

SACN URBAN GOVERNANCE INDICATOR DEVELOPMENT

INDICATOR DEVELOPMENT REPORT



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LIST OF ACRONYMS

CDFC	Common Data Framework for Cities
EU	European Union
HPI	Human Poverty Index
JRC	Joint Research Centre
MDG	Millennium Development Goals
OECD	Organisation for Economic Cooperation and Development
RSA	Republic of South Africa
RSIs	Rationalised Sector Indicators
SACCB	Common Data Framework for Cities Business
SACCD	South African Council on City Data
SACN	South African Cities Network
SALGA	South African Local Government Association
SCODA	South African Cities Open data Almanac
SDGs	Sustainable Development Goals
SFA	Scope Focus and Applicability
SOC	State of Cities
SOCR	South African State of the Cities Report
STAR	Sustainability Tools for Assessing and Rating Communities
SWOT	Strength, Weaknesses, Opportunities and Threats
UGI	Urban Governance Index
UIRG	Urban Indicator Reference Group
UN	United Nations
UNDP	United Nations Development Programme
USA	United States of America
WCCD	World Council City Data

EXECUTIVE SUMMARY

This project was commissioned by the Southern African Cities Network (SACN) to develop sub-national governance indicators for South African cities. To achieve this the project draws from relevant literature that takes into account the aim of the State of Cities Report in order to tell a governance story. The project also aims to strike a balance between internal indicators used within local governance for performance measurement and external indicators used to measure the quality of governance and wider development outcomes

The objectives as stipulated above were strictly adhered to in the execution of this project, and also, an Urban Governance Index (UGI) was constructed to serve as a point of convergence for the sub-national governance indicators. The UGI will be a criterion for monitoring, evaluating, measuring and reviewing the quality of governance in South African Cities and a framework for developing the required database of indicators needed to tell a governance story in line with international best practices. The UGI will also help to quickly identify which challenges emerge in the governance of South African cities for immediate policy redress and intervention.

DEFINITION OF URBAN GOVERNANCE

Urban governance is defined as the sum of the many ways in which individuals and institutions, public and private, plan and manage the common affairs of the city. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action can be taken (UN-Habitat, 2002: 14). The UN-Habitat's definition emphasizes actors (state and non-state), with urban governance being an arena of conflict and collaboration. In the African context, urban governance has been defined as "encompassing the multiple sites where practices of governance are exercised and contested by a variety of actors, various layers of relations and a broad range of practices of governance that may involve various modes of power, as well as different scales" (Lindell 2008: 1880). Such a definition allows one to understand the contestations, relations of power, and associated struggles among actors in the urban domain. In practice, urban governance includes urban management and deeply politicized struggles over the distribution of resources and quality of places (UN-Habitat 2009: 74).

Rapid urbanization in the developing world is seriously outstripping the capacities of cities to adequately provide services to citizens. Providing services to an ever-expanding urban population is the primary responsibility of urban governments. According to Davey (1993) service provision is ensured when an organization or institution involved is responsible for the quality and quantity of the service and ensures its financing and execution. Increasing urbanisation accelerates the challenges city governments face and creates a complex future characterised by inadequate resources, challenges to service delivery, the need for environmental sustainability and the need to address poverty and inequality in their multidimensional context. It is necessary to establish structures, systems, mechanisms and indices to measure and monitor the quality of city governance.

Sustainable Development Goal (SDG 11) speaks to "making cities safe, inclusive, and sustainable" which is the main objective of urban governance. In line with this objective, several indices have emerged globally to monitor, evaluate, review and enhance the quality of urban governance across the globe. However, these global indices are not adequately applicable to the South African context because they are either focused on the management of natural resources only and the need for environmental sustainability, or some other country-level specificity.

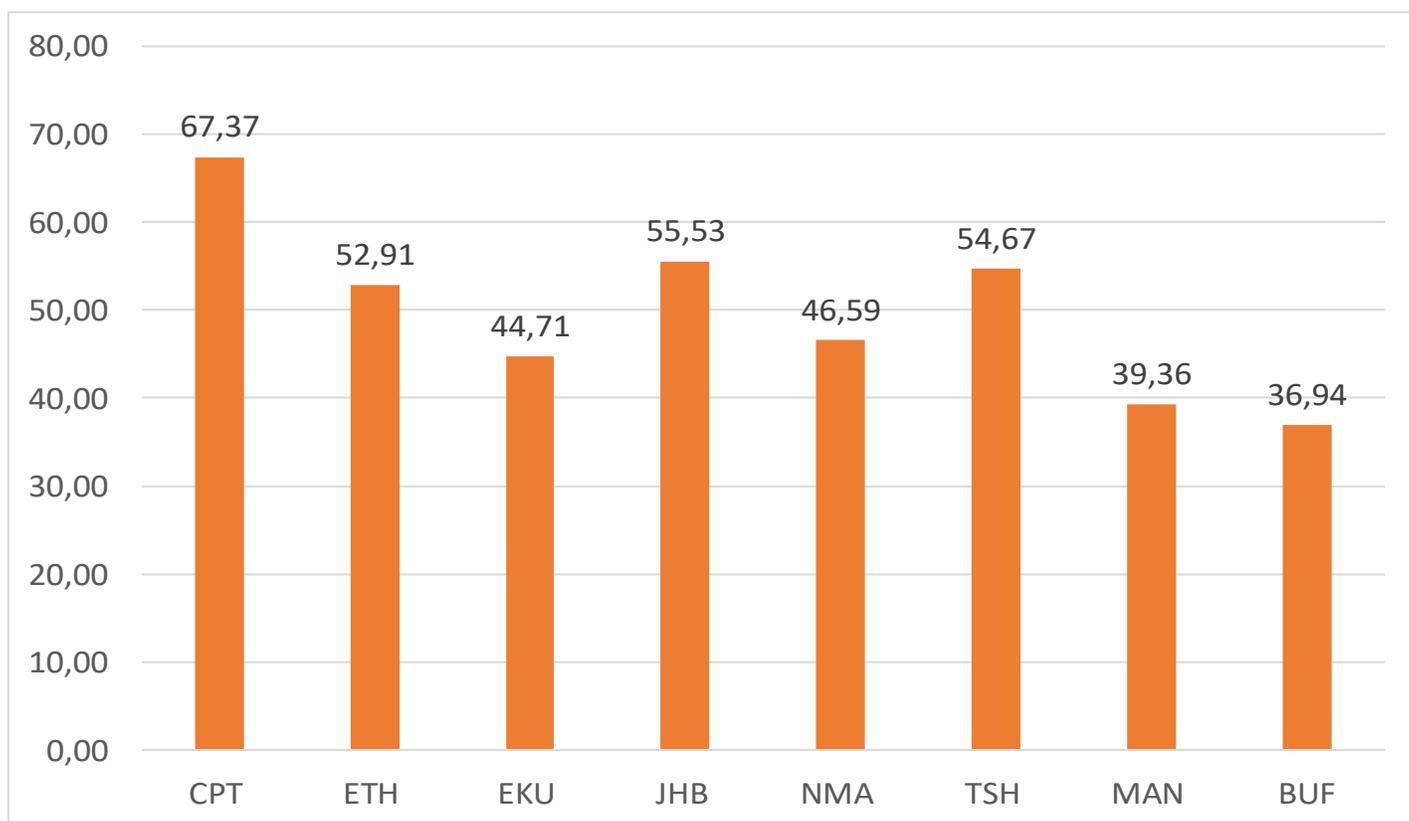
MEASURING CITY GOVERNANCE IN SOUTH AFRICA

The South African State of the Cities Report (SOCR) is an important documentation of the performance and conditions of South African cities. It is a barometer "compiling evidence about the progress made by South African cities over time in relation to key development roles, targets and outcomes. The SOCR serves as an analytical tool, that works to review the functional issue and opportunities that cities have and assists with agenda-setting, conveying fundamental messages about the planning, improvement and the management around cities. The information is important for monitoring and evaluation, useful to the next generation of city planners, councillors and authorities.

The proposed Urban Governance Index (UGI) for South African cities is designed to be context-specific to South Africa's urban challenges and fully representative of the South African reality. It draws from several theoretical frameworks

namely the social exclusion theory (Lenoir, 1974, Atkinson, 1998), participation theory (Chambers 1994, 1997, World Bank 2000, Cornwall 2000), Batho Pele principles, Sen’s capability approach and instrumental freedoms (Sen, 1999), and the Sustainable development goals (UN, 2015). In relation to the UGI, these frameworks translate into five sub-categories, namely effectiveness of governance, equity in governance, participation in governance, accountability in governance and sustainable security. Each of these five sub-categories is equally weighted to yield the overall UGI. The sub-categories and UGI are scored across a scale of 0 – 100 with higher figures representing better governance outcomes while lower figures denote poorer governance outcomes.

The results of the UGI for South African Cities shows the best-governed metro. These scores are the cumulative sum of the weighted UGI scores for each of the five sub-categories of the index.



Metro	UGO Score	Rank
City of Cape Town	67.37	1
City of Johannesburg	55.53	2
City of Tshwane	54.67	3
eThekweni	52.91	4
Nelson Mandela Bay	46.59	5
Ekurhuleni	44.71	6
Mangaung	39.36	7
Buffalo City	36.94	8

Each of the metros has different governance challenges. In the case of Cape Town, equity – in terms of access to basic services, accountability in financial management and performance, and sustainability with respect to leaving no one behind, need to be improved. Johannesburg must address its challenges with effectiveness, accountability and sustainability. Johannesburg has challenges with spatial planning, poverty reduction, crime control, quality of infrastructure and administrative efficiency. Tshwane needs to improve the level of equity in the metro, the quality of its accountability, participation – in terms of representativity in governance processes and sustainability. eThekweni’s key governance challenges are effectiveness in

governance, accountability and sustainability. With regard to effective governance, eThekweni needs to improve the level of human development and spatial planning in the metro. Nelson Mandela Bay governance drawbacks lie in the level of participation and equity in governance in the metro. Ekurhuleni, Mangaung and Buffalo City are challenged in almost all five sub-categories. Mangaung leads the other metros in sustainability in governance while Buffalo City leads in accountability in governance. Thus, each metro has its unique governance challenges that they need to address despite the overall UGI scores and rankings.

