

# **THE CHALLENGE OF CREATING GREEN JOBS BY THE CITY OF JOHANNESBURG**

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A research report submitted to the Faculty of Management, University of the Witwatersrand, in partial fulfilment for the requirements for the Degree of Master of Management in the field of Public Development

## **DECLARATION**

I declare that this report is my own, unaided work. It is submitted in partial fulfilment for the requirements for the Degree of Master of Management in the field of Public Development at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any Degree or examination in any other University.

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25 July 2016

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## **ABSTRACT**

The purpose of the study was aimed at understanding whether the economic hub of South Africa is able to create the jobs it wants to, specifically with reference to “Green” jobs. It will seek to understand if there are barriers to the realisation of this objective and if these barriers can be overcome. Explore whether the Metropolitan City Council of Johannesburg (CoJ or Johannesburg Municipality), which has embarked on a Green Economy trajectory, can create jobs through the Green Economy.

The CoJ promised, through its long-term strategy, the Growth and Development Strategy (GDS) 2040, to play its part in reducing unemployment in the Country.

The main finding is that the City is able to create jobs, both within and beyond its borders, but it cannot as yet quantify the number of jobs created or the potential number of jobs that can be created through the Green Economy.

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## CHAPTER ONE

### 1. INTRODUCTION

#### 1.1 Executive summary

The City of Johannesburg is at the forefront of Economic Development in South Africa.

As a result, it has attracted people seeking employment opportunities. To add to the pressure, South Africa has a high unemployment rate and therefore places like Johannesburg become magnets for Economic Migrants.

Realising this, the City has declared in its long-term strategy, the Growth and Development Strategy 2040 (GDS 2040), to foster Economic Development and job creation.

One of the ways of doing so is through embarking on sustainable development, using the Green Economy as a vehicle.

This research project assesses what steps Johannesburg has taken on this route, and whether it has been successful.

The conclusion is that Johannesburg is fully committed to a Green Economy pathway and that it has successfully implemented a number of projects that can be classified under the Green Economy label.

What the research has not been able to determine is the number of jobs that have been created as a result.

#### 1.2 Background to the study

South Africa's unemployment rate stands "officially" at 34.2 percent (Department of Finance, 2011 Budget Review: 43.)<sup>12</sup> This creates a major challenge for the development of the country and means that the Government, in particular, must embark on strategies to create employment or employment opportunities.

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<sup>1</sup> Obtaining "official" unemployment rates for South Africa, as this chapter will illustrate, can be tricky. Several government sources - Statistics South Africa, the Department of Finance and The Presidency give their own figures which are different from each other. In addition, other respectable resources such as the International Labour Organisation and the Bureau for Economic Research also provide their own numbers which are sometimes different from those of the government.

<sup>2</sup> In a paper delivered at a workshop on "Work, Livelihoods and Economic Security in the 21st Century: India, South Africa and Brazil" in November 2011. Professor Jacklyn Cock stated: South Africa's unemployment rate is now 37% if those "discouraged from seeking work" are included, and includes many of our most important resource: our young people. 2.8 million of people between the ages of 18 and 30 are neither engaged in jobs or any educational institutions. Job losses as well as casualisation are increasing".

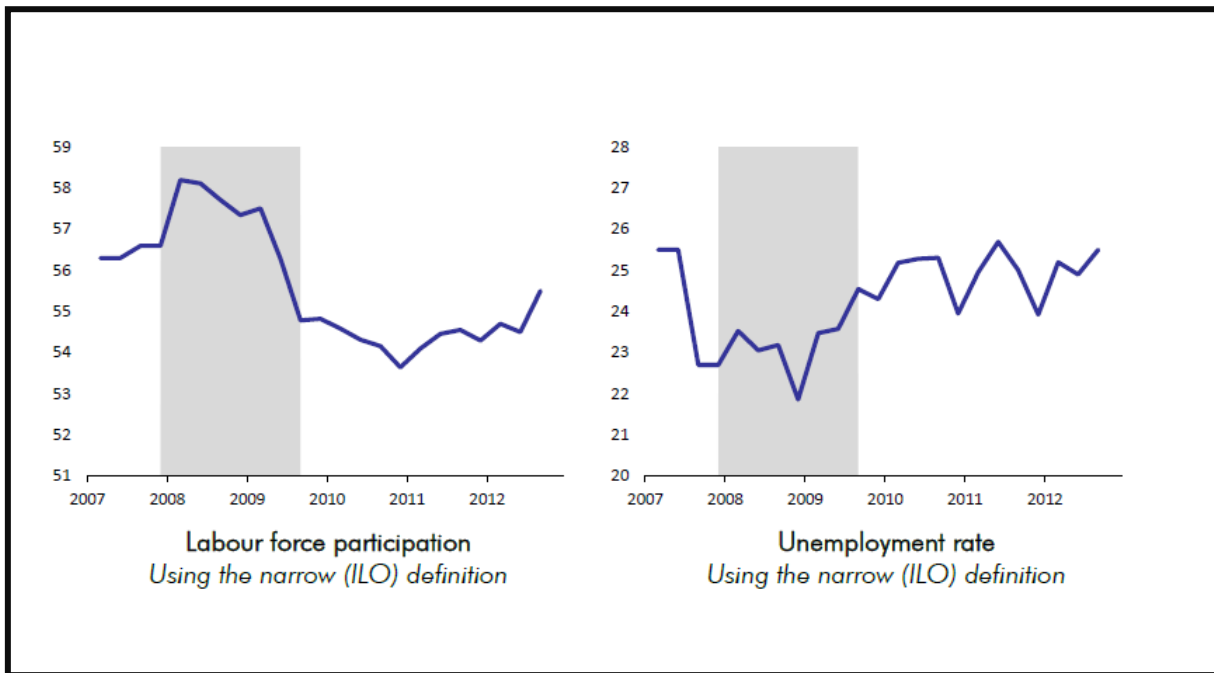


**Table 1: Unemployment in South Africa (Source: Bureau for Economic Research, 2013)**

The University of Stellenbosch-based Bureau for Economic Research puts the current (1<sup>st</sup> quarter 2013) unemployment rate at around 27% (Table 1).

The National Government, as well as Provincial and Local Governments, have made pledges to create employment. The National Development Plan (NDP) has set the country a target of reducing the rate of unemployment from 25 percent to 14 percent in 2020 to 6 percent by 2030 and to raise the labour force participation rate from 54 percent in 2010 to 65 percent.

Similarly, the Metropolitan Municipality of Johannesburg (to be referred to in this document as the City of Johannesburg or CoJ) is one of the Municipalities that have also made the pledge to contribute to job creation in the country.

Johannesburg is considered the centre of economic development in the country, contributing 24.9% of South Africa's GDP.<sup>3</sup> Quoting a study by Potchefstroom University, the CoJ's Website puts its own GDP contribution to the country at 14.98% and states that combined with the East Rand, the GDP contribution rises to 23%.<sup>4</sup>

The authors of the study state: "Johannesburg and the East Rand Metropole, although for administrative (legal) purposes two entities, form one large urban agglomeration. If one (1) includes East Rand as part of the City of Johannesburg, then the dominance of Johannesburg as a "primate" City in South Africa becomes clear: it then produces 22.8% of South Africa's GDP" (ibid).

<sup>3</sup> Brookings Institute at <http://www.brookings.edu/~media/research/files/reports/2010/11/30%20global%20metro%20monitor/profiles/world/johannesburg.pdf> retrieved 25 February 2013.

<sup>4</sup> City of Johannesburg at [http://www.joburg.org.za/index.php?option=com\\_content&task=view&id=400&Itemid=52](http://www.joburg.org.za/index.php?option=com_content&task=view&id=400&Itemid=52), retrieved on 25 February 2013.

Against this backdrop, the City of Johannesburg has its own unemployment challenges. According to its current developmental strategy, the Growth and Development Strategy 2040 (GDS 2040): "Statistics indicate that the unemployment rate (based on a narrow definition) in the City fell marginally from 19.6% in 2006 to 19.2% in 2007, in 2009 the unemployment rate was 21.9%" (GDS 2040: 2011, 27). The national unemployment rate according to the 2011 Budget Review is 32.4% in 2011 (Department of Finance, 2011:43).

Due to its position as the Economic cradle of South Africa, Johannesburg is bound to attract a sizeable number of opportunity seekers. These would come to the City looking for employment or other means of earning a livelihood. Not everyone however, who comes to the city, or is from the city, is able to find a job. As such, Johannesburg does have a high rate of unemployment compared to the National norm<sup>5</sup>. The CoJ has recognised this as a problem and hence has made a public declaration to create employment opportunities within its boundaries.

This recognition and the declaration were explicitly stated in the CoJ's two long-term strategies – Vision 2030 (released in 2002) and Growth and Development Strategy (GDS) 2040 (released in 2011).

The 2011 strategy identifies four (4) outcomes<sup>6</sup>, and number 3 is "*an inclusive, job-intensive, resilient and competitive economy that harnesses the potential of its citizens*" (CoJ, 2011: 9). Through this outcome the City of Johannesburg wants to be measured against National, Continental and Global Performances. Part of this sees the City subscribing to the United Nations' Millennium Development Goals (CoJ 2011: 8) which amongst others talks to decreasing the levels of poverty in societies. This correlates to Outcome 2 which talks to "*a resilient, liveable, sustainable urban environment – underpinned by infrastructure supportive of a low-carbon Economy*" (CoJ, 2011: 9). From this, it is logical to draw the conclusion that the CoJ's push for job creation will be in the Green Economy.

The GDS document also makes mention of establishing a recycling Economy for the CoJ.

An impetus to this notion was given during a presentation by Pikitup, the Council's waste collection utility, to the Mayoral sub-committee on 26 September 2012. A business model presented to the sub-committee outlined the establishment of recycling centres that would be underpinned, by, amongst others, the following principles:

- Focus on job creation;

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<sup>5</sup> The Joburg 2040 GDS strategy quotes the figure at 21.9% for 2009, using a broad definition, whilst the figure in table 1 reflects the unemployment rate at 24.9%. Stats SA released its Q2 unemployment results for 2012 which showed the unemployment rate at 24, 9% (from Stats SA website), <http://www.statssa.gov.za/PublicationsHTML/P02112ndQuarter2012/html/P02112ndQuarter2012.html>, accessed 30 July 2012). The national unemployment rate was revised with the release of Census

<sup>6</sup> The GDS 2040 strategy does not give a definition of "outcomes" but these can be broadly understood to mean the results of efforts to improve the lives of citizens in the municipality by making it an economically area to live in broadly are the developmental Outcomes are the

- Establishment of co-operatives to manage recycling processes in their areas; and
- Provision of training for entrepreneurs/co-operatives.

The presentation served to further explain the strategy Pikitup presented to the Mayoral Committee on June 12 2012 in which it asserted that the separation at source initiative *“has the ability to create job opportunities for entrepreneurs and jobless people. Enforcing the separation of recyclable waste City wide will not only increase volumes but also make the project financially viable as a result of the benefits derived from economies of scale”* (2012: 10).

The national outlook on unemployment and job creation also provides an important background to the CoJ’s objective of (Green) job creation.

The third draft report of the Green Economy Summit, held in Johannesburg in May 2010, hosted by four (4) Government Departments and attended by local and international delegates, states South Africa needed to respond to UNEP’s call for transformation to green economies. This was in response to what has now become known as the Global Financial crisis which started in 2008.

Although the draft report cautions that it is not to be interpreted as Government Policy, it states that:

To that effect, the subsequent framework for South Africa’s response to the International Economic crisis, Government recognises the opportunities in the development of industries that combat the negative effects of climate change and urges South Africa to develop strong capacity in Green Technologies and industries. Accordingly, it urges for the development of incentives for investment in a programmes geared at creating a large number of 'Green Jobs', i.e. employment in industries and facilities that are designed to mitigate impacts to the environment and natural systems and the protection thereof.<sup>7</sup> (2010: 4)

In the context of this research, it is noteworthy that one of the delegate organisations was the South African Local Government Association, at the time presided over by the Executive Mayor of the CoJ. This points the way to the City of Johannesburg’s move towards the creation of a Green Economy.

The Minister of Economic Development, Ebrahim Patel, told the summit: *“In the new growth path, we are identifying the sectors and parts of the economy where more jobs can be created. One of the most important elements of the new growth path is the Green Economy and the enormous potential that it holds for creating decent work opportunities and lifting the rate of Economic Growth”* (Patel: 2010)

The Green Economy Summit, albeit not a reflection of Government Policy or Strategy, confirmed at the very least the country’s and the CoJ’s commitment to sustainable development.

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<sup>7</sup> Draft 3 – Green Economy Summit

South Africa is also signatory to a number of International Conventions on sustainability and climate change. To operationalise these commitments, the country has taken some steps at various levels of the Government. Some of these will be mentioned here to give context. In January 2010 The Presidency adopted twelve (12) outcomes which would have to be achieved by 2014. Outcome 10 related to “Environmental assets and natural resources that are well protected and continually enhanced.” Outcome 10 must be understood in the context of environmentally sustainable and encompassing the protection of the environment. Outcome 4 talks to “a high performing metropolitan government that pro-actively contributes to and builds a sustainable, socially inclusive, locally integrated and globally competitive Gauteng City Region”. This is in line with Minister Patel’s outlook outlined above.

All levels of government have to plan their sustainability projects around this notion. Principle 4 of the Gauteng province’s Developmental Green Economy Strategy talks about “*ensuring resource security and environmental sustainability*”.<sup>8</sup> This too flows from central Government Policy and means that it must cascaded to – or at least implemented with – Local Authorities. The Green Strategic Programme for Gauteng is explicit on this point: “This Green Strategic Programme is meant to inform objectives and activities of departments and Municipalities in the province, so that all parts of Government working on green issues within Gauteng are focused on the same targets. Ultimately, each Provincial Department and Municipality, and ideally also National Government departments and agencies working in Gauteng, should align to and work co-operatively towards the vision and programme commitments in this Green Strategy Programme” (2011: 3).

Another major Policy document, the Framework for the New Growth Path, released by the Minister of Economic Development Ebrahim Patel in November 2010 (which has been revised and improved since then), incorporates the concept of sustainability, with a focus on shifting towards decoupling economic growth from Natural Resource Degradation. It dwells a lot on creating jobs through encouraging a Green Economy. Similarly, the National Planning Commission’s National Development Plan Vision for 2030, released by The Presidency in November 2011, recognises the importance of sustainability in the development of the country.

The New Growth Path and the National Planning Commission’s Vision 2030 both put the green economy as, if not the panacea, then a major fillip for job creation. Specifically, the New Growth Path aims to create five-million jobs and reduce unemployment from 25% to 15% over 10 years. In his 2012 State of the Nation Address President Jacob Zuma, in addition to pushing infrastructure development as a means to boosting job creation, added greening the economy as another strategy.

In June 2012 the Department of Environmental Affairs received a two-year R800 million grant from Treasury and using the New Growth Path as a guideline, Minister Edna Molewa predicted the creation of 300 000 green jobs via this allocation. She did not elaborate on the details.

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<sup>8</sup> Available at [http://www.gcro.ac.za/sites/default/files/reports/a\\_developmental\\_green\\_economy\\_for\\_gauteng\\_final.pdf](http://www.gcro.ac.za/sites/default/files/reports/a_developmental_green_economy_for_gauteng_final.pdf) retrieved on 14 August 2012

In the GDS 2040 strategy the City of Johannesburg Municipality (CoJ) acknowledges joblessness and inward migration as major challenges. To mitigate against this, the City has also made Green Jobs part of its strategy. It has developed a Waste Management Strategy, a Green Jobs Policy, a Green Procurement Policy, and, in general, its environmental management framework does also aim to boost job creation. (Interestingly, the State President did not mention the Green Jobs in his 2013 State of the nation address!)

This quest to create jobs in the Green Economy is not unique to Johannesburg. According to McCauley and Stephens (2012), quoting Jones (2008) and Vaitheeswaran (2003), whilst the world is battling economic uncertainty and climate change, localities are looking at Green Jobs as a means of meeting these challenges.

They acknowledge though that whilst this practice is growing, “scholarship on sustainability transitions has been minimal” (2012: 2).

The Brookings report, *Sizing the green economy – a national and regional assessment* (2011) argues that Metropolitan Centres are important for driving the Green Economy agenda and fostering the Green Jobs agenda.

According to the report, Metropolitan areas are important in the pursuit of these agendas “because that is where the clean economy is being built, firm by firm, cluster by cluster” (2011: 11).

The authors talk of “a Green Economy aspiration” (2011:6) which is a promise of a clean environment that provides sustainable jobs.

It is therefore clear that the City of Johannesburg seems to be following on international trends in attempting to create Green Jobs.

This essay is aimed at understanding whether the economic hub of South Africa is able to create the jobs it wants to, specifically with reference to “green” jobs. The research will seek to understand if there are barriers to the realisation of this objective and if these barriers can be overcome.

### **1.3 Problem statement**

Notwithstanding the pronouncements of national and local government on job creation, there is anecdotal and empirical evidence that unemployment is not declining – this is problem identified in the National Development Plan.

Driving through the streets of Johannesburg one can see (mostly) men at corners flagging down cars for casual jobs. Or, if a company advertises for positions, it is flooded by applicants or crowds of people jam its gates for the few openings that there exist.

The government is investing much time and money on policy formulation and job creation, so it is necessary to find out why so few jobs are being created. At a micro level, a city like Johannesburg has taken up the challenge of job creation and nailed

its mast on the Green Economy. This it has articulated in its long-term strategy, the Growth and Development Strategy 2040 - also called Joburg 2040 (2011).

Among its plans, Joburg 2040 identifies the Green Economy as one of the means of creating jobs. It is therefore necessary to investigate if this new strategy is the solution to job creation and to see how far the city has progressed on this path.

