are applied in areas where there had been disadvantaged groups, capacity building should applied collectively. In order to reach sustained development, equity planning and capacity building should be carried out as long term solutions rather than a project. Social transformation and capacity building is a slow process that requires the support from the government, institutions, private sectors and all individuals involved. Supporting policies for the transfer of skills from international companies to local businesses are of imperative in ensuring knowledge gain of the local workforce within the global regions.

There multi-disciplinary requirements of Ekurhuleni will need collaborative planning principles. These skills are critical as supplementary remedies that will support the partnership framework. Collaborative planning will extend far beyond citizen engagement but will also create cohesion amongst all the different stakeholders. Planners will have to be critical in the applicability of collaboration and communicative process by always keeping in mind the social undercurrents and power dynamics within its environment.

It is interesting to note that the Aerotropolis masterplan is unapproved, however, Ekurhuleni area is continuing to morph itself with into an aerotropolis. This poses a question to the

researcher on whether the aerotropolis is really attracting new spatial changes or it rather just a planning tool for industries that would have organically formed within the proximity of the airport in any event? Ekurhuleni's strategic intent places strong focus on building the economy. This is a steps towards the correct direction since the city recorded below average Quality of Life score within Gauteng (SACN, 2016, chap.3). Residents will however, soon realise that the pursuit of economic prosperity may be trade off with the sense of community that they have come to understand to date.

Affirmatively, O.R Tambo international Airport has through history had an impact on Ekurhuleni Municipality. Globalisation has now even elevated the necessity of the aviation industry in the world economic system. With the formalisation of developments surrounding airports under the banner of the Aerotropolis, O.R Tambo International Airport will still continue to spatially shape Ekurhuleni Metropolitan Municipality. The airport has stimulated compact and denser form within the metro cores surrounding the airport. The airport has become the radiating point in which Ekurhuleni developments sprout. Clustered developments run through like corridors on key roads that link to the airport.

New nodes have formed in closest proximity to the airport in order to encourage foreign investment. The airport has attracted manufacturing and logistics industries that are keen to leverage on the ease of access to market and distribution provided by the airport.

There is increasing scale and diversity due to the inflow of people that may be linked to the presence of ORTIA. Travellers come with varying requirement as a result, the metro core accommodates for multiplicity in compact and mixed-use developments. Although arts, culture and tourism facilities are still scanty, existing museums reflect a strong connection of Ekurhuleni's heritage to the airport. OR Tambo is driving for acquiring of skills facilities that will enable the aerotropolis to be served by high quality labour an aviation and related aerotropolis industries.

The aerotropolis masterplan draft reflects that Ekurhuleni would have buzzing space with a strong brand. The airport plays an essential role of being an economy stimulant as the gateway for the Gauteng Global City Region. The biggest risk associated with the airport is the risk of resettlements. New developments surrounding the airport come at the cost of increasing land prices and rates that threaten to push the poor out of the identified metro core.



As the centre of the aerotropolis, O.R Tambo International Airport will be the guide and consideration point for city spatial layout, it will influence its brand identity and it will steer the city to be unrepentant in executing its primary role of driving the economy.

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## APPENDIX

### List of Interviewees

#### *Officials*

Ndlwana, L (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] South African Airways Headquarters, Airways Park, Kempton Park, 5  
December 2016

Rateiwe, E (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] ACSA Head Office, 24 Johnson Road, Bedfordview, 8 December 2016

Orton, I (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area [in  
person] GIBB Head Office, Woodmead, 12 December 2016

Gildenhuis, S (2017) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Aurecon Head Office, Lynwood Manor, Tshwane, 20 January 2017

Swanepoel, P (2017) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Ekurhuleni Metropolitan Municipality Offices, Cnr Margaret Ave &  
Kempton Rd, Kempton Park, 27 January 2017

Van Zyl, J (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] ACSA Head Office, 24, Johnson Road, Bedfordview, 13 December 2016

#### *Residents*

Respondent 1 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 2 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Central, Kempton Park, 18 December 2016

Respondent 3 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Central, Kempton Park, 18 December 2016

Respondent 4 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Central, Kempton Park, 18December 2016