LIMITATIONS OF THE PROJECT

There were two main limitations in the execution of this project, the first being availability of data and the second being woefully inadequate funding to do justice to a project of this scope. Data available is as outdated as 2013 and therefore not applicable to any meaningful index construction in 2020, for a report meant for 2021. Consequently, secondary data available as recent as 2018 had to be used in the construction of the urban governance index. The year 2021 is a census year which allows the opportunity to update a lot of variables that will be useful in constructing this index in subsequent years. In terms of funding the SACN needs to set aside project funding to update this index in subsequent years.

1 INTRODUCTION

Managing cities effectively and efficiently is critical and becoming more complex as population growth and economic development are taking place in urban areas. Today's big challenges, such as poverty reduction, economic development, climate change, and the creation and maintenance of an inclusive and peaceful society, will all need to be met through the responses of cities. So too will the day-to-day challenges of garbage collection, responding to the house on fire and larger disasters, and facilitating the provision of water, electricity, education, health care, and the myriad of other services that make life more productive and enjoyable. To date, no single, standard, or comprehensive system exists to measure and monitor city performance and quality of life. Cities, on average, are each collecting in excess of 100 indicators, and in some cases, annually collect 1,000 indicators. Over the last twenty years, the role of cities and local governments has expanded considerably. Where some were focused primarily on basic service provision in the past, they now are engaged in debating the climate change agenda, governance, attracting foreign investment, and partnering with the private sector and civic organizations on several initiatives as never before. National governments are increasingly looking at fiscal discipline at the local government level and can use verified indicators to monitor and track local government performance.

2 MEASURING CITY GOVERNANCE IN SOUTH AFRICA

The SOCR has become important documentation of the performance and conditions of South African cities. It is perceived as a barometer "compiling evidence about the progress made by South African cities over time in relation to key development roles, targets and outcomes" (SACN 2016:17). It also serves as an analytical tool, that works to review the functional issue and opportunities that cities have and assists with agenda-setting, conveying fundamental messages about the planning, improvement and the management around cities. The information is not only important for monitoring and evaluation purposes but can also be useful to the next generation of city planners, councillors and authorities who might be the occupants following the civil decisions (SACN 2016:17). Indicators in the State of the Cities Report have been formed with the intentions of fulfilling the above roles.

The Common Data Framework for Cities formed by the SACN, was a response to the gaps found in the available data system, the CDFC encompasses a Codebook, Capacity Building, Reporting Services, an Open Data Almanac and is facilitated through the South African Council on City Data (Common Data Framework for Cities Business Plan 2017:18).

The Common Data Framework for Cities (CDFC), aims to assist cities to manage data, indicators, and reporting requirements. The informing themes for the management of South Africa's urban development and city management are as follows:

- o inclusive cities,
- o sustainable cities,
- o well-governed cities and
- o productive cities.

These themes are important for not only the management of cities but also the planning of future cities as informed by

the UN Habitat Agenda and most recently the Sustainable Development Goals (SDG). SDG number 11, which endorses the urban goal to “make cities safe, inclusive, and sustainable” and acknowledges that the developmental role of sub-national governments and makes concrete the conception that cities are the pathway to sustainable development (Parnell 2015: 529). This has influenced the data that cities seek and the indicators that are used to get this data. Indicators give a picture based on a selection of trends and facts that are “used to indicate the state or condition of something, these indicators show the conditions and how it changes over time” (SACN 2016:308). The data does not promise to be an all-inclusive picture of the state of cities but does give and enable the ability to benchmark cities.

This task as documented in the CDFC, is achieved by the use of various structures that make up the main indicators by which governance is managed. These include:

- o Compliance indicators
- o Sustainable Development Goals
- o International indicators and standards
- o New emerging policy measures
- o New Urban Agenda
- o SACN indicators

The Codebook includes a list of common city indicators, definition and methodologies and a dashboard to highlight which cities can populate which indicators. This metadata is aimed at collating data into one document or system. The Codebook includes the following indicators:

- o Output and outcome compliance indicators
- o Sustainable Development Goals (SDG)
- o World Council on City Data (WCCD)
- o Emerging New Urban Agenda requirements (Agenda 21)
- o Indicators published by the Global City Indicators facility
- o Indicators required by the SACN for the State of the Cities Report

SCODA serves as a central repository for city data, stakeholders can feed and extract data from SCODA and the indicators are available to the public. The indicators in this database are also available in the Codebook.

The South African Council on City Data (SACCD) is the coordinating body of the CDFC. It is critical to maintain good communication when dealing with data from different entities and this element assists with the feedback challenges, promoting peer learning and ensures that the CDFC is kept relevant while driving the implementation of the CDFC. The SACCD includes representatives from, national bodies, city leadership and city officials. At the time of publication, the Urban Indicator Reference Group (UIRG) coordinated by the SACN and the National Treasury’s City Support Programme was responsible for the bulk of responsibilities identified for the SACCD (Common Data Framework for Cities Business Plan 2017:23).

The work done by the SACN in tracking and informing development in South Africa facilitates the planning of cities for long term (National Development Plan, 2030) and medium-term plans (Integrated Development Plans, five-year plans with annual reviews) and short term plans set out in (Service Delivery and budget implementation plan) In the State of the Cities Report published in 2016, a set of indicators derived from the SCODA was identified to measure how cities are performing.

The SOCR 2016 indicates that cities have improved their systems of performance reporting and financial management, however, still lack the capacity to fulfil their constitutional mandate, provide services and compete on a global scale (State of the Cities Report 2016:242).

3 DEVELOPING AN URBAN GOVERNANCE INDEX FOR SOUTH AFRICA

3.1 Analysis of urban trends in South Africa’s metros

The objective of local governance in South Africa is to provide democratic and accountable governance for local communities; ensure the provision of services to communities in a sustainable manner; promote social and economic development;

promote a safe and healthy environment; and encourage the involvement of communities and organisations in the matters of local government (RSA Constitution 1996: Section 152). Consequently, the performance of local government is measured by:

1. The effective provision of household infrastructure and services
2. The creation of liveable, integrated cities, towns and rural areas
3. Fostering local economic development and job creation
4. Increasing community empowerment and participation

However, analysis of secondary data on some of these performance indicators depicts significant disparities in the quality of life among metros in South Africa. South Africa has challenges with multidimensional inequality driven by race, gender and spatial disparities, high levels of crime and poverty (World Bank, 2019). The recent outbreak of the COVID-19 pandemic has revealed the fragility of service provision in South Africa and its attendant inequalities in access, especially with regard to the quality of healthcare, education and basic needs like water. Again, over the past two decades, South Africa has struggled with energy sustainability, inadequate housing and poor service delivery (Bhorat et al., 2007; Global Insight, 2018). These characteristics serve as a snapshot of the challenges of urban life in South Africa. This section explores the trends in a few of these socioeconomic indicators to illustrate the level of spatial disparities among the metros in South Africa.

The socioeconomic indicators illustrated here include

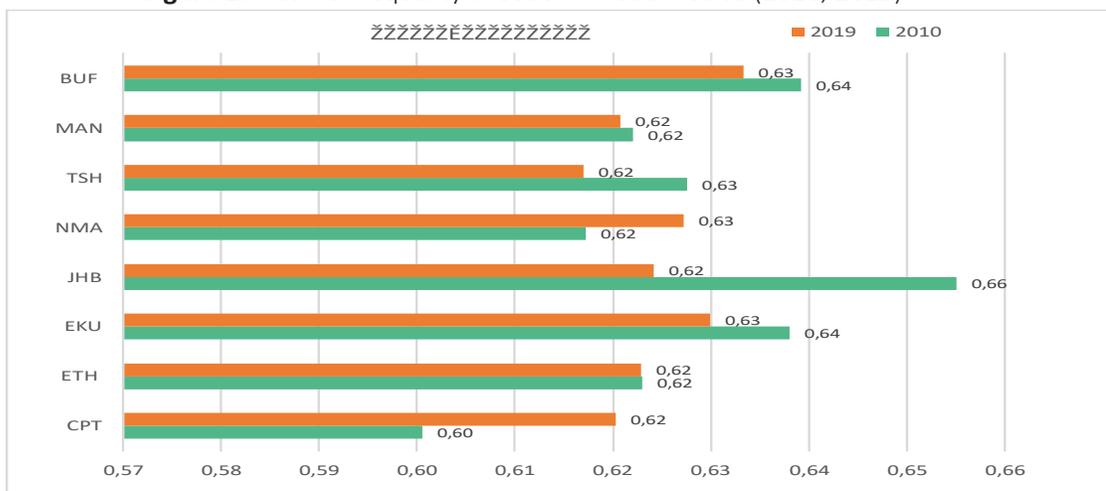
1. the income inequality index (Gini),
2. the poverty gap as measured by (poverty threshold- median standard of living of the poor population) / poverty threshold.
3. the overall crime index for each metro
4. access to electricity, captured by the share of households in each metro with electricity connections (% of total metro population of households)
5. access to water, measured by the share of households with piped water at or above the RDP level (% of total metro population of households)
6. access to housing, being the share of households occupying formal dwellings (% of total metro population of households)

These indicators serve as an adequate snapshot of the quality of life in each metro and an indication of the quality of governance that exists in each of the eight metros in South Africa.

3.2 Income inequality in South Africa’s metros (Gini Index)

South Africa is ranked the most unequal country in the world as per the World Bank’s Gini index, a measure of income inequality (World Bank, 2019). Internally in South Africa, income inequality is further aggravated by race, gender and spatial inequalities in access to employment. In this regard, the black African woman is the most deprived, followed by the Colored, Asian and white in that order. This trend was first discovered by Klasen (1997), it is still the status quo today and is replicated for the male gender as well. Trends in income inequality among the 8 metros over the past decade are illustrated in Figure 1.