The RIO + 20 issues brief no 7 contextualises the issue of green this way: "The world faces sustainable development challenges which require coordinated action, as evidenced by the recurring fuel, climate and financial crises. These multiple crises need to be addressed at the same time. The concept of green job is an attempt to look at synergies in simultaneously addressing employment and environment issues. "(UNCSD, 2011: 1)

The brief cautions that although there are encouraging estimates of growing green Jobs globally, a Country's Policies, and research and development capacity, natural

#### **1.4 Purpose of the study**

The purpose of this study is to investigate the creation of Green Jobs in the economy of Johannesburg. It is also to understand the challenges faced by the CoJ in this quest.

Statistics released by both the CoJ and Statistics South Africa (Stats SA) which reveal that the unemployment rate in city is not going down. The CoJ's second long term strategy commits to the creation of Green Jobs by aligning itself to the National Government's New Growth Path and the Gauteng Province's Developmental Green Economy Strategy (GDS 2040: 11).

It is from this knowledge that the study hopes to suggest practical strategies that would contribute to employment creation by the City of Johannesburg Metropolitan Council.

#### **1.5 Research question**

The main question to be answered by this study is: What strategies are in place in the City of Johannesburg to create Green Jobs?

In order to gain more light on this matter, the following also need to be understood:

- What are the CoJ's Policies for job creation?
- Which sectors/industries are likely to yield cost-effective job opportunities?

#### **1.6 Significance of the study**

Unemployment is a major social and economic issue in South Africa. As more people enter the job market and less of them find employment, there is an urgent need for new job-creation strategies.

As the key player in the economy of South Africa, interventions that the City of Johannesburg undertakes can be used as building blocks for other parts of the country. Even though conditions in various areas for other areas may differ, learnings from Johannesburg can be adapted to other areas.

As the financial and economic capital of South Africa, Johannesburg's has to ensure that it remains a viable destination for job seekers.

It is therefore important to understand where Johannesburg stands relative to other Metropolis in the Country vis-à-vis unemployment and to look at what steps it is taking in tackling the issue.

The Green Economy has become the latest strategy in fostering economic development and Johannesburg's ability to harness this stream of job creation underlines the importance of this study.

This study will attempt to point out to what is feasible vis-à-vis job creation by the City of Johannesburg and hopefully add to the debate about job creation in the country. It will also, tangentially, highlight Johannesburg as safe haven for economic investment.

## **1.7 Limitations of the study**

The research will be limited in that only one aspect of job creation – green jobs - will be investigated. Despite the fact that the City of Johannesburg has embraced National and Provincial pronouncements on the Green Economy, it is early days and Policy may not even have been developed.

## **1.8 Assumptions**

The research assumes that there are officials within the City who have enough knowledge about the City's job creation strategies – and the Green Jobs strategy in particular – to be able to share the information for public consumption.

## **1.9 Ethical Considerations**

The author is a middle management employee of the CoJ and is thus privy to information that may not necessarily be available to others. Some of the information is pertinent to this proposal and could not be (yet) meant for public consumption. Where this occurs, the author intends to get senior management approval for disclosure. If this is denied, the author will indicate.

Although the author is an employee of the CoJ and the degree is sponsored as part of the CoJ Human Development Policy, it must be noted that the chosen topic has no direct linkage or bearing to the author's day-to-day job or his department. It is a topic chosen purely on the author's interest in the subject matter.

The interview subjects will be fully apprised of all the relevant information regarding the study and, especially the CoJ employees, they will not be pressured into *"helping a*

*colleague get a degree*". In other words, it will be left to their discretion to grant the interviews.

### **1.10 Report structure**

The report will be divided into six chapters:

**Chapter 1** is the background to the research. It also explains the purposes of the study and points out its significance.

**Chapter 2** is the literature review which is an analysis of arguments about the green economy, its impact on green jobs creation as well as the counter argument about the sustainability of the green economy. Whilst the background to the CoJ's proposals and actions is grounded on National Policy, there is an emerging trend internationally that Green Jobs are becoming a viable alternative to the Brown Jobs.

**Chapter 3** explains the research methodology and collection of data.

**Chapter 4** is a presentation of the research findings

**Chapter 5** is the analysis and interpretation of the data

**Chapter 6** offers conclusions and makes recommendations

### **1.11 Conclusion**

It is clear that for a significant period the City of Johannesburg has made pronouncements on sustainable development without taking any tangible steps towards the realisation of this goal. Despite hosting a major conference on climate change and sustainability, the Municipality took no significant steps in translating its sentiments into plans. Only in the last two (2) years has the City tabled reports of intent in this regard and last year it began pronouncing itself specifically on Green Jobs.

Chapter 2 delves into the literature review on the debates about the Green Economy and it will give context to the challenges facing Johannesburg.

## CHAPTER TWO

### 2. LITERATURE REVIEW

#### 2.1 Introduction

The literature review takes into account what has been researched and written about the potential of the Green Economy for job creation. This is a highly contested area. On the one hand, there is a general recognition that climate change is a reality and mitigation strategies are important. The argument is over whether these mitigation strategies will necessarily lead to the creation of new, sustainable jobs. The green lobby argues that such steps will of themselves create green and sustainable jobs.

Opponents of the Green Economy argue that Green Jobs are a myth, and that interventions aimed at creating “*Green Jobs*” do not deliver the return on investments that could have been realised through deploying conventional methods or promoting the “*Brown Economy*”.

The 2011 report on Green Jobs by the Industrial Development Corporation, the Development Bank of Southern Africa and TIPS states that “Local Government is expected to play a major role in the implementation of Green Projects and, therefore, coordination and support to ensure the necessary capacities are vital”. (2011: 18).

#### 2.2 Green Economy

Green Jobs are created out of the Green Economy and it is important to understand what this term means.

The Department of Environmental Affairs sees the Green Economy as a “*growing economic development path based on the knowledge that aims to address the interdependence of economic growth, social and natural ecosystems and the adverse impact economic activities can have on the environment. Green Economy can create Green Jobs, ensure real sustainable economic growth and prevent environmental pollution, global warming, resource depletion and environmental degradation*”.<sup>9</sup>

The report of the Green Economy Summit held in Johannesburg in May 2010 states that “South Africa views a Green Economy as a sustainable development path based on addressing the interdependence between economic growth, social protection and natural ecosystem. A more formal definition can be regarded as a “*system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over a long term while not exposing future generations to significant environmental risk or ecological scarcities*” (Green Economy Summit Report 2010: 3).<sup>10, 11</sup>

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<sup>9</sup>Website of the Department of Environment at [www.environment.gov.za](http://www.environment.gov.za) retrieved 14 July 2012).

<sup>10</sup>[www.info@sagreenconomy.co.za](mailto:www.info@sagreenconomy.co.za), retrieved 20 April 2012.

<sup>11</sup>Although the preface to the report states that it is a summary of the proceedings of the summit and does not in any way represent government policy or strategy, the summit was supported by three government departments, the local municipality representation organisation the South African Local Government

The focus of the South African government is on development and the report refers to the following two development outcomes:

- Growing Economic activity (which leads to investment, jobs and competitiveness in the green industry sector); and
- A shift in the economy as a whole towards cleaner industries and sectors with low environmental impact compared to its socio-economic impact (ibid).

In a report entitled *Current and Potential Green Jobs in the U.S. Economy*, the United States Conference of Mayors defines Green Economy, or “green activities” as “any activity that generates electricity using renewable or nuclear fuels, agriculture jobs supplying corn or soy for transportation fuel, manufacturing jobs producing goods used in renewable power generation, equipment dealers or wholesalers specialising in renewable energy or energy-efficiency products, construction and installation of energy and pollution management systems, government administration of environmental programs, and supporting jobs in the engineering, legal, research and consulting fields”. This list is not exhaustive and an annexure is added to the report (Global Insight, 2008).

Fankhauser et al warn though that “the Green Economy is much broader than the few flagship sectors on which the debate tends to focus, and each country has its niches of green competitiveness” (2012:5).

The most widely used definition is that formulated by the United Nations Environment Program (UNEP): “In its simplest expression, a Green Economy is low carbon, resource efficient, and socially inclusive. In a Green Economy, growth in income and employment should be driven by Public and Private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.” (2011: 16).

In another UNEP report, *Green Jobs: Towards decent work in a sustainable, low carbon world*, the organisation says: “In an ideal state of affairs, a Green Economy is one that does not generate pollution or waste and is hyper-efficient in its use of energy, water, and materials.” (2008:35).

The outcome of a Green Economy is Green Growth which Rosiek (2012) calls tools by which the current economy can make the transition to a sustainable economy.

As far as Gordon et al are concerned: “All this is to say that, while advocates know that we want a greener economy, we are not sure exactly how to describe what that economy looks like. Here is what we do know: across the world, the Green Economy is growing, as are the jobs associated with it. The growth has been astounding in the past decade” (2012: 26).

The Green Economy is often contrasted with the “Brown Economy” – the term for the conventional methods of economic production.

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Association (SALGA). It also quotes extensively from (South African government) documents for us to infer that the government at the very least tacitly supports the sentiments expressed therein.

Yet it is more than that. According to Fankhauser et al, *"green Growth advocates do not see environmental management as just another economic sector alongside conventional activity. They argue that the economic changes required to combat problems like climate change are not marginal, as most traditional models suggest, but transformative and system-wide, on par with the technological paradigm shift of the industrial revolution or the advent of information technology. The creation of a green economy will therefore affect not just a few sectors but the product mix and production processes of virtually the whole economy"* (2012: 7).

## 2.3 Green Policies

Actions taken to improve or change a certain (public) phenomenon are based on one or other policy. Thus for Governments to embark on programmes, these programmes must be informed by Policy.

To take on the task of creating jobs, certain types of policies must be in place. Creating green jobs is no different.

In the context of Green Economies and Green Job creation, Wei et al say that Policy helps in answering the following questions:

- a) "What are the job creation sensitivities of adopting various clean energy approaches and energy efficiency?;
- b) How would large-scale growth in the renewable energy sector impact overall employment taking into account job losses in the fossil fuel sector?; and
- c) What is the job creation potential for low carbon approaches such as nuclear power or carbon capture and storage?" (2010: pp919 - 920).

According to UNEP, it is a myth that Green Policies cannot create jobs. Its 2011 report, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, categorically asserts that many green sectors contribute to economic development and job creation. "For this to occur, however, new enabling conditions are required to promote such investments in the transition to a green economy, which in turn calls for urgent action by policy makers" (2011: 16).

The seminal Sterne Commission Review supports this: *"Mitigation - taking strong action to reduce emissions- must be viewed as an investment, a cost incurred now and in the coming few decades to avoid the risks of very severe consequences in the future. If these investments are made wisely, the costs will be manageable, and there will be a wide range of opportunities for growth and development along the way. For this to work well, policy must promote sound market signals, overcome market failures and have equity and risk mitigation at its core."* (2005: i). Further on: *"Policies should adapt to changing circumstances as the costs and benefits of responding to climate change become clearer over time. They should also build on diverse national conditions and approaches to policy-making"* (18: 2008).

An integrated approach is also suggested by Abdelillah and Depret (2010). The integration happens not only intra-governmentally but with other stakeholders as well. There should also be functional integration. *"... it seems very clear today that the countries which really integrate their environmental and innovation policies are*

*precisely those where the green economy is most developed* “(2010: 477), and furthermore, *policy integration should be “circumstantial, lasting and flexible”* (2010: 481).

The Green Economy Summit Report states that for Green Economy to take off, it must be supported by *“enabling policy reforms”* (2010: 3).

The report identifies various government departments that must review or promulgate policies to make the reality of a Green Economy to come true. The departments are: Public Works, Environmental Affairs, Energy, Transport, National Treasury, Mineral Resources and Higher Education.

The report also calls for policy coordination at the international level, advocating for *“internationally legally binding targets and long-term stable domestic support for renewable energy”* (2010: 10). Inter alia, it suggests the following:

- Clear, consistent, long-term signals to business. Incentives for low-carbon technology research and development will make much more sense in a world with carbon prices than without; and
- (It is) important to rely on comparative advantages for managing market and regulatory uncertainties (2010: 6).

For the summit, *“policy coherence is important as well as minimisation of overlaps in policy instruments to address a single externality. Policies developed should have a strong focus on the poor and not place disproportionate burden on low income group individuals”* (2010: 8).

The torch bearer for greening the world, UNEP, also emphasises the importance of having the appropriate policies in place: *“Forward-thinking Government Policies remain indispensable. They are important for providing funding of Green projects; overall goal- and standard-setting beyond the time horizons typical in the business world; providing infrastructure that private enterprises cannot or will not create; and creating and maintaining a level playing field for all actors”* (2008:5).

## **2.4 Green Jobs**

The Green Economy is touted as the critical means of creating jobs. *“By investing in energy efficiency measures, money otherwise spent on energy costs can be redirected to stimulate the economy through job creation”* (Wei et al, 2010: 919).

Currently there is no universally accepted definition or list of Green Jobs. There are broad and wide definitions offered by a number of institutions. UNEP and the International Labour Organisation as well as the likes of the Brookings Institution have their different definitions. The former defines it thus: *“The clean economy is economic activity measured in terms of establishments and the jobs associated with them – that produces goods and services with an environmental benefit or adds value to such products using the skills and technologies that are uniquely applied to those products”* (2011:14). UNEP in its Green Jobs report says *“Green jobs are those that contribute appreciably to maintaining or restoring environmental quality and avoiding future damage to the Earth’s ecosystems”* (2008:35).

The United States' Bureau of Labour Statistics (BLS) has started a "*Green Jobs initiative*" through which it has come with the following definition:

*" (a) jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources; and (b) jobs in which workers' duties involve making their establishments' production processes more environmentally friendly or use fewer resources"* (from [www.bls.gov/green/](http://www.bls.gov/green/) retrieved 8 August 2012).

This is a broad definition and as the BLS initiative is ongoing, it is hoped that a more definitive one will be developed in the future. Part of the initiative is categorising Green Jobs.

The Department of Energy's "*Working for Energy*" programme (2011/2012) identifies job creation in areas including biomass to energy from invasive alien plants and bush encroachment, waste to energy from municipal solid waste or sewage treatment, charcoal derived from invasive alien plants and grasses, solar power and wind generation. (Department of Energy Affairs, Working for Energy Annual Work Plan 2011/2012 1st draft, February 2011, retrieved 11 August 2012).

Speaking at the Green Summit in Johannesburg in 2010, South Africa's Minister of Economic Development, Ebrahim Patel made the following observation: "*Our opportunities lie in many new areas, ranging from development of new energy efficient materials, to large solar and wind energy plants, to green manufacturing operations including of car manufacturing, ecotourism and waste management*" (Patel: 2010).

Both the Gordon and Wei studies touch on the potential loss of conventional jobs and argue that the losses will be mitigated or replaced by those created by the Green Economy. Wei et al also argue that other "*avoided environmental costs or other potential benefits*" such as savings on imported fossil fuel and improved health, favour green jobs programmes (2010:920).

While Gordon et al argue strongly that most of the "*green collar*" jobs will be created through people (Americans) investing in tertiary education, it is trite that for every engineer who designs a wind turbine, there must be a labourer who has to physically install it. What this means is that Green Economy jobs created will be ranging from the highly skilled and technical to the unskilled.

An optimistic note is sounded by Abdelillah and Depret: "*Indeed we see growing support for the idea that active and global environmental protection opens up real possibilities for the development of new sectors with considerable economic (growth), financial (investment) and human (jobs) potential in the short to medium-term, and more significant potential in the long term*" (2010: 474).

UNEP takes a realistic middle point: "Thus sceptical assumptions about reducing greenhouse gas emissions and other environmental measures will likely produce studies that predict job losses, just as more positive assumptions will yield upbeat results (2008: 37). Whilst Gordon et al argue that: "*... despite scepticism among some vocal politicians in the United States and some entrenched fossil fuel interests, the*

*world is looking ahead to the future promise of a new energy economy's (sic) and to the Green Jobs that will go along with it" (2012: pp 24-25).*

### 2.4.1 What Green Jobs?

Notwithstanding Gordon et al's assertion that sceptics will pooh-pooh the Green Jobs evolutions (2012), the voices of opponents or doubters may be useful in providing insights into the debate.

In *Green Jobs Myths* Morriss et al (2009) claim to demonstrate that interest groups are using "*dubious assumptions*" to make claims about the creation of Green Jobs. They argue that billions of dollars spent on the Green Economy do not give the same returns and in some cases they give negative returns as money spent on the Brown Economy. Their paper was written in response to the U.S. Conference of Mayors' report *Current and Potential Green Jobs in the U.S. Economy*.