Respondent 5 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 6 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 7(2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 8 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 9(2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area  
[in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 10(2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni  
Area [in person] Cnr North Rand Rd & Bentel Ave, 14 December 2016

Respondent 11 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni  
Area [in person] Central, Kempton Park, 18 December 2016

Respondent 13 (2016), Spatial Impacts of O.R Tambo International Airport on Ekurhuleni  
Area [in person] Thekwane St, IvoryPark, Tembisa, 17 December 2016

Respondent 15 (2016), Spatial Impacts of O.R Tambo International Airport on Ekurhuleni  
Area [in person] Thekwane St, IvoryPark,Tembisa, 17 December 2016

Respondent 16 (2016), Spatial Impacts of O.R Tambo International Airport on Ekurhuleni  
Area [in person] Thekwane St, IvoryPark,Tembisa, 17 December 2016

Respondent 17 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area [in person] Thekwane St, IvoryPark, Tembisa, 17 December 2016

Respondent 18 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area [in person] Thekwane St, IvoryPark, Tembisa, 17 December 2016

Respondent 19 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area [in person] Thekwane St, IvoryPark, Tembisa, 17 December 2016

Respondent 20 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area [in person] Central, Kempton Park, 18 December 2016

Respondent 21 (2016) Spatial Impacts of O.R Tambo International Airport on Ekurhuleni Area [in person] Central, Kempton Park, 18 December 2016

## QUESTIONNAIRES

### *Officials Questionnaire*

#### **Biographical Questions**

Date of interview:

Name of interviewee:

Please assist us to understand who you are and your role within the business?

Kindly elaborate on your key responsibilities that are entailed within your role?

What is your highest Level of education/Profession?

How long have you worked in the organization?

What was your previous roles and experience?

#### **General Questions**

- What are the objectives of the organisation that you represent?
- How long has your business been located within Ekurhuleni Municipality?
- May you kindly offer more insight about the Aerotropolis project currently underway within Ekurhuleni?
- What is your perspective of the aerotropolis project currently underway in Ekurhuleni?
- How do you foresee the Aerotropolis project impacting your business and Ekurhuleni as a whole?
- How does the presence of O.R Tambo International Airport impact your business?

#### **Main Questions (Related to Sub questions)**

- 1. What were the strategies being implemented by ORTIA between 2000 and 2015 that influenced changes to spatial planning in Ekurhuleni?**

- Have you observed any changes in city and regional policies within the area between 2000 and 2015? What are they?
- What are the urban institutions that were formed between 2000 and 2015?
- What would you consider to be the brand/identity of Ekurhuleni?
- How has Ekurhuleni positioned itself between 2000 and 2015?
- How does your business strategy align to the spatial plans of Ekurhuleni area?
- How would you describe the urban form of Ekurhuleni?
- Kindly identify ways in which the outlook of Ekurhuleni is influenced by ORTIA?
- To what extent does the outlook and position of Ekurhuleni impacted by the presence of ORTIA?

**2. What were/are the development projects that were implemented by Ekurhuleni Metropolitan Municipality for the O.R Tambo International Airport between 2000 to 2015?**

- What are the social facilities (for example: social, health, tourism) that have been added in Ekurhuleni?
- What has been the region's outlook on industries and innovation?
- What would you describe as the most common social facilities?
- To what extent is ORTIA on 'top of mind' when conducting plans for your business?
- Are you aware of any special projects that your company is involved in that are relating to ORTIA?
- What are the zoning changes that took place within the area between 2000 and 2015?
- What has been the trend of land rates and prices within Ekurhuleni between 2000 and 2015?
- In what manner are these developmental projects influenced by the presence of ORTIA?

**3. What are the spatial plans and any other sectoral plans for Ekurhuleni created in view to support ORTIA?**

- What are the infrastructure initiatives that are happening within Ekurhuleni?
- What are the systems and physical infrastructure developments and investments that you have observed in Ekurhuleni?
- How does the existing transport network of ORTIA shape Ekurhuleni?
- In what manner is there a deliberate attempt to link new developments to deliberate attempt within Ekurhuleni to link areas to ORTIA?