Figure 1: Income inequality in South Africa’s metros (2010, 2019)

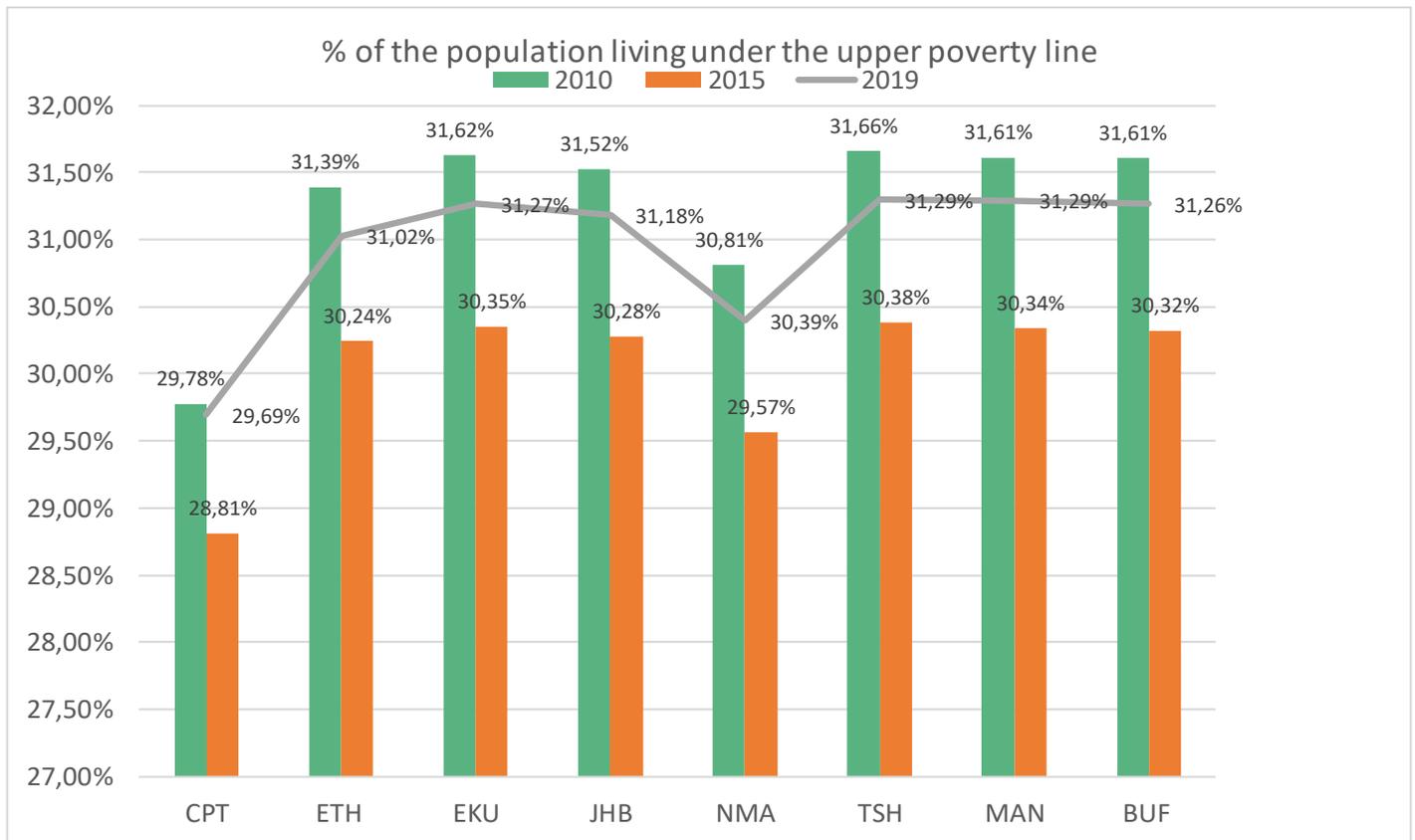


Source: Statistics South Africa; IHS Global Insh

A consistent deterioration in income equality can be observed in Cape Town and Nelson Mandela Bay. In the case of Cape Town, the Gini index has increased from 0.60 in 2010 to 0.62 in 2019, while for Nelson Mandela Bay the index has worsened from 0.62 to 0.63 over the past decade. On the contrary, metros like Johannesburg on one hand, and Ekurhuleni, Tshwane and Buffalo City to a lesser extent, have experienced declines in income inequality. The most drastic decline has been in Johannesburg from an index of 0.66 in 2010 to 0.62 in 2019. The drastic reduction in income inequality in Johannesburg is probably due to the metro being the economic hub of the country with a proliferation of economic activity further enhanced by an increased influx of migrants with diverse avenues for income generation. Income inequality in eThekweni and Mangaung have stayed the same over the past decade. These disparities in income inequality between the metros are to some extent driven by differences in access to employment opportunities between the metros, which directly mirror income disparity patterns (IHS Global Insight, 2018).

3.4 Poverty trends in South Africa's metros

Figure 2: %age of the population living below the upper-income poverty line of R1227 in each metro (2010 – 2019).

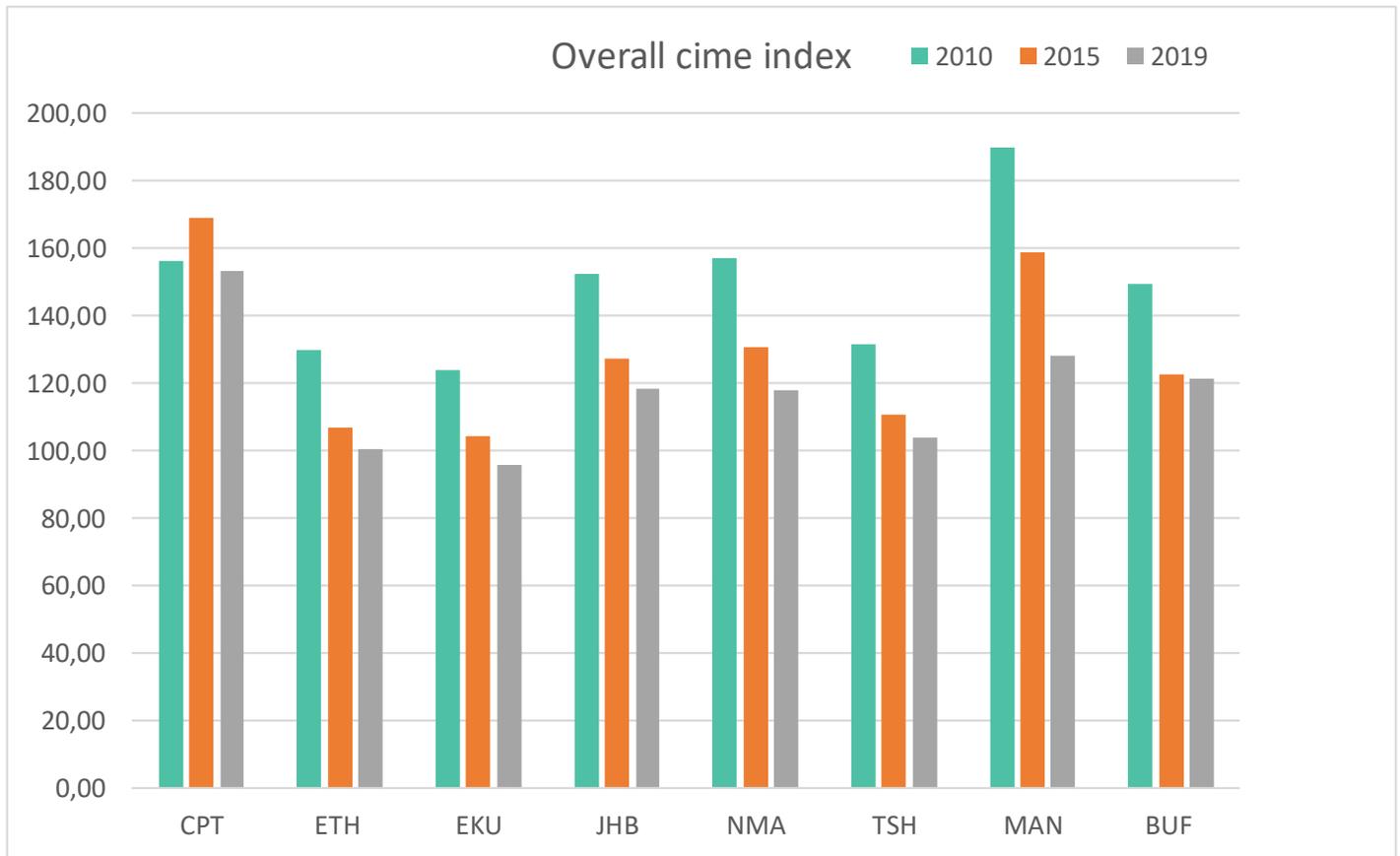


Source of data: Statistics South Africa; IHS Global Insight.

The level of poverty in each of the eight metros is measured by the %age of the population in each metro living below the upper-income poverty line. It can be observed from figure 2 that there were significant declines in poverty levels between 2010 and 2015 in each of the eight metros. This came as a result of successful social interventions implemented by the South African government in the early 2000s. For instance, the coverage of social protection schemes was extended from 2.7 million in the early 2000s to 16 million beneficiaries by 2013 (StatsSA, 2018). Social grants serve as the main source of income for poor and low-income households. These efforts were complemented by job creation initiatives such as the Expanded Public Works Programme which created more than 3 million jobs by end of 2013 (StatsSA, 2018). However, this was followed by steep increases in poverty between 2015 and 2019, back to 2010 levels of poverty. The past 5 years have seen steady declines in economic growth and increases in unemployment as well as deepening inequality in South Africa. These adverse socioeconomic trends have not only been driven by internal factors but also reflect the impact of external factors such as declining global economic trends.

3.5 The Overall Crime Index for each metro

Figure 3: Overall crime index in South Africa's metros (2010 – 2019)

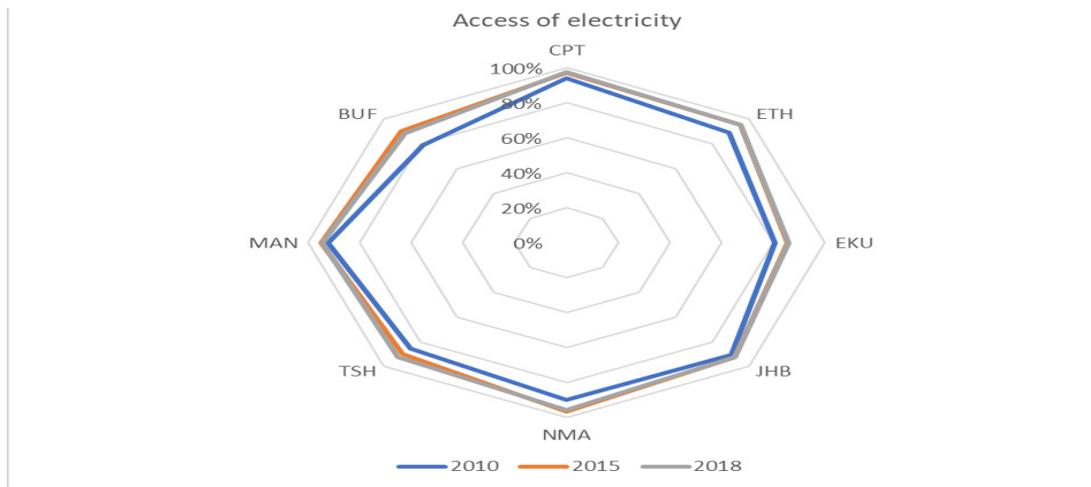


Source: Statistics South Africa; IHS Global Insight.