They claim that the Green Jobs hype is based on the following seven (7) myths and offer what they call reality: (the following table shows the "myths" expounded upon by Morriss et al and the counter by Pollin (2009):

| <b>"Myths" (Morris et al)</b>                                                             | <b>"Reality" (Morriss et al)</b>                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Counter argument (Pollin)</b>                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Myth 1: Everyone understands what a "Green Job" is                                        | Reality: No standard definition of a Green Job exists                                                                                                                                                                                                                                                                                                                                                                                          | Reprise 1: Agrees that he and his co-authors had not defined green jobs. Their concern was not about the jobs that are created by investing in a cleaner environment but more about the total number of jobs created. |
| Myth 2: Creating Green Jobs will boost productive employment                              | Reality: Green job estimates in these oft-quoted studies conclude huge numbers of clerical, bureaucratic and administrative positions that do not produce goods and services for consumption.                                                                                                                                                                                                                                                  | Reprise 2: Their research shows that investment of a given dollar amount in the green economy will produce three times the number of jobs had the money been spent on conventional jobs                               |
| Myth 3: Green Jobs forecasts are reliable                                                 | Reality: The green jobs studies made estimates using poor economic models based on dubious assumptions                                                                                                                                                                                                                                                                                                                                         | Reprise 3: A defence of their model is offered, citing the fact that these models are of common usage.                                                                                                                |
| Myth 4: Green Jobs promote employment growth.                                             | Reality: By creating more jobs instead of creating more productivity, the green jobs described in the literature actually encourage low-paying jobs in less desirable situations. Economic growth cannot be ordered by Congress or by the United Nations. Government interference in the economy – such as restricting successful technologies in favour of speculative technologies favoured by special interests – will generate stagnation. | Reprise 4: Pollin states their research showed that investment in the green economy can result in sizeable high paying jobs as well as relatively more entry-level jobs.                                              |
| Myth 5: The world economy can be remade by reducing trade and relying on local production | Reality: History shows that individual nations cannot produce anything its citizens need or desire. People and countries have talents that allow specialisation in products and services that made their ever more efficient, lower-cost                                                                                                                                                                                                       | Reprise 5: They assert that this claim is not made in their research and that they support international trade.                                                                                                       |

| <b>"Myths" (Morris et al)</b>                                 | <b>"Reality" (Morriss et al)</b>                                                                                                                                 | <b>Counter argument (Pollin)</b>                                                                                                                                |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| without dramatically decreasing our standard of living.       | producers, thereby enriching all people.                                                                                                                         |                                                                                                                                                                 |
| Myth 6: Government mandates are substitutes for free markets. | Reality: Companies react more swiftly and efficiently to the demands of their customers/markets, than to cumbersome government mandates.                         | Reprise 6: Again Pollin asserts that this claim is not based on their writing.                                                                                  |
| Myth 7: Wishing for technological progress is sufficient.     | Reality: Some technologies preferred by green jobs studies are not capable of efficiently reaching the scale necessary to meet today's demands. (200X: pp 2- 3). | Reprise 7: This is dismissed as well as the original writing suggested that 70% of green investments be channeled to energy efficiency using known technologies |

**Table 2: Green jobs myth's arguments and counter arguments**

Morriss et al assert: "...the green jobs literature is rife with internal contradictions, vague terminology, dubious science and ignorance of basic economic principles. Indeed, in, their green jobs literature claims resemble the promise of long-term financial prosperity offered by Ponzi schemes" (2009 4).

They are supported by Hughes (2011) who says that studies in Europe do not give credence to the notion of the Green Economy providing green jobs.

Gülen tempers the debate with this sobering thought: "There is a high level of uncertainty surrounding the jobs estimates of these studies, partly because they use different definitions of a green job. But the estimates differ significantly also because the studies use different models to estimate job creation and different investment scenarios. Also, there is little to no effort to balance the potential positive impacts with the potential negative impacts of job losses and higher energy cost. In a sense, many studies are cost-benefit analysis without adequate cost considerations" (2010: 7).

Godin (2012) presents a complicated economics model, the Stock Flow Consistent model (which is not necessary to reproduce here) and argues that it demonstrates that the government, as a green jobs employer of last result, can create full employment.

It is an expansion of the concept of public service employment (PSE) introduced by Forstater (2006) which argued that:

Unlike traditional Keynesian demand management, the PSE approach also addresses the structural change problem and recognizes the functionality of unemployment. Offering jobs in the PSE sector to the unemployed permits full employment without the rigidities associated with full employment in the private sector. PSE program activities can be designed to avoid structural bottlenecks, while the program itself maintains a "reserve" of labour for the private sector without the social and economic costs of unemployment, thus addressing the functionality issue. In fact, the program, by maintaining and enhancing skills and knowledge, may perform this function more effectively than a reserve of unemployed, which leads to deskilling and, perhaps, more unemployment (2006: 63)

This can be done in an environmentally sustainable manner as in PSE, which does not seek profits, activities are evaluated according to social, macro, or environmental efficiency criteria rather than cost-minimizing efficiency criteria of the private sector (2006: 63). Secondly, he suggests the introduction of (green) taxes that should be imposed not for generating income but for modifying behaviour – i.e. punitive if environmentally unsustainable behaviour occurs and non-existent if the desired behaviour takes place.

## 2.5 International experience

The trend towards greening economies and creating jobs is a worldwide phenomenon. South Africa, and the Metropolitan Municipality of the City of Johannesburg in particular, are therefore in line with what is happening elsewhere.

Much evidence of this is available. UNEP supports this generalisation: *"There are examples of cities and regions that have begun to successfully reinvent themselves. Toledo, Ohio, a typical "rust-belt" city in the United States that was once dominated by automobile related firms, has become a desirable location for solar companies. Glass manufacturers there have reoriented themselves from making car windshields to making solar panels".* (2008: 75).

Table 2 is good example of what is happening.

| Renewable Energy Source | World*      | Selected Countries                                             |                                                          |
|-------------------------|-------------|----------------------------------------------------------------|----------------------------------------------------------|
| Wind                    | 300,000     | Germany<br>United States<br>Spain<br>China<br>Denmark<br>India | 82,100<br>36,800<br>35,000<br>22,200<br>21,000<br>10,000 |
| Solar PV                | 170,000     | China<br>Germany<br>Spain<br>United States                     | 55,000<br>35,000<br>26,449<br>15,700                     |
| Solar Thermal           | 624000 plus | China<br>Germany<br>Spain<br>United States                     | 600,000<br>13,300<br>9,142<br>1,900                      |
| Biomass                 | 1,174,000   | Brazil<br>United States<br>China<br>Germany                    | 500,000<br>312,200<br>266,000<br>95,400<br>10,349        |

| Renewable Energy Source | World*         | Selected Countries       |                  |
|-------------------------|----------------|--------------------------|------------------|
|                         |                | Spain                    |                  |
| Hydropower              | 39,000         | Europe<br>United States  | 20,000<br>19,000 |
| Geothermal              | 25,000         | United States<br>Germany | 21,000<br>4,200  |
| Renewables, combined    | 2,332,000 plus |                          |                  |

**Table 3: Estimated Employment in the Renewable Energy Sector, Selected Countries and World, 2006 -** Source: Unep, 2008

\*Countries for which information is available. \*\*Under the assumption that Japan's PV industry employs roughly as many people as Germany's PV industry.

## 2.6 Conclusion

The literature reveals that the debate over green jobs is not settled. It also confirms that, despite contrary views, countries are moving towards the Green Economy. It may well be a question of "when" rather than "if". It is a process.

This puts Johannesburg at an advantageous cross point: to be able to draw on the experiences of the cities around the world that have started on this path and to learn from their endeavours.

As the US mayors' study has indicated, cities are crucibles of economic development and job creation. This study will aim to find out what role the City of Johannesburg has played to date and what it needs to do to ensure a growth in its Green Economy

The 2011 report by Maia et al, "*Green Jobs: an estimate of the direct potential of a greening South African Economy, Industrial Development Corporation, Development Bank of Southern Africa, Trade and Industrial Policy Strategies*" investigated the net direct (green) jobs creation from the formal economy in South African in the short to long term - i.e. up to 2025. The report focuses on:

- Energy generation;
- Energy and resource efficiency;
- Emission and pollution mitigation; and
- Natural resource management.

The report emphasises that "*Local Government is expected to play a major role in the implementation of green projects and, therefore, coordination and support to ensure the necessary capacities are vital*" (2011:18).

As early as 2010, the Minister of Economic Development Ebrahim Patel was predicting that 300 000 Green Jobs would be created by 2020 in solar, bio fuels, small hydro and pyrolysis.

A 2011 report by the Industrial Development Corporation (IDC), the Development Bank of South Africa (DBSA) and the Trade and Industrial Policy Strategies (TIPS)

called *“Green Jobs: an estimate of the direct employment potential of a greening South African Economy”* predicted *“approximately 98 000 new direct jobs, on average, in the short term, almost 255 000 in the medium term and around 462 000 employment opportunities in the formal economy in the long term”* through the Green Economy (2011:12).

The jobs would be created from what the authors call four broad types of activities – energy generation, energy and resource efficiency, emission and pollution mitigation and natural resource management.

In February 2011 the City of Johannesburg launched its job pathways via its subsidy the Johannesburg City Parks. It is an academy targeting unemployed youth for training on environmental matters and offering them jobs within the CoJ.

Notwithstanding any projections, The World Bank report, South Africa Economic Update: Focus on Green Growth (2011) cautions that *“there is generally no single “silver bullet” that by itself will deliver both growth and environmental protection: it usually makes sense to use multiple policy instruments to pursue multiple policy objectives - in this case growth and the environment – targeting each objective with the instruments most suited to it.”* (2011: viii).

The report paints an encouraging prognosis for Green Jobs creation in South Africa, even though it does not project any growth figures.

This is confirmed by the ILO: *“It now appears that a Green Economy can generate more and better jobs and that these can be decent jobs”* (2008:9).

## CHAPTER THREE

### 3. Research Methodology

#### 3.1 INTRODUCTION

This chapter seeks to understand the method to be used in gathering information for the research report.

The aim is to ultimately explain the steps undertaken to gain insight into how the City of Johannesburg is meeting the challenge of creating Green Jobs.

#### 3.2 NATURE OF THE RESEARCH

Qualitative research will be used to obtain information for this report. As the study will be collecting data to understand the researched phenomena, the qualitative approach will suit the purpose of this research.

Walker (1985) explains that qualitative research yields rich data from a limited number of individuals (as we explain later, the information will be gathered from a few people via interviews).

The usefulness of qualitative research lies in the fact it affords a broad approach to information gathering. Leady and Ormond (2010) state: *"The term qualitative research encompasses several approaches to research that are, in some respects, quite different from one another. Yet all qualitative research approaches have two things in common. First, they focus on phenomena that occur in natural settings. – that is, "in the real world". And second, they involve studying phenomena in all their complexity. Qualitative researchers rarely try to simplify what they observe. Instead, they recognise that the issue they are studying has many dimensions and layers, and so they try to portray the issue in its multifaceted form."* (2010: 135).

Importantly, they state that most researchers strive for objectivity when undertaking their quest for information. Although one suspects an element of relativism in their thinking: *"Some researchers believe that there isn't necessarily a single, ultimate Truth to be discovered. Instead, there may be different perspectives held by different individuals, with each of these perspectives having equal validity, or truth. One goal of a quality study, then, might be to reveal the nature of these multiple perspectives."*

Locke et al (1993) state that it is the experiences of the individuals involved in a particular setting that are sought and used to explain the issues.

Merriam asks the question: *"What is qualitative research?"* (2009:3). She goes on to describe several activities that could be construed as research. Although she does not give a definitive answer to the question, she concludes the chapter that asks this question thus: *"in its broadest sense, research is a systematic process by which we know more about something that we did before engaging in the process. We can*

*engage in this process to contribute to the knowledge base in a field (pure research), improve the practice of a particular discipline (applied research), assess the value of something (evaluation research), or address a particular, localized problem (action research)."* (2009: 4).

Lastly, Guest et al are wary of many of the definitions of qualitative research which they say are constrained by a *"dichotomous typology that contrasts qualitative and quantitative research or assumes a particular epistemological foundation"* (2012: 5).

They rather prefer a *"functional"* definition offered by Nkwi, Nyamongo and Ryan that *"qualitative research involves any research that uses data that do not indicate ordinal values"* (2012: 5). They prefer this as it *"outcome focused"* and avoids *"unnecessary and inaccurate generalisations and dichotomous positioning of qualitative research with qualitative research with qualitative research with qualitative research with respect to its quantitative counterpart"* (2012: 6).

This study falls into the broad category of qualitative research as we will be attempting to address a localized problem, i.e., unemployment in Johannesburg.

Specifically, according to Locke et al, we want to find out *"what's going on here?"* (1993: 99) and qualitative research is the most relevant mode of doing so.

The following extended quotation from Biber and Leavy is also poignant:

*"We often think of qualitative research questions involving an inductive approach, which focuses on describing or generating some theories or ideas about a given social phenomenon. The researcher asks open-ended questions such as the following:*

- What is happening here?; and
- How do individuals make sense of their lived experiences?

In qualitative research, questions are often exploratory and descriptive: to describe social phenomena and their meanings to relevant actors (the questions) and to understand and explain social patterns and processes (the *how* questions) (2011:37) (their italics).

*In casu*, the aim is to find out what are the challenges facing the City of Johannesburg vis-a-vis creating Green Jobs. The policies (the *how* questions) and the programmes (the questions) are what we aim to explore.

Another confirming voice is that of Flick (2005) who asserts that qualitative research is geared towards analysing phenomenon at a particular time and within a particular locality.

Per Leavy and Ormond (2010), quoting Pershkin (1993), choosing the qualitative approach is useful for the following reasons:

- Description: it can reveal the nature of certain situations, settings, processes, relationships, systems or people;

- Interpretation: it enables the researcher to (a) gain new insights about a particular phenomenon, (b) develop new concepts or theoretical perspectives about some of the phenomenon, and/or (c) discover the problem that exists within the phenomenon;
- Verification: it allows a researcher to test the validity of certain assumptions, claims, theories or generalisations within real-world contexts; and
- Evaluation: it provides a means through which a researcher can judge the effectiveness of particular policies, practices or innovations (2010: 136-137).

To conclude, therefore, qualitative research is the approach to be used in that it allows for the collection of information directly from the officials involved in policy formulation for green jobs' creation by the City of Johannesburg. It will also allow for the assessment of progress made, challenges faced and assess possible solutions.

### **3.3 DATA COLLECTION STRATEGY**

#### **3.3.1 Primary Data**

Qualitative research allows the researcher to gather data from various sources to explain the situation at hand. Through interrogating these sources we can find out if in fact there is a problem of unemployment, if there are Green Economy plans to tackle it and if there are impediments to dealing with this phenomenon. What this means is that through qualitative research we can interrogate the intended interventions of the City of Johannesburg in creating Green Jobs. This is done through interviewing the relevant officials and examining policy.

Cre heads of departments (or their nominated representatives) for: Community Development; Economic Development and Urban Management (which includes environmental affairs).

It is envisaged that the sample chosen will be six individuals in the City of Johannesburg whose positions either allow them to formulate policy on job creation or oversee planning and execution of job creation projects. One of these will be directly linked to environmental issues, aspects of which include the Green Economy.

An outsider's voice – an expert who has studied the economic development of Johannesburg - will be included to give a different perspective or confirm the CoJ's perspective. It is envisaged that the Centre for Development and Enterprise (CDE) will provide this voice.

Other organisations where interviews will be sought are:

- The Development Bank of South Africa which has published research on the Green Economy;
- The WWF – the International Environmental Organisation;
- Mama Earth – an NGO with concerns over the Green Economy;
- TIPS – a research organisation specialising on developmental issues; and
- Greenpeace South Africa – the worldwide activist organisation that is concerned with resource sustainability.

All in all, it envisaged that a minimum of six interviews will be conducted.

Interviews are useful in that the researcher gets the raw data from the personnel that are responsible for specific policies and their implementation. The sources are able to give context and “the bigger picture” and to explain challenges encountered in the realisation of such policies or programmes.

It is considered useful as participants will include individuals who are likely to have the most intensive knowledge of the phenomenon being studied (Robson: 2007). It is a view supported by Creswell who states that individuals chosen through this strategy can “*purposefully inform an understanding of the research problem and central phenomenon in the study*” (2007: 125).

Interviewees, involved as they are in the day-to-day operations, may also be helpful in pointing out gaps in policies and practices. The obverse side of this could be that their objectivity may be questionable and, given their relative state of satisfaction or happiness in their work environment, they may be positive or negative disposal to the subject matter.

A major disadvantage of interviews in the context of policies or programmes that may not be succeeding is that the subjects may be defensives and may not be forthcoming with meaningful answers. There are various reasons for this and partly it may also have to do with people who may themselves not have executed policy as per the requirements of their jobs. Also, in a political milieu such as the City of Johannesburg, politicians may be reluctant to have their departments subjected to public scrutiny which may reflect uncomfortably on them.

The negative considerations may be mitigated by the perusal of public documents whose authenticity may not be in dispute.

### **3.3.2 Secondary data**

More data will be collected from materiel produced within the CoJ – specifically policy documents and reports. Most of these are in the public domain. Where appropriate, permission will be sought to use documents relevant to the study but not yet released to the public.

Journals will be another source of secondary information about the green economy and green jobs. A preliminary scan of the information available points to the fact that most of the debate is about the feasibility of the Green Economy creating sustainable.

Locally and internationally, a number of organisations have commissioned and written on green jobs (e.g., the World Bank (2011); the International Labour Organisation (2008), the Development Bank of South Africa (2011). These reports by and large project the source and growth of The Green Economies.

Others, such as the *Green Jobs in US Metro Areas* report (2008) specifically touts cities as the logical starting points for kick-starting green economies. The report was commissioned by the Conference of Mayors in the United States.

In addition, the South African government, the Gauteng Provincial Government and the City of Johannesburg have produced a range of publications on the green economy and green jobs: for instance, the National Environmental Management: Waste Act (59/2008); the 2011 Green Strategic Programme for Gauteng by the Gauteng Provincial Government and the City of Johannesburg's own Growth and Development Strategy (GDS 2040) of 2011 are essential secondary source material for this study.

Moreover, environmental organisations such as the United Nations Environmental Programme (Unep) have published seminal reports such as the 2008 *Green Jobs: Towards decent work in a sustainable, low carbon world*.

The importance of the above-mentioned publications is that they offer an insight into the nature of the green economy, explain the concept of green jobs and make suggestions on areas where such jobs can be created. For Johannesburg, they are a rich source of information and may assist in filling gaps – where such may exist – on its strategy of creating green jobs.

### **3.4 DATA ANALYSIS STRATEGY**

Ezzy (2002) suggests that data analysis starts with data collection. Proceeding in this manner assists with identifying problems and rectifying them which could be problematic if the researcher waits until after the collection of data has been completed.