**4. To what extent does ORTIA contribute to spatial changes in Ekurhuleni?**

- What trends have you observed in the population size and demographics within Ekurhuleni between 2000 and 2015?
- To what extent is the population dynamics and diversity linked to the presence of ORTIA?
- What are the urban settlement patterns that have been observed between 2000 and 2015?
- Who would you say are key bodies and policy makers that assist with spatial formation within EMM?
- In what manner are you involved in institutions that shape these spatial formations?
- What are the considerations in planning urban initiatives in Ekurhuleni in relation to ORTIA?

**5. What planning interventions are required to mitigate negative impacts of the airport?**

- Are there any negative consequences that you have observed in Ekurhuleni? What are they?
- In what manner has your business suffered effectively from being located in the Ekurhuleni?
- To what extent and manner can these negative occurrences have a correlation with the existence of the airport? Please Elaborate.



### **Closing Questions**

- What are the institutional frameworks, bodies and policies that guide spatial formation in EMM?
- Who are regarded as key stakeholders in the creation of urban space within EMM?
- What are the KPI's of successful spatial execution of spatial strategies in EMM?

## **INTERVIEW QUESTIONNAIRE FOR MSC (DP)**

**KAULA NYILENDA**

### *Residents Questionnaire*

#### **Biographical Questions**

Date of Interview:

Location of Interview:

Age of respondent:

Area within Municipality where they stay:

How long have you stayed in the area?

Level of education:

Area of employment:

#### **General questions:**

- What is your understanding of the Aerotropolis Project?
- What is the level of significance of ORTIA to your daily life?
- In what way does ORTIA impact your life?

#### **Main Questions:**

##### **Main Questions (Related to Sub questions)**

**1. What were the strategies being implemented by ORTIA between 2000 and 2015 that influenced changes to spatial planning in Ekurhuleni?**

- What are the new nodes and metros that were formed within Ekurhuleni between 2000 and 2005?
- Have you observed any changes in city and regional policies within the area between 2000 and 2015? What are they?

- What would you consider to be the brand/identity of Ekurhuleni?
- What would you describe as the brand of Ekurhuleni between 2000 and 2015?
- What is your understanding of how the city is developing in terms of land use?
- Kindly identify ways in which the outlook of Ekurhuleni is influenced by ORTIA?
- To what extent does the outlook and position of Ekurhuleni get impacted by the presence of ORTIA?

**2. What were/are the development projects that were implemented by Ekurhuleni Metropolitan Municipality for the O.R Tambo International Airport between 2000 to 2015?**

- What are the social facilities (for example: social, health, tourism) that have been added in Ekurhuleni?
- What would you describe as the most common added facilities?
- In what manner is ORTIA aligned to the abovementioned facilities?
- What are the zoning and land use changes that took place within the area between 2000 and 2015?
- What has been the trend of land rates and prices within Ekurhuleni between 2000 and 2015?
- In what manner are these developments influenced by the presence of ORTIA?

**3. What are the spatial plans for Ekurhuleni created in view to support ORTIA?**

- What are the new development projects and infrastructure initiatives that are happening within Ekurhuleni?
- What are the system (technological) and physical (transport, shops, hotels) infrastructure developments and investments that you have observed in Ekurhuleni?
- In what manner is there a deliberate attempt to link new developments to the deliberate attempt within Ekurhuleni to link areas to ORTIA?

**4. To what extent does ORTIA contribute to spatial changes in Ekurhuleni area?**

- What trends have you observed in the population size and demographics within Ekurhuleni between 2000 and 2015?
- What are the most popular areas within Ekurhuleni?
- To what extent is the population dynamics and diversity linked to the presence of ORTIA?

**5. What planning interventions are required to mitigate negative impacts of the airport?**

- Are there any negative consequences that you have observed in Ekurhuleni? What are they?
- In what manner have you been affected from being located in the Ekurhuleni?
- To what extent and manner can these negative occurrences have a correlation with the existence of the airport? Please Elaborate.

**Closing Questions:**

- Who are the people or bodies that guide spatial formation in EMM?
- In what way are you participating in the spatial formulation in EMM?
- What do you regard as a good city?