It can be observed from Figure 3 that the overall crime index has declined in each of the eight metros over the past decade. However, a disaggregation of the crime index shows that trio crime has been increasing in each metro since 2010. The Trio crime index consists of residential robbery, car hijacking and business robberies (IHS Global Insight, 2018). In addition, recent statistics from the South African Policy Service shows that gender-based violence since the COVID-19 lockdown period has increased drastically with most of the perpetrators known to the victims, and within the precincts of homes and family dwellings. This poses a significant challenge to safety and order in South Africa's metros

3.6 Access to electricity

Figure 4: Access to electricity in South Africa's metros (2010 – 2018)

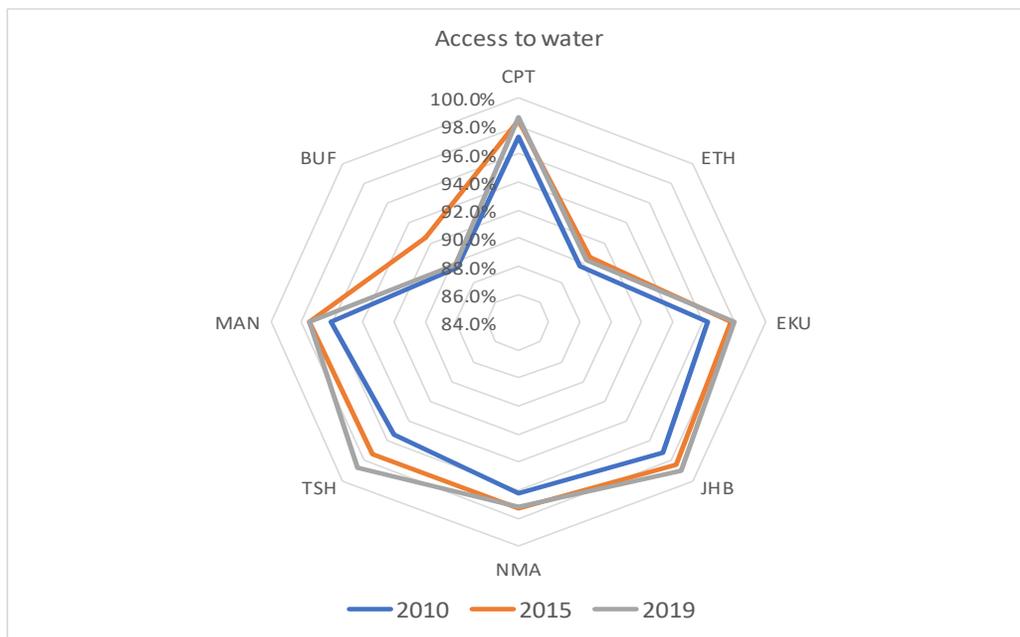


Source: Statistics South Africa.

The share of households with electricity connections has generally increased over the past decade in all eight metros in South Africa. However, there has not been any improvements in access to electricity over the past 4 years in Ekurhuleni, Johannesburg, Nelson Mandela Bay and Mangaung. Buffalo City has experienced a 2% decline in access to electricity between 2015 and 2018. South Africa has experienced rationing of electricity over the past decade due to challenges to generation capacity, obsolete infrastructure, and institutional challenges in Eskom. The lack of sustainable energy supply has adversely affected small businesses who create the highest amount of jobs, the manufacturing sector which has significantly stalled economic growth and households (Statistics South Africa, 2018)

3.7 Access to water in South Africa's metros

Figure 5: Access to water in South Africa's metros (2010 – 2018)

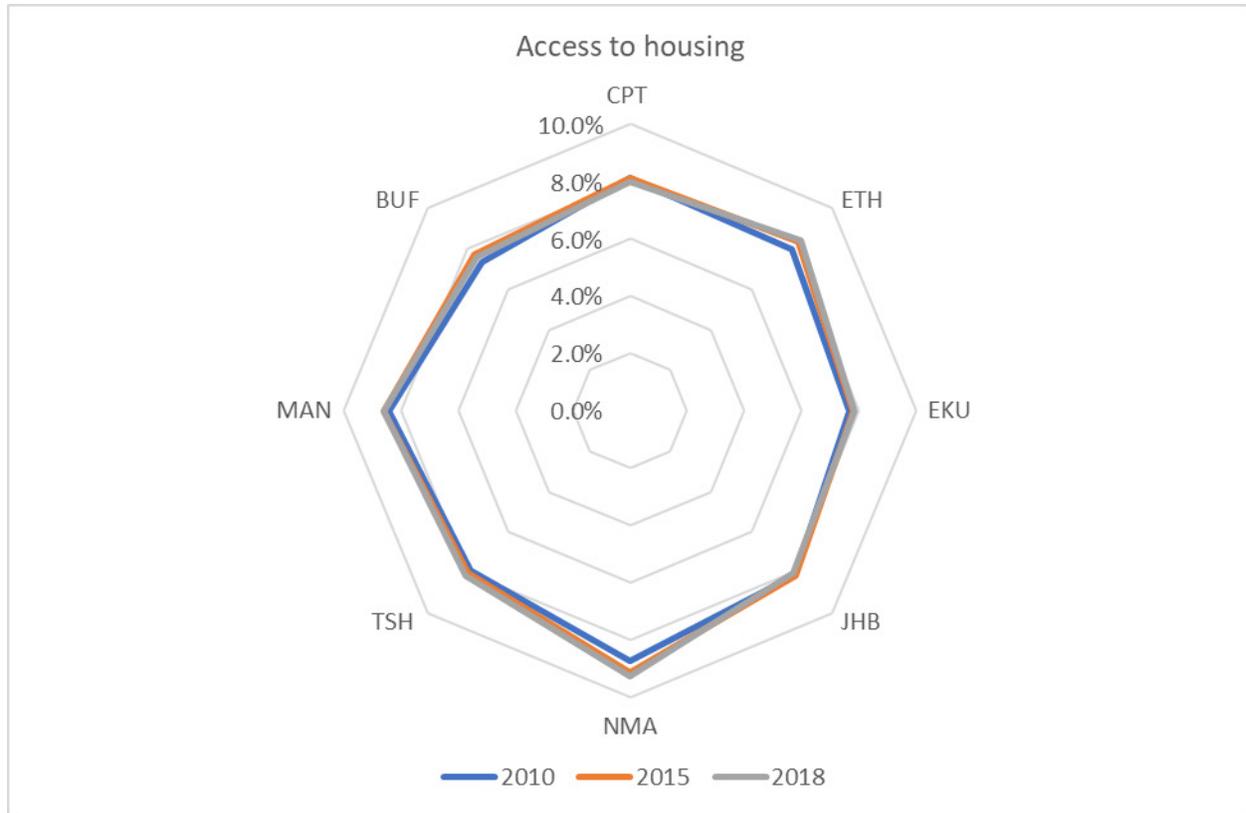


Source of data: Statistics South Africa.

Access to water in this report is measured by the share of households in each metro with piped water at or above the RDP level, as a % age of households in each metro. This proportion of households in each metro has generally increased over the past decade. However, there were marginal declines between 2015 and 2019 in eThekweni, Nelson Mandela Bay, and Buffalo City. This can be attributed to increased urbanization, migration and poor maintenance of existing water infrastructure (Turok & Scheba, 2019; Mabin, 2020). In Mangaung, the share of households with access to water has remained unchanged over the past 5 years at 97.5% despite a marginal increase from 96.1% in 2010. This represents a significant feat in water service delivery since South Africa is a water-scarce country. South Africa is yet to fully recover from recurrent drought after the El Nino climate phenomenon.

3.8 Access to housing in South Africa's metros

Figure 6: Access to housing in South Africa's metros (2010 – 2019)



Source of data: Statistics South Africa.

Access to housing is represented by the share of households occupying formal dwellings in each metro. Cape Town, Johannesburg, Mangaung and Buffalo City experienced marginal declines in access to housing between 2015 and 2019. In Cape Town and Johannesburg, increased urbanization and migration in search of jobs and economic opportunities have placed additional demand on already scarce housing (Turok & Scheba, 2019; Mabin, 2020). In Mangaung and Buffalo City poor maintenance and obsolete infrastructure could be blamed for the decline in available housing (Gunter & Manuel, 020). The influx of tourists across the year further presents difficulties in service delivery in metros such as Cape Town and Johannesburg.

The spatial inequalities depicted by a brief analysis of these selected socioeconomic indicators further translate into differences in the quality of life across the metros as well as challenges to measuring urban governance across a uniform criterion for all South Africa's metros. The design of such an indicator requires a thorough theoretical framework that fully encapsulates the South African realities of inequality and the need for accountability, participation and sustainable security.

4 THEORETICAL FRAMEWORK

The development of the Urban Governance Index for South African cities is guided by several theoretical frameworks. These

frameworks speak to the fact that the main purpose of urban governance is to ensure inclusivity and citizenship that does not only focus on economic performance indicators but a more holistic concept of wellbeing, representativity and capability of urban dwellers (Moretto, 2005), and in the process leaving no one behind (UN-SDG, 2015).