“Further, during data analysis the researcher will typically discover and notice unanticipated that have arisen early in the data collection. If data analysis is left until afterwards these issues will not be noticed during data collection; they will therefore not be noticed during the data collection and cannot be pursued in any depth during the data analysis” (2002: 61).

Among the suggestions he makes, for instance, is that after conducting interviews these should be immediately transcribed, coded, peer reviewed and fact-checked with the subjects and where possible, peer reviewed. This process allows for gaps to be immediately identified and rectified.

Guest *et al* suggest that practical purpose of the analysis (to find solutions, develop a solution or build a theory); the analytical purpose (identify, explore, compare, confirm or a combination of these); as well as the connection of the analysis to the research are key (2012: 31).

The analysis of data for this essay will therefore have to link back to the research issue (the challenge of green jobs facing the City of Johannesburg). In other words, how much of the data that has been collected is able to give insights into the research problem?

It is the experiences of individuals whose (professional) interest on job creation in the City of Johannesburg that will be solicited to find answers to the question of employment creation by the organisation.

### **3.5 DATA RELIABILITY AND VALIDITY**

Although all care will be taken to ensure that data collected answers the research problem, it is sobering to note that “data may not be always of good enough quality to include in your analysis (which is *not* to say that you should not include negative cases or present contradictory evidence in your findings). At the same time, make the most of your data” (authors’ emphasis) (Guest *et al*, 2012: 44-45).

They continue further on: “For our purposes, *face* validity is probably the closest approximation of how we might determine the overall validity of a study and/or the processes within which and the results from a qualitative study. We must rely on our own judgment and that of our peers – judgment based on the information available – do decide whether or not what we do or have done, and the findings we present, are valid... reliability is typically less important than validity in a general research context. This is particularly true of qualitative inquiry for two reasons. First replication is typically not a goal in qualitative research; most studies are descriptive and are not designed to be replicated. Second ....is the structure of the data collection process itself, if the data collection is unstructured ... one cannot expect to obtain similar results across individuals or time.”

So, due to the fact that qualitative research is less structured than quantitative research “it has been argued that quantitative research is high on reliability and low on validity while the reverse is true of qualitative research” (Walker, 1985: 191).

(1997:283).

### **3.6 SCOPE AND LIMITATIONS**

Whereas the City of Johannesburg is committed to job creation and sustainable development, the focus on green jobs has been limited. To this extent, there is likely to be few policy directives in this regard and the researcher will have to rely on the information given during the interviews.

These may end up being personal perspectives as opposed to official policy.

### **3.7 CONCLUSION**

As most of the data collection will be done through interviews, the counsel of Mays and Pope above will have heeded. Moreover, most of the sources of data will be from the same institution and can be easily verified. It is expected that the difference will not so much be in content, but in interpretation.

Interviews will be voice recorded – with the interviewees’ permission and transcriptions of these will be made. Where recordings are not possible, notes will be taken.

## CHAPTER FOUR

### 4. PRESENTATION OF FINDINGS 12

#### 4.1 INTRODUCTION

It is clear that the City of Johannesburg is on a trajectory to use the Green Economy as part of its overall strategy to create jobs. Specific actions are being taken to mitigate climate change effects through greening strategies that will at the same time create jobs.

As mentioned in Chapter 1 the concept of a Green Economy forms part of the City of Johannesburg's long-term strategy – the GDS 2040 strategy. Outcome 2 of GDS 2040 states that “The City plans to lead in the establishment of sustainable and eco-efficient infrastructure solutions (e.g. housing, eco-mobility, energy, water, waste, sanitation and information and communication technology), to create a landscape that is liveable, environmentally resilient, sustainable, and supportive of low-carbon economy initiatives” (2011:8).

#### 4.2 BACKGROUND TO THE CoJ' s GREEN JOBS CREATION INITIATIVES

As in many instances, policy on the green economy in a municipality is derived from and guided by what is said and done at national and provincial government levels. At the national level, guidance is derived from the National Growth Plan which states that “The green economy agenda will be leveraged to promote deeper industrialisation, energy efficiency and employment. The Green Economy Accord currently being negotiated among social partners will help drive this agenda forward.”<sup>13</sup>

The other National Policy initiatives include the National Strategy for Sustainable Development and Action plan (until 2014), the New Growth Path (until 2020) and National Development Plan: Vision for 2030 (NDP). Various sector policies and strategies also support the vision: they include the Integrated Resource Plan, Industrial Policy Action Plan, Environment sector Green Economy Implementation

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<sup>12</sup> Interviews were conducted with the following people who work for the City of Johannesburg (listed alphabetically)

1. Alex Bhiman- Assistant Director, Strategic Support, in the office of the MMC Transport.
2. Alan Buff, Technical Support Specialist, Johannesburg City Parks and Zoo
3. Sean Dinat - Deputy Director SMME Unit in the Department of Economic Development (DED),
4. Tiaan Ehlers – Executive Director, Environment and Infrastructure Services Department
5. Jak Koseff - Director: Social Assistance
6. Mundia Kunyanda, Deputy Director: Management Support, Department of Economic Development
7. Roelf Meyer - Project Manager: Separation at Source, Pikitup
8. Ravi Naidoo – Executive Director, Department of Economic Development
9. Papama Ntsadu - Ops Manager: Strategy and Mapping, Department of Economic Development

<sup>13</sup> National Development Plan: (2011)

Plan, National Biodiversity Strategy with an Action Plan and National Climate Change Response White Paper.<sup>14</sup>

The Gauteng Provincial Government's *Green Strategic Programme for Gauteng*, released in 2011, emphasizes the importance of a green economy that would create jobs. "The Green Strategic Programme attempts to meet the expectation of the Gauteng Provincial Government to prioritise the shift towards green growth and the creation of Green Jobs ...It begins from the premise that it is not sufficient to simply select a limited number of economic firms or clusters for targeted green support, but that rather, the sustainability of our economy depends on a fundamental transformation in a number of sectorial areas. These cross-cutting sectors include air quality, climate change, economic development, energy, food security, land use, transport, water and sanitation, and waste, which together form the foundation for a true green economy. Our view is that investing in these sectors will promote economic growth so that green jobs become the norm, rather than add-ons to inherently unsustainable development. This broader shift in its development path will see Gauteng at the forefront of sustainable economic development."<sup>15</sup>

The CoJ's long term strategic document, "*Joburg 2040: Growth and Development Strategy*" forewords its discussion on the green economy sustainability on the Provincial and National prerogatives (2011: 10-12).

The document recognises the need of using the Green Economy as a one of the drivers for job creation.

Specifically, outcome 2 of the GDS 2040 promises to "*provide a resilient, liveable, sustainable urban environment – underpinned by infrastructure supportive of a low-carbon economy The City plans to lead in the establishment of sustainable and eco-efficient infrastructure solutions (e.g. housing, eco-mobility, energy, water, waste, sanitation and information and communications technology), to create a landscape that is liveable, environmentally resilient, sustainable, and supportive of low-carbon economy initiatives*" (2011:9).<sup>16</sup>

A major starting point was the participation of the City of Johannesburg in a workshop that produced the ground-breaking IDC publication, *Green Jobs: an estimate of the direct employment potential of a greening South African Economy* (2011).

*Green Jobs* outlines the possibilities job creation in manufacturing, energy and natural resources management. It estimates the creation of well over 400 000 jobs through the New Growth Path (2011: 74) but over a slightly longer timespan – 2030.

The publication is a reference point for the City of Johannesburg's *Green Economy Strategic Framework and Proposed Implementation Plan* that came out in 2013. It outlines sectors where the jobs will be created and concludes that Johannesburg, as the economic hub of South Africa, has the potential to act as a catalyst in this process.

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<sup>14</sup> UNEP. (2015). Green Economy Scoping Study – South Africa

<sup>15</sup> Gauteng Provincial Government. (2011). *Green strategic programme for Gauteng*: Gauteng Department of Economic Development

<sup>16</sup> City of Johannesburg. (2011). *Joburg 2040 Growth and Development Strategy*

The *Framework* jobs projection – which is not Johannesburg-specific – is taken directly from *Green Jobs*.

#### 4.3 CoJ PARTICIPANTS IN GREENING THE ECONOMY

Local government acts once there is policy clarity from the higher tiers of government. “National government must provide policy, province must give direction and the city must implement,” states Sean Dinat, Deputy Director SMME Unit in the Department of Economic Development (DED), City of Johannesburg. “(So) job creation is imbedded in the IDP and GDS 2040. This trickles down to the Department (DED). All Departments and MEs draw their policies from the IDP and GDS.”<sup>17</sup>

The DED is the department that is responsible within the CoJ for economic growth and hence job creation.

The challenge is how to drive job intensive competitiveness - creating more decent jobs, supporting industry more effectively and defining new emerging sectors for growth, according to Dinat adds.

In direct response to this challenge, the DED produced the *Framework* which states that “the key aim of the City of Johannesburg is to transition into a green produced economy that enable economic growth and investment while increasing the opportunity for job creation, environmental quality and social inclusiveness” (2013:13)

When tabling the Framework to the City’s Mayoral Committee on 22 July 2013 the Department of Economic Development outlined its intentions as follows:

The purpose of the framework is to identify and align the City’s Green Economy development strategy with that of National and Provincial governments, while targeting actions that are relevant within the City’s boundaries; taking into consideration our infrastructure, economic sectors, population, spatial layout, environmental demographics and Municipal Government Structures.

Key sectors discussed in the strategy are:

- Climate change;
- Energy;
- Small scale community agriculture;
- Spatial planning and land use management;
- Transportation;
- Water management; and
- Water.

Noting that *Green Jobs* and the *Framework* identify manufacturing, energy and natural resources management as sources of job creation, Ravi Naidoo, Executive Director: Economic Development at the CoJ, says these sectors have each a localisable element to them. As a result, there is a Johannesburg dimension to them, simply because Johannesburg is the economic hub of South Africa, explains Naidoo.

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<sup>17</sup> Interview 22 November 2012

*“Simply because Johannesburg is the main commercial hub (of the country.) So whether we are in the financing of that production or whether the production of that facility comes to us or whether there is consulting needed for that there will be Johannesburg companies (involved)”*,<sup>18</sup> asserts Naidoo.

Dinat and Naidoo point out that existing legislation, particularly with reference to procurement, is a challenge.

This was also captured in the submission to the Mayoral Committee mentioned above: “The City needs to accelerate the removal of key regulatory or financing barriers and providing good information to help businesses grow faster. Streamlining the requirements for cleaning contaminated properties creates incentives for their development, ultimately creating jobs and opportunities for new housing and businesses. Similarly, removing zoning and building code impediments to rooftop clean energy technologies and supporting expanded generation and use of renewable energy will create new entrepreneurial opportunities. Improving access to energy efficiency financing by the strategic use of both the state and international funding agencies has the potential to put more money in the pockets of residents through lower utility bills” (Mayoral Committee report: July 2013).

To this challenge Tiaan Ehlers, the Executive Director: Environment and Infrastructure Services Department (EISD), adds the fact that when the 2040 strategy was introduced it took place at a time when the City was undergoing an institutional review process (see chapter 1).

*“The GDS was finalised in 2011 and it has taken us a (political) term of office to get to where we are. We had institutional constraints (in terms of the institutional review when departments were changed) we have a problem of continuity as every five years the Political Leadership changes”*, says Ehlers.

Moreover, change management is a slow process and getting mind-sets to adapt to new thinking also takes time, he adds.

#### **4.4 CoJ AND GREENING THE ECONOMY**

Thus the Green Economy Strategic Framework (2013) is the working document and a work in progress for greening of the economy by the City of Johannesburg. The Mayoral Committee presentation mentioned above outlines the following success factors for attaining greening objectives:

- A regulatory framework to enable the development of sector action plans;
- The use of market instruments to incentivise the production and use of cost effective cleaner and low carbon products;
- Greater localisation of manufacturing of products and materials in key sectors, including in the low-carbon energy, consumer products, building and transport sectors;

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<sup>18</sup> Interview 2 July 2016

- Development, deployment and commercialisation of innovative science and technology solutions aimed at advancing a green economy;
- Integration of the city's various departments and their respective work streams and programmes to maximise benefits from public and private investment opportunities;
- Job creation for each sector and the associated skills development;
- Political support and leadership; and
- Effective monitoring of outcomes and achievable.

It lists the following as benefits of a green economy for Johannesburg:

- Reduction of environmental costs and liabilities;
- Creation of new green jobs;
- Reduced poverty; and
- Enhanced quality of life;

The *Framework* states that, "within its jurisdiction" the City of Johannesburg can play a job creation role in the following sectors:

- Retrofitting;
- Energy generation;
- Small scale farming;
- Waste management;
- Natural resources;
- Using unutilised land; and
- Transit oriented development (2013:23)

The qualification above is important because, in addition to what is within the locus of control of the council, Johannesburg, as the economic powerhouse of the country, plays an influential role in the economic development of South Africa.

In his 2014 state of the city address Mayor Parks Tau stated that "we will accelerate our local manufacturing initiatives to create economic opportunities and more jobs in the green economy, building on what we have achieved in the manufacturing of solar water geysers, ReaVaya bus bodies and other components... Further jobs can be created and innovation can be spurred in the local manufacture of biodigesters which produce biogas" (State of the City address, April 14 2014).

The City of Johannesburg became the first Municipality in South Africa to issue a green bond on the Johannesburg Stock Exchange. At the launch Tau said the "issuance of this green bond will assist the City with a source of funding towards capital expenditure to expedite its environmental solutions. What distinguishes this green bond from any other general obligation bond is that the projects to be financed are green initiatives such as the biogas to energy project and the solar geyser initiative, as well as all other projects that reduce greenhouse emissions and contribute to a resilient and sustainable City" (speech at the JSE, 9 June 2014). The solar energy initiatives, in particular, were expected to generate localised employment opportunities.

When delivering his budget speech in the same year, member of the Mayoral Committee Geoffrey Makhubo, allocated an operating budget of R147 million for the 2014/15 financial year and a multi-year capital budget of R87 million to the Environment and Infrastructure Services Department (EISD) for projects related to the City's sustainability and green energy initiatives.<sup>19</sup>

Although both Tau and Makhubo, in the JSE speech and the budget speech respectively, did not directly mention job creation, it follows from what has been stated previously that one of the aims behind the green economy is to create jobs in Johannesburg.

As far back as 2011 the CoJ's Johannesburg Integrated Waste Management Policy indicated that waste should be "used as a resource to create new products and purchasing recycled-content products must be encouraged and implemented to conserve natural resources and minimise the amounts of waste destined for landfill. This should be done with a view to create jobs and alleviate poverty" (2011:12). This is the only place in the 32-page document that jobs are mentioned.

As the GDS 2040 strategy affects all the departments and entities of the City of Johannesburg, they are obliged to incorporate it, in one form or another, into their own strategies and programmes. Thus, for example, the Johannesburg Roads Agency firmly states in its 2017 (sic) strategy that its priority goals are "informed by the IDP, the Mayoral priorities and the GDS, among other instruments".<sup>20</sup>

As with other entities, it also commits setting up a small business and SMME database to assist in job creation.

A number of departments and municipal entities (MEs) of the City of Johannesburg have different roles to play. Thus the following outputs have been outlined in this table document compiled by the Department of Economic Development:

| Municipal entity/Department | Broad green economy category     | Depart/ME | Product output                                                                    | Production/Value Added in Joburg/RSA                                                                         | Financial year                                                    |
|-----------------------------|----------------------------------|-----------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| PIKITUP                     | Recycling - separation at source | Pikitup   | Recyclable packaging waste (Plastic, Paper, Glass, Cans, etc.)                    | Enterprise development: Cooperatives, SMMEs, etc.                                                            | Current (City wide rollout by end of 2014/15, ongoing thereafter) |
|                             | Green waste processing           | Pikitup   | Compost, refuse-derived fuels (e.g. pellets), alternative energy / electricity    | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                            | MT (2014/15 onwards)                                              |
|                             | Builders' rubble processing      | Pikitup   | Crushed aggregate for use on landfill roadworks and as alternative cover material | Enterprise development: Cooperatives & SMMEs through possible reduction in builders' rubble disposal tariffs | Current (2013/14 onwards)                                         |

<sup>19</sup> CoJ Budget Speech, 27 May 2014

<sup>20</sup> JRA website

| Municipal entity/Department | Broad green economy category                                                 | Depart/ME           | Product output                                                                                                                  | Production/Value Added in Joburg/RSA                                      | Financial year                   |
|-----------------------------|------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------|
|                             | Food Waste Processing                                                        | Pikitup             | Biogas, compost, alternative energy / electricity                                                                               | Enterprise development: Private sector, Cooperatives, SMMEs, etc.         | MT (2015/16 onwards)             |
|                             | Waste to energy: Alternative waste treatment technologies for residual waste | EISD                | Alternative energy / electricity                                                                                                | Enterprise development: Private sector project finance & Capex investment | LT (2016/17 onwards)             |
| EISD                        | Alternative waste treatment technologies for residual waste                  | EISD                | TBD                                                                                                                             | Joburg                                                                    | LT (2016/17 onwards)             |
|                             | Biodiversity Conservation                                                    | EISD                | Alien Vegetation                                                                                                                | Joburg                                                                    | ST                               |
|                             | Landfill gas to energy                                                       | EISD                | Electricity                                                                                                                     | Joburg                                                                    | 2013/ 14                         |
|                             | Bio digester                                                                 | EISD                | Fuel                                                                                                                            | Joburg                                                                    | MT                               |
|                             | Rooftops gardens                                                             | EISD                | 100% completion of Greening Strategy                                                                                            | Joburg                                                                    | 2014/15                          |
| CITY POWER                  | Installation of SWH                                                          | City Power          | Reduction of cold reliant power                                                                                                 | Joburg                                                                    | 2012/15                          |
|                             | Building energy efficiency                                                   | City Power          | Reduction of the power usage in City's buildings                                                                                | Joburg                                                                    | 14/15 - 16/17                    |
|                             | Photovoltaic power                                                           | City Power          | Roll out of solar panels in houses                                                                                              | Joburg                                                                    | Ongoing                          |
|                             | Street light efficiency programme                                            | City Power          | Reduction of the power usage in street lights                                                                                   | Joburg                                                                    | 11/12 onwards (8-year programme) |
|                             | Smart Meter Rollout                                                          | City Power          | Energy management/Efficient Energy management                                                                                   | Joburg                                                                    | 12/13 -(5-year programme)        |
| JOBURG WATER                | Waste water treatment plant                                                  | Johannesburg Water  | Biogas                                                                                                                          | Joburg                                                                    | ST                               |
|                             | Alternative Water Use                                                        | EISD & JW           | Green Water                                                                                                                     | Joburg                                                                    | ST                               |
|                             | Work for water                                                               | JW                  | Joburg Water working with cooperatives in "Work for Water" the initiative – coops will do maintenance in their respective areas | Enterprise Development                                                    | Ongoing                          |
| TRANSPORT                   | Procurement of Green buses                                                   | Metrobus            | Diesel Dual Fuel (DDF) and/or bio gas & diesel                                                                                  | Enterprise development: Private sector, Cooperatives, SMMEs, etc.         | 75 Bought already- 14/15 onwards |
|                             | Conversion of buses to DDF (dual fuel)                                       | Metrobus            | It is ongoing 45 converted                                                                                                      | Enterprise development: Private sector, Cooperatives, SMMEs, etc.         | 14/15                            |
|                             | Convert waste to fuel                                                        | Metrobus and Joburg | Convert waste to fuel (Bio-Digester) in                                                                                         | Enterprise development:                                                   | 14/15                            |

| Municipal entity/Department        | Broad green economy category | Depart/ME                       | Product output                                                                                                                                                                                                                                                                                                    | Production/Value Added in Joburg/RSA                                                                                                                                   | Financial year            |
|------------------------------------|------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
|                                    |                              | Market                          | collaboration with Joburg Market                                                                                                                                                                                                                                                                                  | Private sector, Cooperatives, SMMEs, etc.                                                                                                                              |                           |
|                                    | Refleet of minibus taxis     | Transport                       | Refleet of minibus taxis to greener vehicle                                                                                                                                                                                                                                                                       | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                                                                                      | 14/15                     |
| JOBURG MARKET                      | Market of the future         | Transport and JFPM              | Green plants for biofuel                                                                                                                                                                                                                                                                                          | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                                                                                      | 14/15                     |
| DEPARTMENT OF ECONOMIC DEVELOPMENT | Green Start-Up               | DED                             | The aim is to give innovative entrepreneurs with ideas in building, energy, water, transport and/or waste the opportunity to have their ideas developed into Green Startups. Eight candidates will be given R250 000 of funding each and the winner will receive an additional R1Million from the City of Joburg. | Enterprise Development                                                                                                                                                 | Ongoing                   |
|                                    | Green Building               | DED                             |                                                                                                                                                                                                                                                                                                                   | 100% Completion of Green building audit                                                                                                                                | Ongoing                   |
|                                    | Biogas                       | DED                             |                                                                                                                                                                                                                                                                                                                   | Growing crops (green/ elephant grass) on mine dumps                                                                                                                    | Feasibility study by CSIR |
|                                    | Green Technology Fund        | DED                             | The department has initiated a second year of the Green Challenge Fund to uncover promising new ideas, challenge the potential entrepreneurs and the young, and accelerate research and development. The first year was concluded successfully and has further promoted the City as a Green Economy City.         | The objective is for the precinct to be a "default location" for new green activity in the City, building p a critical mass of layers of green technology in one area. | Ongoing                   |
| CITY PARKS                         | Farming                      | Social Development & City Parks | •250 hectares has been identified at Eikenhof farm. 50% will be used for commercial farming then another 50% is for cooperative entrepreneur development                                                                                                                                                          |                                                                                                                                                                        |                           |

Table 4.1: CoJ green initiatives (Source: DED)

## 4.5 ACHIEVEMENTS OF THE JOB INITIATIVES

In the UNEP publication, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication* Keivani is quoted as giving an example of the Johannesburg Housing Company (an entity of the City of Johannesburg) of having created over 1 000 jobs in the maintenance, cleaning and security of its stock when introducing energy efficient light bulbs and day-night sensors, solar energy systems for heating water and the insulation of boilers. At the same time the Watergy project in Soweto provided more than 1 500 temporary jobs for the rehabilitation of plumbing fixtures (2011: 356).

The Johannesburg City Parks (JCP) (now renamed JCP and Zoo) has a Green Skills Academy which has been operating since 2004.

The Academy has been training an average of 50 people per annum in green skills. It started by ring-fencing money saved from not replacing workers who left the company through attrition (resignation, death or retirement) and using it as a skills fund to train community members in skills related to the work by the JCP. This money was used to identify contractors on the JCP database who would be obliged to identify members of the community to be trained in horticultural skills. A condition of the relationship with the contractors was that 20% of the contractors' skills force would be trained through the academy and be given work by the contractor.<sup>21</sup>

As at 2010 more than 3000 people had been trained and the programme suffered a setback as 50% percent of the ring-fenced funding was reallocated to other operational costs. Figures for subsequent financial years are: 2011/12 (313) 2012/13 (1 839); 2013/14 (969) and 2014/15 (905) (Source: Johannesburg Zoo and Parks Academy)

From that year (2010) on the academy started NGQ level 1 training in horticulture for 100 community members. They were paid a stipend and at the end of the 12-month training, depending on the vacancies caused by the attrition rate in JCP and suitability, they would be absorbed as JCP staff.

The attrition rate in financial year 2013/14) for the JCP was fifty (50) people per year and fifty (50) trainees were recruited.

The Academy reports to the Agricultural Sector Education Training Authority (AgriSeta) the Services SETA). Currently 30 students are enrolled for NQF level 1 horticultural training. The department is also engaged in training up to NQF level 5 with intakes from across the country as well as from overseas.

The aim is to work with the Department of Economic Development at the end of the training to get the trainees to form co-operatives. The plan is to recruit sixty (60) trainees in 2015.

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<sup>21</sup> Interview with Alan Buff, Technical Support Specialist, Johannesburg City Parks and Zoo, 12 June 2014

In co-operation with the DED the academy is also training approximately two hundred (200) expanded Public Works programmes (EPWP) <sup>22</sup> intakes per month.

Further plans by the JCP and Zoo is to partner with the SETAs and other departments in facilitating training in green-related skills.

The JCP and Zoo will also be training people in identified communities on short courses and who will be assisted in forming co-operatives that will enhance service delivery – for example in grass cutting that will assist in the maintenance of the City's Parks and other open spaces.

Pikitup, the waste management entity of the CoJ, has establishment of recycling centres – for paper, plastic and glass and garden waste. <sup>23</sup>

The entity's "*waste minimisation and recycling project*" is encouraging the formation of co-operatives which would collect the recyclable waste to collection centres and distribute waste containers. This would be done in cooperation with the national Department of Trade and Industry (DTI) as well as the CoJ's Department of Economic Development.

According to a model developed by Pikitup, if 30 000 households participate in the collection at waste project in which co-operatives take part, up to 50 permanent jobs could be created. <sup>24</sup>

Pikitup's separation of source project was relaunched city-wide in 2015 and although no statistics are available, it seems to have inspired a cottage factory of recyclers. These are the people who, on waste collection days, salvage recyclable material from household rubbish to sell at recycling centre.

The City also launched a pilot project whereby it gave 20 properly constructed and branded trolleys to street reclaimers. This formed part of the utility's move to formalise the work done by these recyclers. <sup>25</sup>

Although survivalist in nature, the number of people involved is considerable – given that they can be rummaging through bins on every Pikitup route.

The Sean Dinat, deputy director, SMME Unit at the Department of Economic Department in the CoJ, listed the following success of the City's job creation efforts:

- Smart metering within City Power – the rolling out of 980 000 units to all the houses in the city;

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<sup>22</sup> "EPWP is a nationwide programme covering all spheres of government and state-owned enterprises. The Programme provides an important avenue for labour absorption an income transfer to poor households in the short to medium-term...EPWP Projects employ workers on a temporary or on-going basis either by government, contractors, or by other non-governmental organisations under the Ministerial Condition of Employment for the EPWP or learnership employment conditions". Retrieved from [www.epwp.gov.za](http://www.epwp.gov.za) on 13 June 2014.

<sup>23</sup> Interview with Roelf Meyer, Project Manager: Separation at Source, Pikitup (August 31 2012).

<sup>24</sup> Interview with Roelf Meyer

<sup>25</sup> The Star, 8 September 2015

- The building retrofitting project – with water catchment, solar power geysers, water trickle down systems being implemented;
- Job opportunities created when 44 000 units of solar geysers are rolled out - with a requirement for a huge volume of local content;
- Remodelling buses to run on gas from infill sites;
- Orlando Dam Wetlands rehabilitation project;
- Tree greening programme – e.g. 200 000 trees grown in Soweto;
- Ecopark – an Eco cluster being developed by DED to identify buildings and warehousing spaces for manufacturing green economy-type businesses;
- Biogas and methane being captured at infill sites;
- Rollout of photovoltaic panels;
- Separation at source which is running buyback centres to create jobs; and
- Food resilience programme Comdev (Department of Community Development at CoJ) running agricultural projects where people are producing their own food.<sup>26</sup>

“In between those projects and those value chains there are opportunities for SMMES and job creation,” Dinat said (See Annexure A for updates on these projects).

He did not give details other the above outlined synopsis. However, he indicated that more than R2 billion had been earmarked by the City to assist SMMES in various aspects of job creation – e.g. business training, incubation, part funding.

In its third quarter (January to March 2014) performance report to the Council, the DED, as the lead department on the Green Economy, listed the following milestones:

| IDP programme                                                                    | 2013/16 Target                                                                                                                                                                                                                                 | 2013/14 Output indicator/target                                                                                                                                                                                                                                         | Actual                                                                        | Mitigation                                                                                                                                                                             |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sector Diversification, Productivity and Competitiveness Support – Green Economy | <p>SMMES (artisanal and apprentices) re-oriented and trained in green skills</p> <p>SMMES/co-ops facilitated with opportunities in the green sector;</p> <p>Jobs facilitated in the roll out of City wide green infrastructure initiatives</p> | <p>50 re-oriented in green skills</p> <p>Progress Report on the City's Green readiness</p> <p>Green Economy and Incentives Policy</p> <p><b><u>Revised 2013/14 targets</u></b></p> <p>Progress Report on the City's Green readiness (removed to Departmental SDBIP)</p> | <p>40 SMMES re-oriented in green skills;</p> <p>30 cooperatives reskilled</p> | <p>Target not achieved. City to target 98 cooperatives to be skilled by the next quarter.</p> <p>The City to implement a green incentives policy after consultation on the matter.</p> |

<sup>26</sup> Presentation to staff, CoJ, 17 April 2014

| IDP programme | 2013/16 Target | 2013/14 Output indicator/target                                     | Actual | Mitigation |
|---------------|----------------|---------------------------------------------------------------------|--------|------------|
|               |                | Green Economy and Incentives Policy (removed to Departmental SDBIP) |        |            |

**Table 4.2: DED report to Mayoral Committee** <sup>27</sup>

The report shows some progress towards the meeting of some of the Green Jobs targets by the DED. However, even though no reasons are given for non-achievement, the shortfall must be cause for concern.

He did not give details other the above outlined synopsis. However, he indicated that more than R2 billion had been earmarked by the City to assist SMMEs in various aspects of job creation – e.g. business training, incubation, part funding.

The following progress report was tabled at the Mayoral Council in the first quarter of 2016 by the DED.

| Project Name           | Description                                                                                                                                  | Leading Department | Implementation Stage                              | Start/ End Date | Policy Involved                                    | Partners                   | Support Required                                                                                                                           | Budget | Job created |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------|-----------------|----------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|
| Landfill gas to energy | Extraction of methane gas from five landfill sites and converting it to electricity                                                          | EISD               | Two sites have been constructed and are operating |                 | AQA, Waste Management Strategy                     | EnerG Systems Consortium   | Dealing with JPC as they are delaying our project in terms of registering the gas rights against the title deeds of the 5 sites/properties |        |             |
| Building Retrofit      | Energy efficiency Building Retrofit Pilot to retrofit council buildings with energy efficiency interventions following a guaranteed savings. | EISD               | Implementation                                    |                 | National Building Regulations & Building Standards | City departments and MOE's |                                                                                                                                            |        |             |

<sup>27</sup> Adapted from City of Johannesburg (2014) Third Quarter performance report on service delivery and budget implementation Plan 2013/14 Financial Year report to the Shareholder Mayoral Committee, 2014 April 23.

| Project Name                  | Description                                                                                                                                                                                                                                                     | Leading Department | Implementation Stage                               | Start/ End Date | Policy Involved                                                                                            | Partners          | Support Required       | Budget | Job created |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------|-------------------|------------------------|--------|-------------|
| Streetlights                  | using High Pressure Sodium (HPS) and Mercury Arc Vapour (MAV) to Compact Fluorescent Lamps (CFL) and Light Emitting Diodes (LED)                                                                                                                                | City Power         | Implementation                                     |                 | Energy policies for sustainable development in S. A                                                        | N/A               |                        |        |             |
| Solar Water Heating Programme | Supply to RDP Housing                                                                                                                                                                                                                                           | City Power         | Appointment of service provider                    |                 | Energy policies for sustainable development in S. A                                                        | DSM levy          |                        |        |             |
| Solar Powered Traffic signals | JRA is working on removing all the signals from the grid that will contribute about 1.08 MW power                                                                                                                                                               | JRA                | Implementation                                     |                 | National Energy Act (2008),                                                                                | N/A               |                        |        |             |
| Westgate Precincts            | West Green Precinct has three phases. This project is about street furniture which consists of 9 sub projects which revolve around Fixed Bin Steel Bollard, Bench (Turin 1800 bench), Street lights, Pedestrian Lights, Trees (Landscaping), Pedestrian railing | JDA                | 60% of construction of Phase1. It has three phases |                 | White Paper on Spatial Planning & Land Use Management, Development Facilitation Act, Municipal Systems Act | N/A               |                        |        |             |
| Alternative Energy            | Supply, install and                                                                                                                                                                                                                                             | EISD & City        | RFQ stage                                          |                 | National Energy Act                                                                                        | Private business, | Model for job creating |        |             |

| Project Name                                                   | Description                                                                                                                                                                                      | Leading Department | Implementation Stage | Start/ End Date | Policy Involved                                            | Partners                                         | Support Required                                                 | Budget | Job created |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|-----------------|------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------|--------|-------------|
|                                                                | manage alternative energy sources for Ruimsig informal settlement                                                                                                                                | Power              |                      |                 | (2008),                                                    | Comdev, City Power and EISD                      | and green jobs                                                   |        |             |
| Alternative transport mode                                     | Constructing Cycle lanes                                                                                                                                                                         | Transport          | Design are completed |                 |                                                            | Funding for implementation from KFW/DEA secured. | Securing of Funds from DEA                                       |        |             |
| Voltage Power Optimiser                                        | An energy-saving device, which automatically regulates voltage of a facility such as a treatment plant to an optimum level while at the same time saving electricity and reducing operating cost | JW                 |                      |                 |                                                            |                                                  |                                                                  |        |             |
| Orlando Dam wetland rehabilitation and development of Eco-park | Rehabilitation of wetland and surrounding park area to improve water quality into the dam to converse the aquatic bird life                                                                      | City Parks & EISD  |                      |                 | Environment Conservation Act, AQA, Waste Management Policy |                                                  |                                                                  |        |             |
| Separation at Source                                           | Reduce/ minimise waste to Landfill sites                                                                                                                                                         | Pikitup            |                      |                 | Waste Management Policy, National Sanitation Policy        | NPO/ Cooperatives                                | Assist in forming cooperative. Education and Awareness programme |        |             |
| Waste water Treatment plant                                    |                                                                                                                                                                                                  | JW                 |                      |                 | Waste Mg Policy                                            |                                                  |                                                                  |        |             |
| Biogas to Energy                                               | Biogas to electricity at NW, GK, BK New                                                                                                                                                          | JW                 |                      |                 | Energy policies for sustainable                            |                                                  |                                                                  |        |             |

| Project Name                                                                  | Description                                                                                                              | Leading Department | Implementation Stage                                                                                         | Start/ End Date | Policy Involved                                            | Partners | Support Required                                             | Budget | Job created |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------|----------|--------------------------------------------------------------|--------|-------------|
|                                                                               | Bulk Waste Water. 600 to 900 kW of the ultimate 4.4 MW of electricity will be produced for on-site use at Northern Works |                    |                                                                                                              |                 | development in S.A.                                        |          |                                                              |        |             |
| Food Garden Developments New Park JOHANNESBURG                                | Urban agriculture                                                                                                        | JHB Market         |                                                                                                              |                 | Municipal System Act, Development Facilitation Act         |          |                                                              |        |             |
| City wide pre-paid roll out Renewal Metering equipment Johannesburg City wide | Install automated and semi-automated pre-paid metering systems and statistical metering                                  | Metrobus           |                                                                                                              |                 | Energy policies for sustainable development in S.A.        |          |                                                              |        |             |
| Waste treatment (Separation at source-DSM project)                            | Diversion of waste to landfill site                                                                                      | Pikitup & EISD     |                                                                                                              |                 | Environment Conservation Act, AQA, Waste Management Policy |          |                                                              |        |             |
| Ethanol Fuel project                                                          | Reducing smoke emissions of the older bussed. The plan is the acquisition of 25 Bio Fuel buses                           | Metrobus           | The request for proposals has already been published                                                         |                 |                                                            |          | consider the proposals and then decide which direction to go |        |             |
| Water Harvesting                                                              |                                                                                                                          | JRA                | Johannesburg Roads Agency is conducting a feasibility study on harvesting of rain water from the storm water |                 | Waste Management Policy, National Sanitation Policy        |          |                                                              |        |             |
| Urban Agriculture                                                             |                                                                                                                          | City Parks         |                                                                                                              |                 |                                                            |          |                                                              |        |             |

| Project Name                               | Description                   | Leading Department | Implementation Stage | Start/ End Date | Policy Involved | Partners | Support Required | Budget | Job created |
|--------------------------------------------|-------------------------------|--------------------|----------------------|-----------------|-----------------|----------|------------------|--------|-------------|
| e, Innovation and Incubation,              |                               |                    |                      |                 |                 |          |                  |        |             |
| BRT                                        | Alternative mode of transport | Transport          |                      |                 |                 |          |                  |        |             |
| HORTICULTURAL PRODUCTION AND FOOD SECURITY | Food gardens                  | JHB Market         |                      |                 |                 |          |                  |        |             |
| Carbon Sequestration                       |                               | City Parks         |                      |                 |                 |          |                  |        |             |

**Table 4.3 Progress report on CoJ Green Projects (Source: DED)**

Another Green Jobs initiative that has taken off is the Green City Startup project that has been undertaken with the collaboration of the University of Johannesburg and Resolution Circle. According to Naidoo, the aim is to give innovative entrepreneurs with ideas in building, energy, water transport and/or waste the opportunity to have their ideas developed into Green Startups. Eight candidates will be given R250 000 of funding each and the winner will receive an additional R1Million from the City of Joburg.