The theoretical frameworks that underlie the construction of this index are

- Social exclusion theory (Lenoir, 1974; European Foundation 1995; Townsend, 1973; Atkinson, 1998)
- The Participatory approach (Chamber, 1994; Cornwall, 2000; da Cunha & Junho Pena, 1997; Howard and Milward, 1997)
- The Sustainable Development Goals (UN, 2015)
- The Capability approach and instrumental freedoms (Sen, 1999)
- The Batho Pele Principles for transforming public service delivery in South Africa

4.1 Social exclusion theory

The social exclusion approach was established by the French Secretary of State for Social Action in Government in 1974. Lenoir (1974) developed this approach to describe what he termed “social misfits” of an industrialised society, for example, the handicapped, drug users, delinquents and the aged. Using this approach Lenoir (1974) found that 10% of the French population, then, were misfits. Addressing social exclusion has since become a core concept of the European Union (EU)’s social policy and has gradually extended to developing countries. The EU defines social exclusion as “a process through which individuals or groups are wholly or partially excluded from full participation in the society in which they live (European Foundation 1995). This definition resonates with Townsend’s (1979) definition of deprivation which he maintains refers to exclusion from ordinary living patterns, customs, and activities. In addition, Burchardt, Grand & Piachaud (1999) states that a person is excluded if a) is a resident of society; b) cannot participate in normal activities of the citizens for a reason beyond control, and c) would like to do so. Barry (1998) on the other hand argues that a person is socially excluded once “a” and “b” apply. However, Atkinson (1998) maintains that exclusion is relative to a particular society and that people are excluded by the action or inaction of others. Atkinson also states that an individual’s prospects are as relevant as current circumstances. Nonetheless, the social exclusion approach has its challenges. Firstly, the approach is socially defined and characterises groups (i.e. the aged, handicapped, racial or ethnic categories) rather than individuals (Laderchi et al. 2003). Secondly, what is categorised as “normal activities” vary between societies, especially developing countries whose realities differ - multipolar (Atkinson 1998; Room 1999). Thirdly, certain types of exclusions are part of the social systems of some societies, e.g. the caste system (Laderchi et al. 2003). Lastly, the social exclusion approach is the most difficult to interpret and is the least well defined of all the concepts of deprivation; it is society specific and defies clear definition and measurement (Micklewright 2002).

Urban governance that seeks to ensure inclusivity and citizenship, leaving no one behind has to grapple with the complexities of social exclusion in terms of its embeddedness in culture, diversity of what is categorised as normal by different sections of society, and multi-dimensional forms of deprivations and differences in social class, further complicating the concept of inclusive governance and citizenship.

4.2 Participatory Approach

The participatory approach was pioneered by Chambers (1994 & 1997) and initially aimed at getting people involved in the definition of what it means to be poor, the magnitude of poverty, and what needs to be done to address poverty. The approach was scaled up by the World Bank as a complement to their poverty assessments, with the publication of “Voices of the Poor” (Narayan-Parker & Patel 2000). In addition, Cornwall (2000) differentiates between 3 types of participatory approach; (i) those associated with self-determination and empowerment, (ii) those enhancing the efficiency of donor-funded programmes, and (iii) those emphasising mutual learning. The participatory approach, however, is not without challenges. First, the voices being heard in communities are heterogeneous, especially in cases of conflict or political polarisation (da Cunha & Junho Pena 1997). Second, consultations with society usually involve small groups, which might not be representative of the entire population of the affected population. Third, some people are structurally excluded in communities, seen as outsiders who have no social relations with other community members (Howard and Milward 1997). Last, in some societies, women are not allowed to speak on behalf of the community. It’s the men that speak, which makes women vulnerable to the dynamics of social exclusion – selectivity bias. Participation in urban governance therefore speaks to advocacy and adequate representativity reflective of all categories of people in society.

4.3 Sustainable development Goals (SDGs)

Sustainable Development Goal 11 speaks to “making cities inclusive, safe, resilient and sustainable.” (UN, 2015). Inclusive cities refer to the ability of all to pursue of urban, social and spatial freedoms (SACN, 2016). In other words, citizens must be empowered to participate in planning, development and management of the city. Safe cities relate to order, safety and the rule of law that ensures low levels of crime and quality living standards. Resilience on the other hand speaks to infrastructure, processes and mechanisms that enhance the resilience and adaptation strategies of cities towards disaster risk, climate change and variability and crisis. Sustainability refers to meeting the development needs of cities today, without compromising the ability of future generations to do the same (UN, 2015). Sustainability of cities in urban governance, therefore, relates to financial and human resources, energy, health, food, environmental and political security, while taking into consideration economic, cultural, religious, racial, gender and inter-generational disparities and the need for continuity in being sufficient.

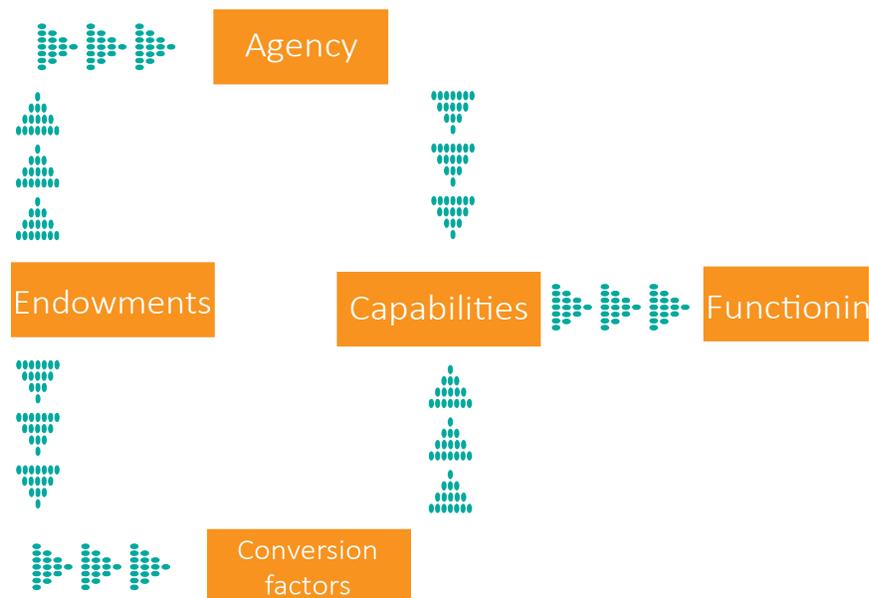
4.4 Capability approach and development as freedom (Amartya Sen, 1999)

The capability approach was pioneered by economist and philosopher Amartya Sen in a Tanner Lecture on human values delivered at Stanford University in 1979 titled “Equality of What?” This approach draws on Adam Smith’s (1776) analysis of “necessities and living conditions”, Karl Marx’s (1844) concerns with human freedoms and emancipation, Aristotle’s theory on “political distribution” and his analysis on human flourishing (Sen 1993), and Rawls’s (1971) Theory of Justice and its emphasis on self-respect and access to primary goods. It is also said to have the most in common with the basic needs approach to development pioneered by Streeten et al. (1981) and Stewart (1985).

The central concepts in the Capability Approach are endowments, conversion factors, capabilities, agency, and functioning. The framework for the capability approach is shown in Figure 2.

Figure 7: Diagrammatic illustration of the capabilities framework

Capability approach - the frame work



Source: Sen, A. K. 1993. “Capability and Well-being”. In *the Quality of Life*, Edited by: Nussbaum, M. C. and Sen, A. K. Oxford: Clarendon Press.

Endowments refer to the type and amount of resources available to an individual. Agency refers to the ability to bring

about change, either through participation and/or freedoms (opportunity and process freedoms) while functioning refers to the translation of capabilities into actual achievements that an individual has chosen to pursue. Conversion factors refer to personal, social and environmental factors that enable an individual to effectively access and convert endowments and external conditions into effective capabilities. Capabilities refer to what a person can do and be.

Table 3 below further details the core concepts of the capability approach. In this respect, the CA says that in assessing the quality of life, we need to consider what people can achieve, under their specific circumstances or barriers. Sen (1985) maintains that this is important as different people and societies differ in their ability to convert income and other endowments into valuable achievements. Sen (1999) further postulates five additional instrumental freedoms that are relevant to human wellbeing, namely political freedoms, economic facilities, social opportunities, transparency guarantees and protective security.

These frameworks espoused above have been adopted by several urban governance indices, e.g. UN Habitat Urban Governance Index (UGI), based on the “more inclusive idea of capability deprivation as a barrier to poverty understanding and development realisation rather than exclusive concentration on income poverty” (Sen, 1999:20).

Table 1: Core concepts of the Capability Approach

Individual endowments	Conversation factors	Capability (abilities to ...)	Agency (acting to effect change)	Functioning (achievements)
Biological Intellect Income/wealth Physical assets Political practice Habits Norms & values Traditions Choices	Personal Social Environmental	Live long Be healthy Be well nourished Be educated Interact as an equal member of society Not to be ashamed in public Participate in productive economic activities Have shelter Be safe	Participatory governance Rights Freedoms: Opportunity freedom Process freedom	Long life Good health Well-nourished Educated Active citizen Proud member of society Economically productive

Source: Nussbaum (2000 & 2011); Sen (1992, 1999, 2000 & 2002).

On the basis of these dynamics of ensuring inclusivity and citizenship in urban governance, as well as Sen’s instrumental freedoms, UGI initially stipulates 5 key pillars of urban governance, specifically, effectiveness for economic facilities, equity for social opportunities, participation for political freedom, accountability for transparency guarantees, and security for protective security.