The second round of the Green City Startup Fund was held early 2016 and eight winning entrepreneurs were selected.<sup>28</sup>

The Green City Startup is an initiative by the City of Johannesburg in collaboration with the University of Johannesburg and Resolution Circle. The aim is to give innovative entrepreneurs with ideas in building, energy, water, transport and/or waste the opportunity to have their ideas developed into Green Startups. Eight candidates will be given R250 000 of funding each and the winner will receive an additional R1Million from the City of Johannesburg.

Overall, it wants to stimulate and support entrepreneurship and innovation to position the City as a knowledge-based economy, integrate informal economic initiatives to create sustainable work and business opportunities, facilitate entrepreneurship development and support through capacity and skills development.

At the launch of the 2016 challenge Councillor Ruby Mathang, the City's Member of the Mayoral Committee for economic development, stated: "The development of a

<sup>28</sup> [http://www.joburg.org.za/index.php?option=com\\_content&id=9537:race-for-citys-r1-million-green-prize-heats-up&Itemid=266#ixzz4ExMdFZgW](http://www.joburg.org.za/index.php?option=com_content&id=9537:race-for-citys-r1-million-green-prize-heats-up&Itemid=266#ixzz4ExMdFZgW) – retrieved 20 July 2016.

green economy is one of the City of Johannesburg's core strategic objectives. This is aligned with the National Development Plan, which calls for mutual benefits between sustainable development and low carbon, increasing employment, reducing inequality."<sup>29</sup>

He added that the challenge talks to the City's Integrated Development Plan, whose emphasis is job creation and income generation through waste recycling, energy diversification, green re-fleeting for the city's fleet, public and private transport vehicles and the City becoming a leader in innovation in respect of the Green Economy.

The City has also established a Green Research and Innovation Chair at the University of Johannesburg. The off-spin of this funding will be encouragement of innovation in the Green Economy leading possibly to more job opportunity.

#### **4.6 Evaluation of the CoJ Green Jobs Initiatives**

Delivering his state of the city address in 2014, CoJ Mayor Parks Tau declared: "We will accelerate our local manufacturing initiatives to create economic opportunities and more jobs in the green economy building on what we have already achieved in the manufacturing of solar water geysers, Rea Vaya bus bodies and other components. .... And we are a City at work conducting a Green Revolution "(CoJ:2014).

Evaluating this broad claim is both simple and difficult. The simple fact is that the CoJ has initiated projects under the banner of a Green Economy. But, "the problem with Green Jobs is that no one has yet (conclusively) defined what a green job is," says Ntsadu. "There are many factors that go into creating a Green Economy. For example, if you are building a biogas methane plant, what materials are you using, where are the workers coming from, what mode of transport are they using?"

The only conclusion we can come to, she says, is that the green economy, or the process of creating a green environment, has the added benefit of creating jobs along the value chain.

This theme is echoed by Ravi Naidoo, Executive Director: Department of Economic Development and Alex Bhiman, Assistant Director, Strategic Support, in the office of the MMC Transport. They both point out the projects initiated in Johannesburg may not immediately produce jobs in Johannesburg but are a catalyst for producing jobs elsewhere in the country (see sidebar below).

Ntsadu says that notwithstanding the paucity of a definition for green jobs, the number of sectors in which jobs can be created is cross cutting, and co-operation is engendered between different departments in the City of Johannesburg.

"External stakeholders are also important. These include other levels of government, NGOs as well as the two universities in the city," she says. Hence the domino effect of producing jobs internally and affecting the job market outside of the City of Johannesburg.

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<sup>29</sup> *ibid*

But for Mundia Kunyanda if the aim is to move to a Green Economy then projects undertaken under this label must produce Green Jobs.

“When you got through the (IDC) green jobs report you see that each project has three steps – when you initiate a project, jobs can be created there, where you assemble, jobs can be created, where there is maintenance, jobs can be created there? It’s a question of identifying what kind of project and what kind of technology, with a mix of skills, that you need to use”.<sup>30</sup>

As the process of greening Johannesburg rolls on there will be more jobs created in the natural resources management environment as this sector is labour intensive, according to Naidoo. In terms of two other categories of greening (energy and industrial manufacturing) the job potential is less because they are more resource intensive but still Joburg will play a part in some form or other as it has the ability to provide financial or intellectual capital to economic development in the country.

A good example is the acquisition of fleet of buses in 2015 that needed to use a dual system of fuel – compressed natural gas and diesel. According to (national) Department of Trade Industry regulations, 80% of the total makeup of the buses had to be sourced locally. This could mean, for example, buying the engines and chassis abroad and assembling the vehicles locally with homemade materials and labour. As Johannesburg does not have assembly plants, the assignment was carried out elsewhere in the country. This supports Naidoo’s assertion that the city has the ability to influence job creation in other parts of South Africa. Also, the production of natural compressed gas and the sourcing of diesel do not happen in Johannesburg.

It is envisaged that with further purchases of buses, some of the work will be carried out either in house (e.g. maintenance of the fleet) or within Johannesburg.

The production of biogas, Naidoo says, is likely to be handled in-house as the CoJ is looking to use marginal land (e.g. dolomitic land) to grow crops for this purpose. This project is being carried in co-operation with the Council for Scientific Research (CSIR).

A challenge though is obtaining land. *“But there is enough land where we could produce a 5% of needed gas for buses, which we think is okay,” says Naidoo. “We are looking at other sources to generate gas, for example, municipal waste has a huge potential to create gas from municipal waste. There’s is currently a pilot project looking at the conversion of municipal waste to gas to be used for fuel”.*

Naidoo stresses the importance of the partnering with the private sector and other stakeholders such as tertiary institutions and NGOs in this green journey.

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<sup>30</sup> Interview 22 February 2014.

## **Greening of Public Transport**

When we talk about green transport its more than just fuel. It is also the engine technology and also these days you hear people talking about eco-mobility which has aspects such as non-motorised transport.

The whole greening of public transport came about because of the one concern about transforming Metrobus into a more efficient public transport. In that context also this whole opportunity to respond to climate change imperatives. It also came about as a result of the C40 compact of Mayors which is a commitment of the f the City Council.

The question then was whether we want to do things the same conventional ways or is it our opportunity to respond.

Also when we talk about green transport we also have to talk about ReaVaya. We also have to understand that non-motorised is also a way of greening the city. This includes creating spaces for cycling and walking. This forms part of the Corridors of Freedom project of the City.

When it comes to Metrobus, the Mayor felt that to address the transformation of Metrobus and to look at how Metrobus can become a more efficiently run public transport service to do it in a more conventional way would not yield results. It had to be business unusual.

So the fact that the City was on many green platforms (nationally and internationally) meant that we had an opportunity to address the green imperatives relating to public transport.

The opportunity to then look at Metrobus as an opportunity to look at the greening of public transport. The key driver there was job creation.

The options for fueling the buses included bio-ethanol, biogas and a dual biogas/diesel option. The decision for the transformation/greening of transport was left to the MMCs economic development, environment and transport. Thus the final decision would be inclusive and take as many relevant factors as possible into account. Economic development because they are the custodians of job creation, Environment because of greening and Transport for obvious reasons.

In addition, we had a lot of interaction and consultation with outside stakeholders in the private sector, for example of the IDC, Sanedi (South African National Energy Development Initiative). This led to a workshops that included players in the transport industry such as suppliers of fuel, manufacturers of products and technology that are linked with greening of transport.

When options for fueling the buses were considered the questions of cost effective job creation were considered. For instance, bioethanol the opportunity for job creation is high because it comes from the use of lots of organic stuff, for example maize crops. But the implication for food security was negative. With biogas there is a lesser level of job creation. However, if you had a feedstock for biogas when you have to plant and grow the feedstock then you had a different ball game. (14:48)

You will have to have people who have to plant the feedstock and the value chain would involve people who plant and nurture the crop, then it has to be transported, it has to go into a digestion

process and here too there is a new set of people and post digestion there is a cleaning process and then it has to be taken to a station where it has to be pumped into buses. The calculation here is that you would be able to produce about 15 jobs per hectare of biogas feedstock.

Then we looked at the dual fuel option (using compressed natural gas and diesel) but this was considered as a transitional stage. Here the split would be 70/30 split of gas and diesel. This turned out to be the preferred option

Then we looked at electric vehicles. But these did not offer much in terms of jobs. But if you got the electricity from the sun, there would be a number of jobs but not to the same extent as with biogas or the dual fuel system. Although there would be zero emissions. Well to approach says that were it is used it might have zero emissions but where it was produced it was not so green.

At the moment the new Metrobus fleet is using 50/50 fuel split.

If you talk about job creation, it is not about the City only, so the people who are supplying us with gas have created another value chain that involves creating new jobs.

With Metrobus the decision was that the whole fleet, including the new ones, should be green. This meant that even only buses would have to be converted to use the dual fuel system.

The procurement system looked at refueling and the conversion of old engines into the dual fuel system. To date more than 30 buses have been converted and the target is 100. Once again the value chain involves a number of steps – suppliers for installation and there is a monitoring processes as well assurance. Here again there are many opportunities for job creation.

When it came to refueling the Metrobus stock it was also decided to add new routes to the service. Once again the emphasis was on a green transport system and this was built into the tender specifications.

The buses to be procured has to meet Euro 4 standards for green buses. This was the highest green rating at the time of procurement.

The additional requirement was the compliance to the DTI 80/20 required – that is, 80 percent of the production must be local. Again the impact of job creation is huge even though it is not necessarily in Johannesburg. There is a domino effect on job creation.

The procurement system was a challenge in the sense that this was the first time that a tender requiring the technology we specified was advertised anywhere in the world. For instance, elsewhere buses use LPG (liquid petroleum gas) as opposed to the natural compressed gas required for Metrobus. As a result, a discussion process was undertaken with industry players was undertaken in order to get a meeting of the minds between the suppliers and the City.

As a result, the current tender is completely 80/20 compliant. To date 81 of the ordered 150 buses are commissioned in South Africa with the concomitant number of jobs created.

With this tender there is a transfer of skills and knowledge. For instance, the current mechanics at Metrobus are trained on diesel and now they have an opportunity to be trained on different technology.

### **On ReaVaya**

When you look at ReaVaya on two points of view. One, they have embarked on a new type of fuel as opposed to the one that has been used by the old Metrobus fleet. They are on Euro 4 standards. So with ReaVaya we have leap frogged the greening agenda.

Secondly, as a mass rapid transport system it has connected the western (Soweto), central and northern parts of the city.

The infrastructure for setting up the ReaVaya project is a huge job creation enterprise. We got to the point where the model of ReaVaya was not to displace the entrepreneurial taxi owners or to deny drivers of taxis the opportunity to earn a living. What it opened up was a new opportunity for owners, operators, associations a new opportunity. Some of these have been retrained and they are now driving the buses. Some of the owners are shareholders in the company.

## **4.7 Responses to Research Question**

None of the eight respondents interviewed for this research had a negative view about the Green Economy path the City of Johannesburg has undertaken.

The early interviews (2013-2014) reflected a lack of co-ordination amongst the various departments and entities that should contribute to the Green Economy in Johannesburg. This lack of co-ordination resulted in projects being undertaken haphazardly and there was duplication. At that time, the respondents gave detailed responses to what was happening in their own departments and showed a lack of detail about how that linked to projects in other departments. Alternatively, one had a sense that they felt powerless to influence co-operation. However, since the adoption of the *Green Economy Strategic Framework and Proposed Implementation Plan* in 2013 elements of co-operation started to emerge.

The two executives entrusted with greening and economic development, Tiaan Ehlers and Ravi Naidoo, respectively, expressed a great sense of confidence in Johannesburg succeeding in this endeavour. Both referred to greater co-operation and co-ordination across the city. Ehler's Environment and Infrastructure Services Department is overseeing all green projects and is working closely with Naidoo's Economic Development Department which is promoting economic growth in Johannesburg/

The projects identified in Annexure A point to a definite foothold on the green job pathway by the City of Johannesburg. These projects, as they are being implemented, are creating jobs. Although pinpointing specific green jobs is, at the moment, difficult to do, the fact that these jobs under the green jobs umbrella indicate that there is positive movement in this regard. The difficulty of data can be seen from the quarterly report presented by the EISD to the Council (Table 4.3 above).

In the interviews only the Johannesburg Zoo and Parks identified the number of jobs – some albeit temporary – created. The other subjects stressed the importance of identifying and implementing green projects and insisted that the spin-off thereof would be job creation.

This bodes well for the promotion of a Green Economy in Johannesburg. As Naidoo stated: “The glass is half full”.

## 4.8 Conclusion

The Municipality, in a number of public declarations, committed itself to greening economy in the short to long-term. Through its most ambitious commitment, the Growth and Development Strategy 2040, the CoJ finally began to take the tangible, up to the finalisation of that strategy, steps in the implementation of that vision.

The hosting of the World Summit on Sustainable Development (WSSD) by Johannesburg in 2002, COP 17 climate talks in Durban in 2011 and finally the fifth biennial C40 Cities Climate Leadership Group Mayors Summit that took place in Johannesburg in February 2014 with the theme “*Towards resilient and liveable Megacities– demonstrating action, impact and opportunity*” gave impetus to the green agenda of the City.

Following the adoption of the *Green Economy Strategic Framework & Proposed Implementation Plan* and the adoption of the cluster methodology in the City, for the first time plans for cooperation between the various departments were in tabled that would drive the green economy agenda. As evidenced by the third quarter performance report of the Department of Economic Development, actual targets were now being put on the table.

Similarly, Alex Bhiman, citing the greening of the CoJ’s Transport mode, including the ReaVaya rapid transport system, believes that any step undertaken in the greening processes has a knock-on job-creation potential.

“Building the infrastructure for ReaVaya, for instance, means that people have to be hired to build the roads, man the till at the bus stations, drive the buses, guard the stations, and so on,” he says. “*They may not be employed by the City but the project undertaken by the City has created jobs elsewhere.*”

Tallying the number of jobs created directly or indirectly through is a difficult enterprise. As per Ntsadu the problem starts with defining a green jobs and, even if a job is created via a green project, the output or output process itself may not necessarily be green.

The concept of provisioning Green Jobs must then be understood in a wider context: (a) the fact that local (internal CoJ) initiatives will take place and will produce a certain number of jobs and (b) there is a ripple effect of job creation stretching beyond the borders of Johannesburg (see Alex Bhiman, interview below).

The later point is confirmed by Naidoo: “Johannesburg is in the fortunate position of being the economic hub of the country – if not of the continent. Initiatives that it undertakes tend to be pioneering and they influence decisions in other parts of the country”.

The City’s involvement and support of projects such as Green City Startup Challenge for entrepreneurs also promote job creation.

It must also be noted Johannesburg's efforts have received international recognition – implying that whatever the City is doing must at the very least be working and that there must be an effect on job creation.

Post the IDC report on Green Jobs Naidoo believes that Johannesburg's "hit rate" on green initiatives and jobs is good. "We are ahead than most of the public sector. So our hit rate is probably good. But I think it is not so much about the hit rate: you want a lot of failures. Failure is a great thing. The more failures the better because it means we tried because we want a big volume of initiatives. If our hit rate is 100% and we have only done one thing that is not good".

Major challenges do lie ahead and overcoming them is very likely to create jobs: the reliance on fossil fuels and the increasing costs thereof, the scarcity of land for waste, the need to modernise and encourage residents to use public transportation

The City has benefited from its membership of environmental organisations and has learnt new ways of dealing with climate change challenges.

It is clear from the above that, as alluded to in the first chapter, until there is a definitive definition of green jobs, settling the numbers game will prove a difficult enterprise indeed.

Successive City of Johannesburg administrations have committed themselves to the green economy without explicitly laying out programmes to take the agenda further. With adoption of the Growth and Development Strategy 2040 the first steps in concretising these ideals were put into place.