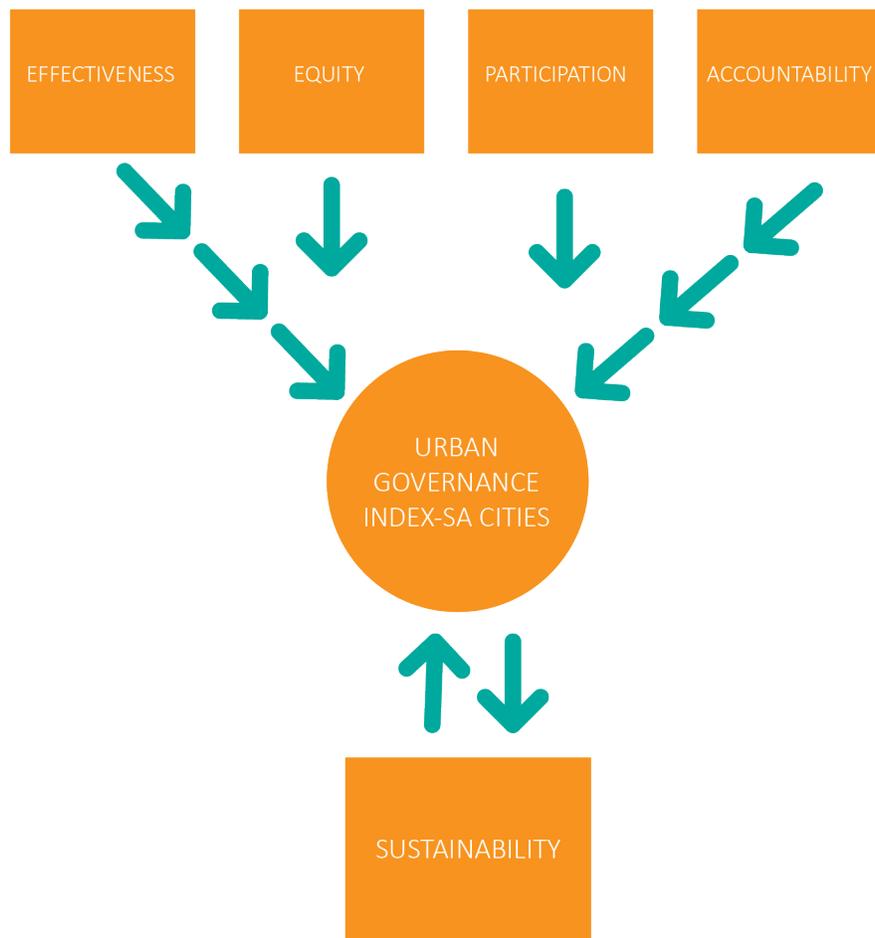
The postulations of these theories are relevant to the South African reality as the most unequal country in the world driven by racial and gender exclusion as well as income inequality. Despite the existence of several social protection schemes which have successfully improved wellbeing to some extent, South Africa is still the most unequal country in the world as denoted by the Gini index of 0.63 as at June 2019 (World Bank, 2019). The top 20 % of the population hold 68 % of national income while the bottom 40 % account for a meagre 7 % of the income (IMF, 2020). Half the population live under extreme poverty with unemployment at a historical high of approximately 30%, higher among the youth and on an upward trend driven by the current global health pandemic, COVID-19 (StatsSA, 2020). Water, food, environmental, energy and health security in addition to service provision, in general, remain persistent challenges that South Africa faces, 26 years post-independence. It is within this context that the governance of cities must ensure inclusivity and citizenship, with the quest to enhance individual capabilities that ultimately empower functioning (Sen, 1993).

We adopt four of the five instrumental freedoms of Sen (1993) for the construction of the UGI-SA index for several reasons. First, they form the basis of several development criteria today; the Human Poverty Index (HPI), the Human Development Index (HDI), the Millennium Development Goals (MDG), and the Sustainable Development Goals (SDG). Secondly, its flexibility makes it more amenable to capturing the multifaceted perspective to governance within the African context much better than the other approaches. Third, it combines both individualistic attributes with social phenomena that define the environment within which the individual lives and thrives. Fourth, it applies to institutionalised barriers that deny a particular individual of certain capabilities to function in a desired way to improve his/her quality of life. In Africa, this is based on a diverse criterion of discrimination, e.g. race, gender, income, opportunities, freedom of speech, the press, religion etc. Lastly, certain aspects of the CA concept “agency”, encapsulates to some extent social exclusion and participatory dimensions of deprivation analysis, and the peculiar African challenges of rights and freedoms and the ability to act freely to achieve the desired change one seeks to achieve. While we adopt the same instrumental freedoms of Sen (1999), Batho Pele principles of local governance as well as postulations of the other theoretical frameworks, we differ from Sen and the UN Habitat’s UGI index by including a fifth urban governance indicator, specifically, sustainability, which is crucial to urban governance today, in line with the SDG goals.

5 STRUCTURE OF THE UGI-SA CITIES INDEX

The proposed structure of the UGI-SA entails five core principles of good urban governance: effectiveness, equity, participation, accountability and sustainability.

Figure 8: Structure of the UGI-SA Cities Index and its interlinkages with the SDGs



Source: Authors’ construction based on the above theoretical framework.

In line with the need to ensure universality, replicability and cross comparability of the UGI, we adopt the definitions of 4 of the 5 pillars as stipulated in the UN Habitat index. These are;

Effectiveness

“The effectiveness of governance measures existing mechanisms and the socio-political environment for institutional efficiency in financial management and planning, delivery of services and response to civil society concerns” (UN Habitat, 2004).

Equity

‘Implies inclusiveness with unbiased access for vulnerable groups and minorities (women children, the elderly, religious and ethnic minorities, disabled etc.) to basic services (nutrition, education, employment and livelihood, healthcare, shelter, water and sanitation) of urban life, with institutional priorities focusing on pro-poor policies and an established mechanism for responding to basic services.’ (UN Habitat, 2004)

Participation

“Participation relates to citizenship, consensus orientation and civic engagement. Participation in governance implies mechanisms that promote strong local representative democracies, through inclusive, free and fair municipal elections. It also includes participatory decision-making processes where the civic capital especially of the poor is recognised and there exists consensus, orientation and citizenship.” (UN Habitat, 2004).

Accountability

‘Accountability relates to transparency, the rule of law and responsiveness to society. It also refers to reporting obligations to institutions responsible for upholding standards of professional and personal integrity and transparent and equitable application of public policy in addressing local population and civic grievances’ (UN Habitat, 2004).

Sustainability

“Sustainability in urban governance highlights the responsibility to ensure that cities are inclusive, safe, resilient and sustainable (SDG 11) in light of growing urbanization (UN, 2015). Thus, sustainable urban governance speaks to efficient utilization of financial and human resources, energy, health, food, environmental and political security, while taking into consideration economic, cultural, religious, racial, gender and inter-generational disparities” (UN Habitat, 2004).

5.1 Alignment of UGI-SA Index with Theoretical framework

Theoretical framework	UGI-SA Alignment
Social Exclusion Theory	Equity, multidimensional inequalities in access
Participatory Approach	Participation, inclusivity, active citizenry
Sen’s instrumental freedoms	Accountability, well-governed cities, transparency
SDG 11	Sustainability,
Batho Pele, Sen’s instrumental freedoms	Effectiveness, productive cities, service delivery, management and administration.

Social exclusion theory forms the basis for the variables in the equity sub-category of the proposed UGI-SA Index. South Africa is currently the most unequal country in the world with inequalities taking a multidimensional perspective driven by racial, gender and spatial disparities. Variables in this category of the UGI-SA Index speak to the complexities of inequalities in South Africa, such as inequalities in access to quality education, healthcare, housing, water, electricity, sanitation, waste management and employment. Participatory theory relates to the participation sub-category and its related variables that deal with issues of representativity, advocacy, mechanisms for ensuing inclusivity and the exercise of agency to influence or change outcomes. In addition, Sen’s capability approach and five instrumental freedoms serve as the overarching framework that defines the main categories of the index. Amartya Sen’s capability approach prescribes conversion factors (economic,

social and environmental factors) that either enables a person to or disenables a person from leveraging his or her personal endowments and circumstances into capabilities. In other words, the economic, social and environmental space within which an individual life and is governed, should be such that the individual can maximise his personal endowments and translate them into achieving what he or she desires to achieve. In addition, the state of society in terms of institutional quality should be such that the liberties exist to permit the individual to exercise his or her agency towards achieving the realities he or she desires to achieve. Thus, the concept of agency relates to participatory and inclusive governance. Sen (1999)'s five instrumental freedoms refer to political freedoms, economic facilities, social opportunities, transparency guarantees and protective security. Social opportunities for all speak to equity issues whiles political freedoms and economic facilities relate to the effectiveness of governance. Transparency guarantees relate to accountability and to the effect that governance must be accountable to the citizenry, also relates to participation and active citizenry. Protective refers to safety and order as well as accountability. The level of crime, and violent protests in South Africa makes safety and order, as well as the need for participation and accountability indispensable variables in the construction of governance indicators for South African cities. In addition, sustainable development goal 11 aspires to achieve safe, resilient and inclusive cities. Although the concept of sustainability also relates to all the other four categories of the proposed UGI-SA index, it is still included as a fifth sub-category in this index in the form of sustainable security, which speaks to food security, water security, health security, environmental security – sanitation and waste management, energy security, shelter and education. The UGI-SA index differs from the UN Habitat Index and builds further on Sen's capability approach and five instrumental freedoms by incorporating a sustainability sub-category into the proposed UGI-SA Index.

5.2 Alignment of the UGI-SA index with Batho Pele Principles

The five pillars of the UGI-SA align with Batho Pele principles designed to transform public service delivery in South Africa. Batho-Pele is a Sotho word that means "people first." In a White Paper titled "Transforming Public Service Delivery in South Africa," published in September 1997, South Africa adopted eight principles aimed at ensuring that the people of South Africa are the foremost focus of rendering quality public service. These principles align with the pillars of the proposed UGI-SA index as illustrated in Table 4 below.

Table 2: Alignment of UGI-SA with Batho Pele principles

Batho Pele Principle	Description	UGI-SA Index
Consultation	<i>Citizens should be consulted about the level and quality of the public services they receive, and wherever possible, should be given a choice about the services they are offered</i>	Participation
Service Standards	<i>Citizens should be told what level and quality of public service they will receive so that they are aware of what to expect</i>	Accountability
Access	<i>All citizens should have equal access to the services to which they are entitled</i>	Equity
Courtesy	<i>Citizens should be treated with courtesy and consideration</i>	Effectiveness
Information	<i>Citizens should be given full, accurate information about the public services they are entitled to receive</i>	Accountability

Openness and transparency	<i>Citizens should be told how national and provincial departments are run, how much they cost, and who is in charge</i>	Accountability
Redress	<i>If the promised standard of service is not delivered, citizens should be offered an apology, a full explanation and a speedy and effective remedy, and when complaints are made, citizens should receive a sympathetic, positive response.</i>	Accountability
Value for money	<i>Public services should be provided economically and efficiently in order to give citizens the best possible value for money</i>	Accountability, Sustainability, Effectiveness

Source: Authors' synchronization of proposed index criteria with Batho Pele – People First Principles. White paper on transforming public service delivery. September 1997. Department of Public Service and Administration.

6 INDEX CONSTRUCTION – UGI - SA

The variables under each of the 5 categories of the UGI-SA are detailed in Table 6 below. The Appendix further details the definition of each variable and their respective metadata. Several procedures are required to construct a composite index. The Joint Research Centre (JRC) of the OECD outline a systematic approach to constructing a composite index as detailed in Table 5.

Table 3: Steps in constructing a composite index

Step	Why it is needed
<p>1. Theoretical framework</p> <p>Provides the basis for the selection and combination of variables into a meaningful composite indicator under a fitness-for-purpose principle (involvement of experts and stakeholders is envisaged at this step)</p>	<ul style="list-style-type: none"> To get a clear understanding and definition of the multidimensional phenomenon to be measured. To structure the various sub-groups of the phenomenon (if needed). To compile a list of selection criteria for the underlying variables, e.g., input, output, process.
<p>2. Data selection</p> <p>Should be based on the analytical soundness, measurability, country coverage, and relevance of the indicators to the phenomenon being measured and relationship to each other. The use of proxy variables should be considered when data are scarce (involvement of experts and stakeholders is envisaged at this step).</p>	<ul style="list-style-type: none"> To check the quality of the available indicators. To discuss the strengths and weaknesses of each selected indicator. To create a summary table on data characteristics, e.g., availability (across country, time), source, type (hard, soft or input, output, process).

<p>3. Imputation of missing data</p> <p>Is needed in order to provide a complete dataset (e.g. through single or multiple imputations).</p>	<ul style="list-style-type: none"> • To estimate missing values. • To provide a measure of the reliability of each imputed value, to assess the impact of the imputation on the composite indicator results. • To discuss the presence of the outliers in the dataset.
<p>4. Multivariate analysis</p> <p>Should be used to study the overall structure of the dataset, assess its suitability, and guide subsequent methodological choices (e.g. weighting, aggregation).</p>	<ul style="list-style-type: none"> • To check the underlying structure of the data along the two main dimensions, namely individual indicators and countries (through suitable multivariate methods, e.g. principal components analysis). • To identify groups of indicators or groups of countries that are statistically “similar” and provide an interpretation of the results. • To compare the statistically determined structure of the data set to the theoretical framework and discuss possible differences.
<p>5. Normalisation</p> <p>Should be carried out to render the variables comparable.</p>	<ul style="list-style-type: none"> • To select suitable normalisation procedure(s) that respects both the theoretical framework and the data properties. • To discuss the presence of outliers in the dataset as they may become unintended benchmarks. • To make scale adjustments, if necessary. • To transform highly skewed indicators, if necessary.
<p>6. Weighting and aggregation</p> <p>Should be done along the lines of the underlying theoretical framework.</p>	<ul style="list-style-type: none"> • To select appropriate weighting and aggregation procedure(s) that respect both the theoretical framework and the data properties. • To discuss whether correlation issues among indicators should be accounted for. • To discuss whether compensability among indicators should be allowed.
<p>7. Uncertainty and sensitivity analysis</p> <p>Should be undertaken to assess the robustness of the composite indicator in terms of e.g., the mechanism for including or excluding an indicator, the normalisation scheme, the imputation of missing data, the choice of weights, the aggregation method.</p>	<ul style="list-style-type: none"> • To consider a multi-modelling approach to build the composite indicator, and if available, alternative conceptual scenarios for the selection of the underlying indicators. • To identify all possible sources of uncertainty in the development of the composite indicator and accompany the composite scores and ranks with uncertainty bounds. • To conduct a sensitivity analysis of the inference (assumptions) and determine what sources of uncertainty are more influential in the scores and/or ranks.

<p>8. Back to the data</p> <p>Is needed to reveal the main drives for an overall good or bad performance. Transparency is primordial to good analysis and policymaking.</p>	<ul style="list-style-type: none"> • To profile country performance at the indicator level to reveal what is driving the composite indicator results. • To check for correlation and causality (if possible). • To identify if the composite indicator results are overly dominated by a few indicators and to explain the relative importance of the sub-components of the composite indicator.
<p>9. Links to other indicators</p> <p>Should be made to correlate the composite indicator (or its dimensions) with existing (simple or composite) indicators as well as to identify linkage through regressions.</p>	<ul style="list-style-type: none"> • To correlate the composite indicator with other relevant measures, taking into consideration the results of sensitivity analysis. • To develop data-driven narratives based on the results.
<p>10. Visualisation of the results</p> <p>Should receive proper attention, given that the visualisation can influence (or help to enhance) interpretability.</p>	<ul style="list-style-type: none"> • To identify a coherent set of presentational tools for the targeted audience. • To select the visualisation technique which communicates the most information • To present the composite indicator results clearly and accurately.

The JCR OECD composite index construction approach is an internationally accepted standard and consists of all the scientific requirements needed to construct an internationally acceptable composite index. Consequently, the design of the UGI-SA index will closely follow this JCR OECD Composite index construction approach where applicable. This would ensure

1. Consistence with theoretical precedence,
2. Ease of measurement
3. Universality
4. International replicability
5. Cross country comparability

6.1 Data selection

Data is selected from diverse sources using 2018 as the reference year. Data on ALMANAC was found to be too outdated in comparison to the year 2020. The year 2018 was the closest year in which data was found for all variables required to construct the Urban Governance Index. As a result of data limitations, the most appropriate variables with data available were used to populate the five proposed sub-categories of the UGI for South African Cities. In the next Census year, most probably 2021, the variables in the ALMANAC as well as other data sources can then be updated and used to update the UGI. In constructing this index, data used are mostly quantitative and from Statistics South Africa website and reports. Table 6 details the different variables under each of the five sub-categories. ***The variables are fully defined in the appendix.***

Table 4: Urban Governance Indicators

Indicators	Variables	Sources	Definition
Effectiveness	Size of public sector	StatsSA	# of people working in public administration and defense service
	Gini Index	StatsSA	Income inequality measure
	Gross value added	StatsSA	Value added of goods and services produced in a year (2018)
	Level of poverty	StatsSA	Poverty gap; incidence of poverty from the upper poverty line
	Human development index	StatsSA	A composite variable comprising life expectancy, literacy and subjective wellbeing
	Infrastructure index	StatsSA	Overall Infrastructure Index
	Level of safety and order	StatsSA	Overall crime index per 100,000 people
	Population density	StatsSA	Number of people living in one squared kilometer space.
Equity	Access to education	StatsSA	Functional literacy, age 15+, completed grade 7 or higher
	Access to healthcare	StatsSA	AIDS deaths estimates
	Access to housing	StatsSA	%age of households with access to housing by type
	Access to water	StatsSA	Number of households who have access to water by type (none, RDP, piped, backlog)
	Access to electricity	StatsSA	%age households who have access to electricity
	Access to sanitation	StatsSA	%age households who have access to refuse removal by type (none, weekly, less often)
	Access to healthcare	StatsSA	%age of the population with access to healthcare
	Access to employment; youth and overall	StatsSA	%age employed by gender and race
Participation	Number of voting centers	IEC, SA	Number of voters registered to vote in the local and national elections (approximation from % of total number of protests per province using metro: province population ratio)
	Voter turnout	IEC, SA	Number of people who voted in 2019 elections (approximation from % of total number of protests per province using metro: province population ratio)
	Number of protests	IEC, SA	Number of protests (approximation from % of total number of protests per province using metro: province population ratio)
	Number of wards	IEC, SA	Number of wards in metro. (approximation from % of total number of protests per province using metro: province population ratio)

Accountability	Total revenue	StatsSA	as a % of main appropriation YTD 31 December 2019
	Total expenditure	StatsSA	as a % of main appropriation YTD 31 December 2019
	Financial performance	StatsSA	Acid test ratio, current ratio and debt ratio
	Fiscal balance	StatsSA	Fiscal balance: Revenue less expenditure, YTD 31st December 2019
	External Audit		Status of external audit findings
Sustainable security	Water security	StatsSA	Backlog of water supply, households below RDP level
	Energy security	StatsSA	Number of households with no electricity connections
	Food security	StatsSA	Share of households below the food poverty line
	Health security	StatsSA	HIV/AIDS deaths estimates
	Shelter	StatsSA	Formal dwelling backlog- # of households not living in a formal dwelling
	Sanitation	StatsSA	Number of households with no hygienic toilets
	Waste management	StatsSA	Number of households with no formal refuse removal
	Education	StatsSA	Total number of people with no schooling, age 20+ (across population group)
	Water security	StatsSA	Backlog of water supply, households below RDP level

The variables within each of the five sub-categories are selected based on their alignment with the theoretical framework, Batho-Pele principles for service delivery in South Africa and their respective foci as explained in section 5.6, “Structure of the UGI-SA Cities.” In addition to these frameworks, the selection of variables is also done with deliberate intent to adequately and accurately capture the reality of governance challenges and everyday quality of life in South African cities.

EFFECTIVENESS

In that respect, the variables under the effectiveness sub-category seek to depict how effective governance is measured by the general quality of life in the cities in this index. The size of the public sector is used to denote how efficiently human and other state resources are utilised to govern the city as indirectly reflected in the wage bill, the ratio of total expenditure to appropriation, etc; population density is measured by the number of people living in one squared kilometre, an indication of the quality of spatial planning; the Gini index is a measure of income inequality in each city, an indication of income distribution; the level of poverty is measured by the poverty gap in comparison with the upper poverty line, indicating the incidence of poverty; the overall quality of infrastructure is measured by each city’s infrastructure index; gross value-added measures the level of economic productivity in each city; safety and order captures the level of crime as measured by the overall crime index for each city, while the human development index is a composite variable comprising of life expectancy, level of literacy and subjective wellbeing.

EQUITY

The variables in the equity sub-category seek to capture the multi-dimensional nature of inequality in South Africa and how that impacts the quality of life in each city through service delivery by local government. Disparities in service delivery and

its translation into inequality in the quality of life in South Africa is a major driver of social unrest and violent protests in South Africa. Although the inequality emanates from the apartheid legacy, it became more vivid with the incidence of the COVID-19 pandemic where it became clear that quite a number of communities did not have adequate access to a basic amenity like water to wash their hands and ensure a hygienic environment to avoid being infected with the coronavirus. Equally vivid were the challenges with sanitation, waste management, housing, health and unsustainable energy provision in South Africa. Thus, the variables in the Equity sub-category seek to capture these challenges of service delivery and multi-dimensional inequality in the quality of life in South Africa.

PARTICIPATION

Variables in the Participation sub-category speak to the level of representativity, the exercise of agency and active citizenry. The variables in the participation sub-category include the number of voting centres, voter turnout, number of wards and number of protests in 2019. Data on these variables are not available at a metro level so they had to be approximated based on the metro to provincial population ratio.