For the first time, jobs were not mentioned a by-product of the green economy, but were being properly categorised and specific departments were beginning to be allocated targets.

Barring any policy changes, Johannesburg seems set to deliver on its promise of jobs created out of the Green Economy.

## CHAPTER FIVE

### 5. ANALYSIS AND INTERPRETATION

#### 5.1 Introduction

The fact that the City of Johannesburg has hosted two key summits that dealt with the environment or environmental issues - the World Summit on Sustainable Development in 2002 and the fifth biennial C40 Cities Climate Leadership Group Mayors Summit in 2014 – are a positive sign about the city's leaning towards green matters and sustainability.

In addition, the City became the first in the country to raise a green bond.

These efforts did not go unnoticed as in December 2015 the City won the prestigious C40 Cities Award for its leadership in tackling climate change through its successful Green Bond initiative<sup>31</sup>.

So how far the City has gone on its green agenda and delivered on its promised will be looked at in this chapter.

#### 5.2 Green Economy

“The “Green Economy” requires a move to more sustainable utilisation of natural resources; so that economic growth and development (or the creation of wellbeing) is decoupled from increasing resource use and environmental degradation. The Green Economy is a new economic paradigm that promises development while protecting the earth's ecosystems and contributing to poverty alleviation. Essentially, a Green economy improves human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. A Green Economy is low carbon, resource efficient and socially inclusive”<sup>32</sup>

##### 5.2.1 Green Policies

The following passages, from *Green Economy – Scoping Study South Africa* gives a succinct summary of the country's progression towards a Green Economy:

South Africa has set its short, medium and long-term vision for contribution towards an environmentally sustainable, climate-change resilient, low-carbon economy and just society.

The vision is outlined in the Cabinet endorsed National Strategy for Sustainable Development and Action plan (until 2014), New Growth Path (until 2020) and National Development Plan: Vision for 2030 (NDP). Various sector policies and strategies also support the vision: they include the Integrated Resource Plan, Industrial Policy Action Plan, Environment sector Green Economy Implementation

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<sup>31</sup> [http://joburg.org.za/index.php?option=com\\_content&view=article&id=10250:joburg-wins-prestigious-c40-cities-award-in-paris&catid=88:news-update&Itemid=266](http://joburg.org.za/index.php?option=com_content&view=article&id=10250:joburg-wins-prestigious-c40-cities-award-in-paris&catid=88:news-update&Itemid=266), retrieved 12 June 2016.06.12

<sup>32</sup> <http://www.unep.org/greeneconomy/AboutGEI/WhatIsGEI/tabid/29784/Default.aspx>

Plan, National Biodiversity Strategy with an Action Plan and National Climate Change Response White Paper.

The National Strategy for Sustainable Development and Action Plan is centred in the area of five strategic priorities, for which it lays out an action plan for achieving all priorities. These five priorities are:

1. Priority 1: Enhancing systems for integrated planning and implementation;
2. Priority 2: Sustaining our ecosystems and using natural resources efficiently;
3. Priority 3: Economic development via investing in sustainable infrastructure;
4. Priority 4: Creating sustainable human settlements; and
5. Priority 5: Responding appropriately to emerging human development, economic and environmental challenges (including climate change, rising oil prices, globalisation and trade" (2015:7).

## **5.2.2 GREEN JOBS**

Although the CoJ believes that the green economy is a major vehicle for creating jobs, it does not commit itself to specific figures. "The green economic revolution presents an excellent opportunity for the City of Johannesburg to create thousands of new jobs," <sup>33</sup>according to Ruby Mathang, MMC for Economic Development.

The City's working document and guideline on the green economy, (the *Framework*: 2013), quotes extensively from the IDC's 2011 *Green Economy*. The projections are certainly ambitious: "The analysis reveals the potential of an unfolding green economy to lead to the creation of approximately 98 000 new direct jobs, on average, in the short term, almost 255 000 in the medium term and around 462 000 employment opportunities in the formal economy in the long term".<sup>34</sup> The periods are: short term (2011-2012), medium term (2013 – 17) and the long term (2018 – 25).

What is significant though is the fact that the potential for green jobs is identified in many sectors of the economy: energy generations (renewable (non-fuel) electricity; fuel-based renewable electricity and liquid fuel); energy and resource efficiency (green buildings, industrial and transportation); emissions and pollution mitigation (pollution control; carbon capture and storage and recycling) and natural resource management (biodiversity conservation & eco-system restoration and soil and land management).

It is important to note that the CoJ is not looking at its green economy agenda as only internally focussed. It has a wide range of external stakeholders – as consultants and active partners in project execution.

Furthermore, the reach of its Green Economy goes beyond the borders of the city. Some of its projects, for example, the programme of re-stocking its bus stock has taken place mainly outside Johannesburg.

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<sup>33</sup> CoJ, 2013:5

<sup>34</sup> IDC. 2011: 3

## 5.3 GREEN POLICIES VERSUS IMPLEMENTATION

### 5.3.1 Policy

Urawain (1984) says policy and planning are interrelated and moving from policy formulation to implementation is the ultimate aim:

*“The planning task is to attempt to translate policy into plans, programmes and projects for the purpose of optimizing the use of resources within a fixed-term period of time. Policy analysis and planning are separated by policy making and policy formulation. Without a set of policies, planning cannot be done. Implementation of plans, programmes and projects takes place when there is cooperation between various groups of people. Although policy is formulated by a particular group of people, it may affect everyone. The possibility for the programme or project to be implemented therefore depends on the cooperation of the decision-makers involved, the politicians concerned, the political party members involved, the general public, the press and, finally, the implementors” (1984: 20).*

Later he asserts: “Implementation of plans, programmes and projects takes place when there is cooperation between various groups of people. Although policy is formulated by a particular group of people, it may affect everyone. The possibility for the programme or project to be implemented therefore depends on the cooperation of the decision-makers involved, the politicians concerned, the political party members involved, the general public, the press and, finally, the implementors”. (ibid, 25).

The difference between policy formulation and policy implementation is that policy formulation addresses the ‘what’ and the ‘why’, whereas policy implementation regulates the ‘what’, the ‘how’, the ‘where’, the ‘who’ and the ‘when’. Formulated policy objectives may be expressed and formulized as policy statements, programs or projects aimed at solving a problem or at fostering progress in a society. Policy implementations may be expressed and formulized as laws, procedures, protocols, directives or budgetary actions, for example.

The current political leadership of the CoJ (2011-2016) made a bold commitment with its 2040 Growth and Development Strategy. As stated in chapter 4, the strategy was in part grounded on national and provincial guidelines.

The GDS 2040 strategy is particularly important in that for the first time it talks about job creation in Johannesburg in the same breath as greening. Among its priorities for the 2011- 2016 period, number nine is Green Economy.<sup>35</sup> Previous strategy iterations of the CoJ concentrated on growing its economic muscle with green matters touched upon tangentially (See Igoli 2002:1999; Joburg 2030: 2002).

Although Johannesburg played a part in the development of the publication *Green Jobs: an estimate of the direct employment potential of a greening South African economy*. Industrial Corporation Bank of Southern Africa, trade and industrial policy

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<sup>35</sup> CoJ IDP review, 2015.

*strategies*”<sup>36</sup> in 2011, it was only two years later that it came out with its own green strategy policy framework. The framework is green focused and recognises the interdependence of the various departments within the City and its municipal agencies (entities) as well as other external stakeholders in the achievement of stated goals.

### 5.3.2 Implementation

Following the adoption of the 2040 Strategy, institutional changes in the City saw an incoherent adoption of the green agenda. Departments did not necessarily work together and some projects were duplicated.

For example, City Power’s photovoltaic programme was not originally tied to the EISD green buildings project; both Pikitup and City Power had biogas programmes whilst transport was looking at biogas as a supplement fuel for its fleet of buses and other motor vehicles.

Kunyanda expressed this in the interview in 2013: “Every project that is being done is done in isolation from others. There is no alignment... My point is: from conception, every department affected must be consulted. We have to change the way to do our planning. There has to be a lot of thorough thinking, consultation and planning and also to say how can this be sustainable. A good example (at the time<sup>37</sup>) is the BRT project – there should be coordination between transport and Pikitup so that there is sustainable supply of biogas for the new fleet of buses”.

Table 4.3 in the previous chapter illustrates the fact that there is now (effective) cooperation and accountability (reporting) by the different role players.

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<sup>36</sup> “Maia, J.; Giordano, T.; Kelder, N.; Bardien, G.; Bodibe, M.; Du Plooy, P.; Jafta, X.; Jarvis, D.; Kruger-Cloete, E.; Kuhn G.; Lepelle, R.; Maakulule, L.; Mosoma, K.; Neoh, S.; Netshitomboni, N.; Ngozo, T.; Swanepoel, J. (2011): Green Jobs: an estimate of the direct employment potential of a greening South African Economy. Industrial Corporation Bank of Southern Africa, trade and industrial policy strategies

<sup>37</sup> My note

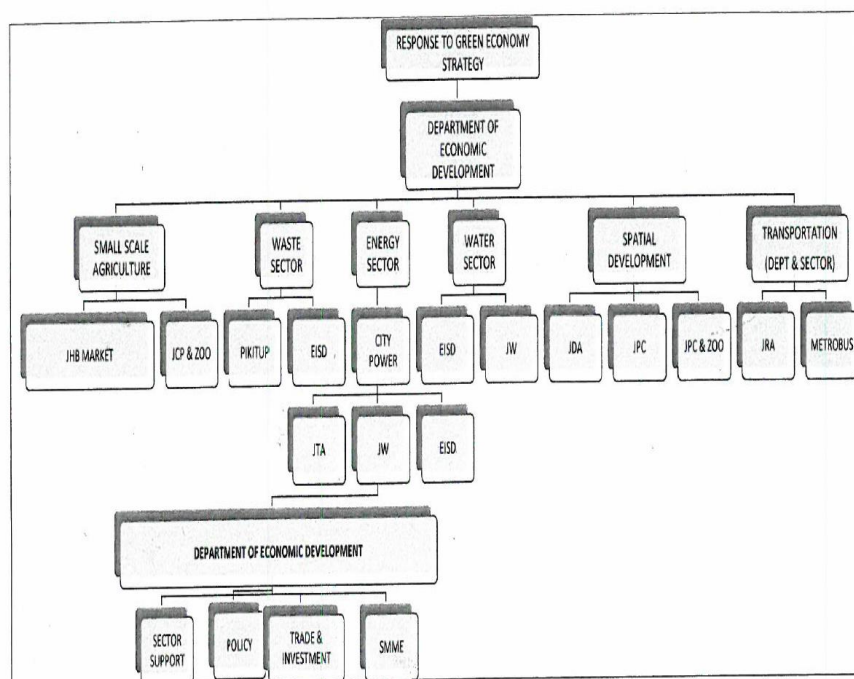


**Table 5: Stakeholder Involvement within City of Johannesburg** The above drawing shows how the City's departments and MOE's are linked to the mentioned sectors. Water, Waste and Transportation sector, plays the most crucial role to the Energy sector as the results of reducing carbon emission results in producing electricity.

Progress has been made in the following sectors (chapter four has outlined more detailed achievements):

- I. Transportation
  - a. Re-fleeting of busses to new Euro 4 standards; and
  - b. Conversion of old diesel engines to dual fuel engines.
- II. Fuel
  - a. Production of ethanol; and
  - b. Biogas production pilot programme.
- III. Retrofitting and greening of buildings
  - a. In June 2010, the city of Johannesburg began implementing a Climate Proofing of Urban Communities Project in 700 low-income households. The project, funded by the Danish International Development Agency, involves the installation of low-pressure solar water heating units and isolated isoboard ceilings, as well as the distribution of compact fluorescent lamps; and
  - b. The City has undertaken to retrofit all its building with power saving lights to replace fluorescent lighting.
- IV. Economy
  - a. Green bond; and
  - b. Green economy start-ups.

Besides legislative challenges that slowed down the speed of change towards a Green Economy, internal co-operation between the various has not always been ideal. Prior to the development and adoption of the Framework, the various units of the City worked at worst in isolation and at best co-operated grudgingly (Naidoo, Ntsadu and Roelf Meyer (Pikitup) interviews).

#### **5.4 Lessons from Existing Policies and Initiatives**

By definition, bureaucracy is a process that is an antitheses of speed; the bureaucratic ship takes a long time to change its course.

Previous City of Johannesburg administrations discussed green matters but it took the current one to concretise the ideas and turn them into workable ideas.

Even then, it took the current administration two (2) years from adopting its ambitious long-term strategy (GDS 2040) to finalising and adopting its Green Policy framework and action plan (2011 to 2013).

The first lesson is that the timespan between policy adoption and action must be shortened.

Secondly, the fact that Local Government Policies are informed by either or both Provincial and Central Government diktats means that, where there are contradictions in any of these levels, negotiations must be undertaken to allow for any movement to

take place. These negotiations can and do take time to resolve matters and once again the time from conception, to resolution and to action may cause delays. In the same breath, if funding is expected from the upper tiers of government, it may also be a source of programme delays.

Another lesson to be learnt is that internal dependencies must be sorted out ab initio so that duplications and wastage of resources can be avoided. Only late after green initiatives had taken place within the CoJ was an inter-city task team formed to ensure co-operation and sharing of ideas.

The importance of external partnerships cannot be overemphasised. From taking part in the IDC discussion on green jobs to participations in international forums (for instance the country is a Party to both the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC) and has made commitments under the Cancun Agreement for its greenhouse gas emissions) right up to co-operation with universities and the CSIR and other parties, the City of Johannesburg has gathered good insights into the Green Economy that have been put into tangible projects.

The City has now started a co-operative framework of sorts (table 5) this is not enough. A standing task team, with a ring-fenced budget, should be established. It should comprise of all the departments and MOEs, and one or two independent experts. This will ensure oversight as well as monitoring and evaluation of projects. This task group must in addition be tasked with publicising projects undertaken, ongoing and completed. (A weak chink of the City's Green Economy projects is that few outside the project departments know about them.)

Although not touched upon in the research, internal stakeholders outside the units that are taking part in the green economy, as well as residents, are just as important. Here the importance lies in sharing information as this will enable them to be "green ambassadors" for the City.

The research is about the ability of the City to provide green jobs and it has demonstrated this ability. The issue of the actual number of jobs to be produced and where they are to be found has become moot. In the first instance, the definition of Green Jobs, we have found, is not easy. In addition, Johannesburg is influential beyond its own borders and whatever it does tends to affect other parts of the country. As was demonstrated in its refueling of its bus stock, the City's projects are able to produce employment opportunities in other parts of the country.

Lastly, Local Government needs to know and exercise its powers. As stated by James and Sekera<sup>38</sup>:

*"Local Governments have significant power and influence to determine whether policies and programs under their authority create sustainable and unsustainable conditions. For example, Local Governments largely have control over land use and development. Through land use regulations and building codes, municipal and*

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<sup>38</sup> James, S and Sekera, J. 2016. *Local Government and Sustainability: The Power of Public Goods* (<http://patimes.org/local-governments-sustainability-power-public-goods/>) retrieved 18 July 2016

*county governments can promote and shape new development that's is sustainable; development that is compact, conserving land and reducing the need for auto travel; powered by renewable energy, energy and water-efficient and affordable to people from all walks of life or, local governments can perpetuate sustainable development that gobbles up open space and farmland, forcing more people to make more auto trips that worsen traffic, increase air pollution and increase the use of fossil fuel" (2016).*

(See also Annexure C)

## **5.5 Conclusion**

From the research, it is clear that the City of Johannesburg, is truly committed to a green future.

There is now tangible progress towards achieving Green Economy goals. Based on the GDS 2040 strategy, and the subsequent IDPs (five-year and single-year operational plans), the City of Johannesburg can now point out to specific projects that have been initiated under the umbrella of greening.

As to the number of jobs, there has now been enough experience and expertise to begin working out a formula for direct relationship between greening efforts and jobs' outcomes.

Furthermore, because of its declared position as the economic hub of South Africa, Johannesburg must make a decision about whether its programmes are exclusively meant to benefit its ratepayers or whether there is a deliberate agenda to advance the nation.

Granted that Johannesburg is not an island isolated from the rest of the country, it has to be specific about its focus.

## **CHAPTER 6**

### **6. CONCLUSION**

#### **6.1 Introduction**

For a country faced with a large unemployment rate, it is desirable that many avenues be explored to ensure that as great a number of employable citizens are given an opportunity to find productive employment.

At the same time, whilst exploring job creation opportunities, we should be wise to the fact that old methods of industrialization (the Brown Economy) have created another issue to consider: the denigration of the environment.

Therefore, when discussing the green economy sustainability and environmental protection become the new watch words when we explore what to do next. The green economy allows us to look at means of creating employment while at the same time putting into place methods that would, at the very least, not degrade the environment and at best, ensure that they are replicated without causing further damage to the environment.

The problem with “the green economy” is that it can be understood conceptually to mean “not brown economy” – i.e. an economy that is sustainable and avoids using methods that denigrate the environment. However, drill down to the products of a green economy, i.e. green jobs, and here it becomes hard to envisage, other than in very exceptional cases, “pure” green jobs. Jobs created by employing methods that are recognized within the green economy lexicon are created as a result of inputs from both the green and the brown economies: a solar panel is produced by a worker who travelled on a bus fuelled by fossil fuels.

The distinction is important: can we actually ever talk about Green Jobs or an Economy that only produces green jobs?

For this reason, it is imperative therefore that our answer accepts a hybrid: that the brown economy will continue to co-exist alongside the Green Economy. Our efforts should then be concentrated on ensuring that we employ more of the green technologies and improve on their efficacy.

#### **6.2 Green Jobs**

Any enterprise, successful or not, is capable of producing a certain number of jobs. By this reasoning, any entrepreneurial initiative in the Green Economy is bound to produce some jobs. The question is the sustainability and profitability of the initiative.

Secondly, it is important, as the City of Johannesburg has done, to categorize the Green Economy into sectors while at the same time looking at linkages between the various sectors. It is important because this lends focus and channels resources appropriately.

Linkages are important because they create synergies and minimize wastage: the use of dolomitic land for farming plants to create biogas is one such linkage.

The City of Johannesburg has undertaken many projects under its green economy umbrella. Planning for such projects envisaged that jobs would be created, based on projections made in the IDC publication *Green Jobs*.

No census of the actual number of Green Jobs undertaken through such projects has been undertaken. This can partly be ascribed to the fact that a pure definition of Green Jobs does not exist.

This is captured poignantly by Ntsadu of the DED: “the problem with green jobs is that no one has yet (conclusively) defined what a green job is,” says Ntsadu. “There are many factors that go into creating a Green Economy. For example, if you are building a biogas methane plant, what materials are you using, where are the workers coming from, what mode of transport are they using?”

What the city of Johannesburg has proven is that (a) the Green Economy does exist and (b) it can have an effect on job creation. The projects identified as green in the preceding chapters are proof of this.

Importantly, Johannesburg has demonstrated importance the role Local Government can play as an enabler in the creation of jobs. The co-operative nature - between internal stakeholders and external partners - of the projects that the City has undertaken must also be emphasized. Local Government can be more versatile in cutting down red tape and can therefore turn around projects quicker than at Provincial and National level.

Local Government acts once there is policy clarity from the higher tiers of government. “National Government must provide policy, province must give direction and the city must implement,” states Sean Dinat, Deputy Director SMME Unit in the Department of Economic Development (DED), City of Johannesburg. “(So) job creation is imbedded in the IDP and GDS 2040. This trickles down to the Department (DED). All Departments and MEs draw their policies from the IDP and GDS

Ravi Naidoo, the executive director at DED, points out Johannesburg as the economic hub of the country, has attracted many skills and the likelihood is that in one way or another a significant number of green projects will dovetail a job or jobs in Johannesburg. Commenting of the range of job prospects identified in the IDC’s *Green Jobs* he said: “All those things in *Green Jobs*) which are localisable in South Africa have a Johannesburg dimension simply because Johannesburg is the main commercial hub to it. So whether we are in the financing of that production or whether the actual production facility comes to us or the consulting on that work (is needed) .... all of that there will be coming to Johannesburg”.<sup>39</sup>

The effect that Johannesburg has on the rest of the country is echoed by Alex Bhiman, Assistant Director, Strategic Support, in the office of the MMC Transport who

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<sup>39</sup> Interview: 1 June 2016

points out that the refueling of Metrobus has created jobs elsewhere in that the CoJ has no facility to assemble buses.

### **6.3 Issues For Further Research**

#### **6.3.1 Green Economy –(should local government take the lead)**

Although the South African Constitution recognises a three-tier government structure, there is enough lee-way at local government to be proactive in local government. The City of Johannesburg has a Department of Economic Development (DED) and another called the Environment and Infrastructure Services Department (EISD), both of which can set out plans for development. The research question would then be: Local government's role in setting the green agenda

#### **6.3.2 Job creation: going beyond local borders**

Municipalities have to report to their report about what they have done to improve their areas. However, cities and towns are neighbours to each and their economies are more often than not tied to each other. Sometimes it not only adjacent Municipalities that have dependencies.

The research question: Breaking borders – Municipalities working together to create green jobs

#### **6.3.3 Reclaimers - survivors or Green Economy's foot soldiers?**

Prior to Pikitup trucks picking up dustbins from domestic clients, reclaimers forage through the bins to farm out recyclable material. These could be plastics, bottle or even paper and steel/aluminium products.

It is not known how many are in Johannesburg; how much income they generate and how many, if any, other people are dependent on their income.

Given that most of the reclaimers are doing this as a survivalist enterprise, what chance is there that they can grow from street vendors to proper entrepreneurs.

The research question: Reclaimers: the backbone of the City's recycling economy

### **6.4 Conclusion**

The Green Economy is becoming part of normal business. More and more manufacturing companies are buying into green means of production.

Policy at National and International levels is also moving in this direction. As international conventions are negotiated and signed in favour of greening, National Governments, including South Africa, are aligning their policies to these conventions.

At a local level, Johannesburg has signed up international agreements such as the C40 Mayors' Compact which compels the City to take certain steps in protecting the environment.

This leads us to conclude that these efforts have a by-product called green jobs. The researched has not determined conclusively what a green job is. What has been conclusively determined is that greening initiatives do indeed culminate in the creation of jobs.

The research was also unable to peg down the number of jobs created through the greening initiatives. This is due to the fact that greening initiatives also employ brown economy methods to accomplish their aims.

The answer to the question does the green economy create jobs must be a hybrid: that the brown economy will continue to co-exist alongside the green economy. Our efforts should then be concentrated on ensuring that we employ more of the green technologies and improve on their efficacy.

The City of Johannesburg has demonstrated that greening is able to create jobs, not only at a local level but in other parts of the country. This encouraging and as Johannesburg improves on its policies and practices, more jobs will be created in this manner.

Finally, the resources Johannesburg is committing to the green economy cannot be understated: in its 2016/16- 2017/18 budget it has allocated more than R52 million operational budget has been allocated to green projects. Further, up R50 million is allocated to the EISD for capital budget. Similar allocations are made for the other departments and municipal entities that have green projects under their mandates – Department of Economic Development, Transportation, City Power, Joburg Water and Pikitup.<sup>40</sup> This is proof that when it comes to the green economy, the City of Johannesburg is indeed putting its money where its mouth is.

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<sup>40</sup> <http://www.joburg.org.za/images/stories/2015/Mar/2015-16%20budget%20book.pdf> retrieved on 20 July 2016.

## ANNEXURE A<sup>41</sup>

### GREEN PROJECTS UPDATE – JUNE 2017

| Project Name                  | Description                                                                                                                                  | Leading Department | Implementation Stage                              | Start / End Date | Policy Involved                                     | Partners                   | Support Required                                                                                                                           |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------|------------------|-----------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Landfill gas to energy        | Extraction of methane gas from five landfill sites and converting it to electricity                                                          | EISD               | Two sites have been constructed and are operating |                  | AQA, Waste Management Strategy                      | EnerG Systems Consortium   | Dealing with JPC as they are delaying our project in terms of registering the gas rights against the title deeds of the 5 sites/properties |
| Building Retrofit             | Energy efficiency Building Retrofit Pilot to retrofit council buildings with energy efficiency interventions following a guaranteed savings. | City Power         | Implementation                                    |                  | National Building Regulations & Building Standards  | City departments and MOE's |                                                                                                                                            |
| Streetlights                  | using High Pressure Sodium (HPS) and Mercury Arc Vapour (MAV) to Compact Fluorescent Lamps (CFL) and Light Emitting Diodes (LED)             | City Power         | Implementation                                    |                  | Energy policies for sustainable development in S. A | N/A                        |                                                                                                                                            |
| Solar Water Heating Programme | Supply to RDP Housing                                                                                                                        | City Power         | Appointment of service provider                   |                  | Energy policies for sustainable development in S. A | DSM levy                   |                                                                                                                                            |
| Solar Powered Traffic signals | JRA is working on removing all the signals from the grid                                                                                     | JRA                | Implementation                                    |                  | National Energy Act (2008),                         | N/A                        |                                                                                                                                            |

<sup>41</sup> The research report took two to three years to complete. The student had difficulty obtaining information and only after the intervention of the supervisor was the student given interview opportunities. Even then the information was sparse for example Annexure A is not fully updated and the *Framework*, although it underpins the CoJ's green economy programme, was never adopted by Council. Lastly coordination between the various department and MoEs of the city is still not fully attained.

| Project Name       | Description                                                                                                                                                                                                                                                 | Leading Department | Implementation Stage                               | Start / End Date | Policy Involved                                                                                           | Partners | Support Required |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------|----------|------------------|
|                    | that will contribute about 1.08 MW power                                                                                                                                                                                                                    |                    |                                                    |                  |                                                                                                           |          |                  |
| Westgate Precincts | West Green Precinct has three phases. This project is about street furniture which consists of 9 sub projects which revoluting Fixed Bin Steel Bollard, Bench (Turin 1800 bench), Street lights, Pedestrian Lights, Trees (Landscaping), Pedestrian railing | JDA                | 60% of construction of Phase1. It has three phases |                  | White Paper on Spatial Planning & Land Use Management, Development Facilitation Act, Municipal System Act | N/A      |                  |

| Municipal entity/Department | Broad green economy category                                                 | Depart/ME | Product output                                                                    | Production/Value Added in Joburg/RSA                                                                         | Financial year                                                    |
|-----------------------------|------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| PIKITUP                     | Recycling - separation at source                                             | Pikitup   | Recyclable packaging waste (Plastic, Paper, Glass, Cans, etc.)                    | Enterprise development: Cooperatives, SMMEs, etc.                                                            | Current (City wide rollout by end of 2014/15, ongoing thereafter) |
| EISD                        | Green waste processing                                                       | Pikitup   | Compost, refuse-derived fuels (e.g. pellets), alternative energy / electricity    | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                            | MT (2014/15 onwards)                                              |
|                             | Builders' rubble processing                                                  | Pikitup   | Crushed aggregate for use on landfill roadworks and as alternative cover material | Enterprise development: Cooperatives & SMMEs through possible reduction in builders' rubble disposal tariffs | Current (2013/14 onwards)                                         |
|                             | Waste to energy: Alternative waste treatment technologies for residual waste | EISD      | Alternative energy / electricity                                                  | Enterprise development: Private sector project finance & Capex investment                                    | LT (2016/17 onwards)                                              |
|                             | Alternative                                                                  | EISD      | TBD                                                                               | Joburg                                                                                                       | LT (2016/17)                                                      |

| Municipal entity/Department | Broad green economy category                    | Depart/ME          | Product output                                                                                                                                                         | Production/Value Added in Joburg/RSA                                            | Financial year                   |
|-----------------------------|-------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------|
|                             | waste treatment technologies for residual waste |                    |                                                                                                                                                                        |                                                                                 | onwards)                         |
|                             | Biodiversity Conservation                       | EISD               | Alien Vegetation                                                                                                                                                       | Joburg                                                                          | ST                               |
|                             | Landfill gas to energy                          | EISD               | Electricity                                                                                                                                                            | Joburg                                                                          | 2013/ 14                         |
|                             | Bio digester to generate fuel                   | EISD               | Fresh Produce Market waste<br>Pikitup Garden waste<br>Pikitup food waste (dailies)<br><br>To generate biogas that will be scrubbed and cleaned to use as vehicle fuel. | Joburg<br><br>Enterprise development: Private sector, Cooperatives, SMMEs, etc. | MT (2015/16 onwards)             |
|                             | Greening Strategy                               | EISD               | 100% completion of Greening Strategy                                                                                                                                   | Joburg                                                                          | 2014/15                          |
|                             | Installation of SWH                             | City Power         | Reduction of cold reliant power                                                                                                                                        | Joburg                                                                          | 2012/15                          |
| CITY POWER                  |                                                 |                    |                                                                                                                                                                        |                                                                                 |                                  |
|                             | Building energy efficiency                      | City Power         | Reduction of the power usage in City's buildings                                                                                                                       | Joburg                                                                          | 14/15 - 16/17                    |
|                             | Photovoltaic power                              | City Power         | Roll out of solar panels in houses                                                                                                                                     | Joburg                                                                          | Ongoing                          |
|                             | Street light efficiency programme               | City Power         | Reduction of the power usage in street lights                                                                                                                          | Joburg                                                                          | 11/12 onwards (8-year programme) |
|                             | Smart Meter Rollout                             | City Power         | Energy management/Efficient Energy management                                                                                                                          | Joburg                                                                          | 12/13 -(5-year programme)        |
| JOURG WATER                 | Waste water treatment plant                     | Johannesburg Water | Biogas to electricity                                                                                                                                                  | Joburg                                                                          | ST                               |
|                             | Alternative Water Use                           | EISD & JW          | Grey Water – used by Kelvin Power Station                                                                                                                              | Joburg                                                                          | ST                               |
|                             | Work for water                                  | JW                 | Joburg Water working with cooperatives in “Work for Water” the initiative – coops will do maintenance in their respective areas                                        | Enterprise Development                                                          | Ongoing                          |
|                             | Procurement                                     | Metrobus           | Diesel Duel Fuel                                                                                                                                                       | Enterprise                                                                      | 75 Bought                        |

| Municipal entity/Department        | Broad green economy category           | Depart/ME                  | Product output                                                                                                                                                                                                                                                                                                    | Production/Value Added in Joburg/RSA                                                                                                                                   | Financial year            |
|------------------------------------|----------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| TRANSPORT                          | of Green buses                         |                            | (DDF) and/or bio gas & diesel                                                                                                                                                                                                                                                                                     | development: Private sector, Cooperatives, SMMEs, etc.                                                                                                                 | already-14/15 onwards     |
|                                    | Conversion of buses to DDF (dual fuel) | Metrobus                   | It is ongoing 45 converted                                                                                                                                                                                                                                                                                        | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                                                                                      | 14/15                     |
|                                    | Convert waste to fuel                  | Metrobus and Joburg Market | Convert waste to fuel (Bio-Digester) in collaboration with Joburg Market                                                                                                                                                                                                                                          | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                                                                                      | 14/15                     |
|                                    | Refleet of minibus taxis               | Transport                  | Refleet of minibus taxis to greener vehicle                                                                                                                                                                                                                                                                       | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                                                                                      | 14/15                     |
| JOBURG MARKET                      | Market of the future                   | Transport and JFPM         | Green plants for biofuel                                                                                                                                                                                                                                                                                          | Enterprise development: Private sector, Cooperatives, SMMEs, etc.                                                                                                      | 14/15                     |
| DEPARTMENT OF ECONOMIC DEVELOPMENT | Green Start-Up                         | DED                        | The aim is to give innovative entrepreneurs with ideas in building, energy, water, transport and/or waste the opportunity to have their ideas developed into Green Startups. Eight candidates will be given R250 000 of funding each and the winner will receive an additional R1Million from the City of Joburg. | Enterprise Development                                                                                                                                                 | Ongoing                   |
|                                    | Crop farming for Biogas                | DED                        | Growing crops (green/ elephant grass) on mine dumps                                                                                                                                                                                                                                                               |                                                                                                                                                                        | Feasibility study by CSIR |
|                                    | Green Technology Fund                  | DED                        | The department has initiated a second year of the Green Challenge Fund to uncover promising new ideas, challenge the potential entrepreneurs and the young, and accelerate research and development. The first year was                                                                                           | The objective is for the precinct to be a "default location" for new green activity in the City, building p a critical mass of layers of green technology in one area. | Ongoing                   |

| Municipal entity/Department | Broad green economy category | Depart/ME | Product output                                                                    | Production/Value Added in Joburg/RSA | Financial year |
|-----------------------------|------------------------------|-----------|-----------------------------------------------------------------------------------|--------------------------------------|----------------|
|                             |                              |           | concluded successfully and has further promoted the City as a Green Economy City. |                                      |                |

## ANNEXURE B:

### RECOMMENDATIONS FOR LOCAL GOVERNMENT

#### RECOMMENDATIONS FOR LOCAL GOVERNMENTS<sup>42</sup>

- 1) Invest in assessments: It is worth spending time and resources in identifying where the potential lies for a local renewable energy industry. In turn, it is useful to benchmark the local situation with comparable experiences in other cities (even from other economic sectors).
- 2) Build on local strengths: A city always has a certain advantage vis-à-vis other business locations, be it on economic, geographic or other grounds. Local authorities can therefore design cluster policies in a way that these strengths are taken into account.
- 3) Work with what you have: Most cities are full of social networks; and these networks are full of committed people. When starting an initiative to establish a cluster, or a similar green economy project, local authorities can try to engage these existing structures within public, private or civil society organizations. Experience shows that personal commitment is a major driver of change. Renewable energy is a popular issue and there is a good chance that the best proponents for a city initiative are already active in this field.
- 4) Address stakeholder's needs: Not everyone is waiting for a new structure to emerge as a cluster coordinating agency. Before deciding on objectives, design and governance structure of a possible cluster initiative, local authorities can identify the most urgent needs within the renewable energy community (if there is already one). This creates the necessary buy-in and helps to bring key stakeholders to the table from the start.
- 5) Create mutual benefits: It is important to find win-win solutions for both environment and industry. Economic growth is often incompatible with environmental policy, but does not have to be a zero-sum game. Local governments can demonstrate how a local green (energy) cluster can help achieve economic development while also fostering environmental protection.
- 6) Dare to lead: It is critical that local leaders, be it the mayor, business leaders or the local trade promotion agency, formulate a clear vision for a planned cluster initiative. This can be bold and ambitious, because it should motivate people to act in its spirit. At the same time, realism is needed when detailing the concrete action plans.
- 7) Think longer-term: While some municipalities have good experiences with maintaining close connections with cluster initiatives, it is worth looking into possibilities to create an independent structure and a sustainable business model, for example by collecting membership fees. As important as leadership and commitment are for setting up a cluster initiative, there is a danger of collapse if key advocates leave the scene. This is particularly

<sup>42</sup> University of Amsterdam and ICLEI. 2012. *Role of local governments in promoting renewable energy businesses: A contribution to a green urban economy*. ICLEI Global Report

the case in renewable energy, which is a relatively new sector and (still) dependent on political support.

- 8) Encourage innovation: Research and development is expensive, and needs long-term commitment. Local authorities can play a crucial role in supporting various dimensions of the educational landscape, be it through the promotion of vocational training centers, supporting training colleges, providing of study grants or financing test laboratories.

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