ACCOUNTABILITY

The accountability sub-category includes variables that reflect transparency in governance both in reporting to the citizenry as well as how resources have been used and managed. However, due to data limitations, only financial management variables were available to be used in this sub-category. These include fiscal balance which captures the difference between total revenue (both operational and capital, year to date 31 December 2019) and total expenditure (both operational and capital, year to date 31 December 2019), what proportion of the main appropriation to the city do these levels of revenue and expenditure represent, and the financial health/performance of the city as measured by several financial ratios namely, acid test ratio, current ratio and debt ratio. Acid test ratio measures the extent to which the city's short-term assets covers its short-term liabilities, excluding inventories or any current assets that are difficult to quickly liquidate to cover immediate liabilities such as short-term debt (Sulayman, 2014). The current ratio, also known as working capital ratio, indicates the financial health of the city and the extent to which it can liquidate its current assets to settle debt and payables that are due within a financial year (Stone et al., 2015). Debt ratio captures the %age of the total asset amounts that is owed to creditors (Umamaheswara, Krishnaiah, & Veerabhadra, 2019).

In the sustainable security sub-category, the variables relate to the objective to make cities inclusive, safe, resilient, and sustainable (SDG 11) in light of growing urbanization and the need to "leave no one behind" (UN, 2015). Thus, sustainable urban governance speaks to efficient utilization of financial and human resources, energy, health, food, environmental and political security, while taking into consideration social diversity along the lines of race, gender, and inter-generational disparities" (UN Habitat, 2004). Efficient utilisation of financial resources has been captured under the accountability sub-category, while racial and gender disaggregation have not been considered in the construction of this index. This is because examination of the data shows that prevailing patterns of race, age, and gender disparities at the national level is similarly reflected in each of the cities in this index. It is a common denominator and therefore not a basis for differentiation between the cities in this index.

6.2 Normalisation

Appropriate min-max approaches are used to normalise variables where higher values indicate better outcomes and lower values worse outcomes. For variables where higher values represent better higher outcomes the normalisation formula applied is

$$100 \times \left(\frac{(\text{countryvalue} - \text{min})}{(\text{max} - \text{min})} \right)$$

On the contrary, a reverse normalisation formula is used for variables in which higher values indicate worse outcomes as follows;

$$-100 \times \left(\frac{(\text{countryvalue} - \text{min})}{(\text{max} - \text{min})} \right) + 100$$

The data used are mostly quantitative variables due to data limitations. In the next census year, the index can be enhanced with a broader range of quantitative and qualitative variables.

6.3 Weighting and aggregation

The five sub-categories of the UGI-SA Index are equally weighted at 20% each. The UGI-SA is then constructed for each city and ranked based on the overall weighted score of the five sub-indices.

6 THE UGI-SA INDEX

This section details the five sub-categories of the index, the score for each variable in each sub-category, the respective ranks of the metros in each sub-category and their corresponding UGI weighted score. The overall UGI index is the sum of the respective UGI weighted scores for each sub-category for each metro. Each normalised score falls between 0 – 100, as well as the final urban governance index. Higher scores denote better outcomes while lower scores represent poorer outcomes.

Effectiveness of governance

Table 5: Effective governance

City	Score	Rank	UGI Weighted (0.20)
Cape Town	61.65	1	12.33
eThekweni	47.58	5	9.52
Ekurhuleni	43.80	7	8.76
Johannesburg	48.74	4	9.75
Nelson Mandela Bay	57.94	3	11.59
Tshwane	59.11	2	11.82
Mangaung	44.29	6	8.86
Buffalo City	31.30	8	6.26

The City of Cape town registers the highest effective governance score, followed by Tshwane, Nelson Mandela Bay and Johannesburg in that order. As depicted by the data on the variables in the effectiveness sub-category (See appendix), Cape Town’s superiority in effective governance is by having the lowest poverty gap, second-highest infrastructure quality and highest level of human development compared to the other cities. Cape Town also registers the third-highest level of economic productivity. However, Cape Town has the third poorest level of spatial planning as measured by population density - the number of people living in a squared kilometre and the highest level of crime compared to the other cities. This implies that governance in Cape Town is deficient in spatial planning and crime control but effective in reducing poverty, improving the quality of infrastructure and general wellbeing of the city’s residents. Although Tshwane has one-third the population density of Cape Town, lower level of crime and marginally higher economic productivity, Tshwane being the administrative capital of South Africa has a bigger public sector, lower quality of infrastructure and a wider poverty gap compared to Cape Town. Thus effective governance deficiencies in Tshwane lies with the size of the public sector and its possible impact on the wage bill, lower quality infrastructure and higher poverty levels compared to Cape Town, but superior to Cape Town in terms of spatial planning, crime control and economic productivity albeit marginally. Nelson Mandela Bay comes third in effectiveness of governance with approximately a quarter of the level of economic productivity in Tshwane, higher income inequality than in Cape Town and Tshwane, a wider poverty gap and a lower level of human development than in Cape Town. The quality of infrastructure in Nelson Mandela Bay is however superior to that of Cape Town and Tshwane, while its public sector is less than a fifth of the size in Cape Town and its population density slightly one-third that of Cape Town. This speaks to economic productivity, income inequality, poverty and poor human development being the challenges to effective governance in Nelson Mandela Bay, while administrative efficiency as captured by the size of its public sector, infrastructure quality and spatial planning are its strengths. The City of Johannesburg, the economic hub, not only of South Africa but the entire continent of Africa registers the highest level of economic productivity among the cities in this index and is one of the cities with the lowest level of inequality. Johannesburg, however, has the highest population density, with approximately

3225 people living in one squared kilometre space, the second widest poverty gap, fourth-highest level of crime, third best infrastructure quality and the third largest public sector. Hence the challenges to effective governance in Johannesburg are spatial planning, poverty reduction, crime control, quality of infrastructure and administrative efficiency. As an economic hub, economic productivity and lower levels of income inequality are its superior attributes compared to the other cities that constitute this urban governance index. eThekweni comes fifth with the lowest level of human development among the cities and the fourth highest population density. Despite having the lowest population density, Mangaung comes sixth with the second highest level of crime, the highest poverty gap, and a significantly lower level of human development. Economic productivity and the quality of infrastructure are the second lowest among the cities in the index. Ekurhuleni comes next with the second highest level of population density, high levels of income inequality and poverty gap. Ekurhuleni, however, has the lowest level of crime among the cities, good level of human development and infrastructure in comparison to Cape Town and a smaller size of public sector than Cape Town. The least effective governance can be found in Buffalo City which has the lowest level of human development, high level of crime, the lowest level of economic productivity and infrastructure quality, and a high level of poverty and income inequality. Thus, in comparison to the other cities in the index, the challenges to effective governance in eThekweni are human development and spatial planning, while Ekurhuleni has to attend to poor spatial planning, income inequality and poverty. Buffalo City which registers the least effective governance must address the low level of human development and economic productivity, high level of crime, poor infrastructure quality, poverty and income inequality.

Level of equity in urban governance

Table 6: Equity in urban governance

City	Score	Rank	UGI Heightened (0.20)
Johannesburg	77.62	1	15.52
eThekweni	71.31	2	14.26
Cape Town	70.59	3	14.26
Tshwane	58.01	4	11.60
Ekurhuleni	48.74	5	9.75
Mangaung	19.49	6	3.90
Nelson Mandela Bay	17.19	7	3.44
Buffalo City	13.93	8	2.79

In the Equity sub-category, the city of Johannesburg registers the highest level of equity in governance. Among the cities, Johannesburg has the highest level of access to energy, sanitation, shelter, water and waste management, the second highest level of functional literacy, the fourth highest level of youth unemployment and the fourth highest level of total unemployment (See data in appendix). The relatively low levels of unemployment in Johannesburg compared to the other cities is because Johannesburg is the economic hub of the continent with the highest range of opportunities to earn income, especially in informal employment (Main, 2011). However, residents of Johannesburg have the least access to health services among the cities in this index. This is not as a result of non-existent or poor health infrastructure but a high level of informality among the working population, high incidence of migrants, both documented and undocumented, and controversies over who can have access or not, and a high population density (Main, 2011). These factors affect the supply and demand for other forms of services to a much lesser extent in Johannesburg. eThekweni comes second in equitable governance with the highest level of functional literacy, and the lowest levels of youth and total unemployment among the cities in this index. Cape Town, Tshwane, Ekurhuleni, Mangaung and Buffalo City follow in that order of equity in governance.

Level of participation in urban governance

Table 7: Participation in urban governance

City	Score	Rank	UGI Weighted (0.20)
Cape Town	77.55	1	15.51
eThekweni	73.87	3	14.77
Ekurhuleni	46.61	5	9.32
Johannesburg	75.55	2	15.11
Nelson Mandela Bay	10.51	6	2.10
Tshwane	64.66	4	12.93
Mangaung	2.67	7	0.53
Buffalo City	0.42	8	0.08

The variables for this specific sub-category are not available at metro level, thus they had to be approximated. The approximation was done using the ratio of the population of the metros to the total population of their respective provinces to construct metro level data for the variables in this sub-category. The City of Cape Town emerges as the metro with the highest level of participatory governance driven by the highest number of protests, second highest level of voter turnout and third highest number of wards in Cape compared to the other provinces (See data in appendix). Johannesburg places second with the highest number of voting centres and voter turnout but significantly lower levels of wards and protests compared to Cape Town. eThekweni comes third, followed by Tshwane, Ekurhuleni, Nelson Mandela Bay, Mangaung and Buffalo City. Mangaung and Buffalo City show the lowest levels of participation in urban governance as per the indicators shows in this sub-category.

Level of accountability in urban governance

Table 8: Accountability in urban governance

City	Score	Rank	UGI Weighted (0.20)
Cape Town	69.48	1	13.90
eThekweni	40.90	5	8.18
Ekurhuleni	43.83	4	8.77
Johannesburg	31.77	6	6.35
Nelson Mandela Bay	64.72	2	12.94
Tshwane	15.24	8	3.05
Mangaung	30.44	7	6.09
Buffalo City	63.39	3	12.68

The variables in this sub-category assess the level of accountability in governance in the cities in this index. The highest level of accountability in governance is exhibited by the City of Cape Town, followed by Nelson Mandela Bay, Buffalo City and Ekurhuleni in that order. This is because the assets of Cape Town City adequately cover its immediate and short-term liabilities more than one and a half times. Although 34% of its assets are acquired by debt, Cape Town raises 46% of its main appropriation in revenues and spends an equivalent of 38% of its main appropriation. Cape Town has the highest fiscal surplus among the cities in this index. Nelson Mandela Bay which comes second to Cape Town in accountability in governance has better-looking acid test ratio, current ratio and debt ratio than Cape Town but raises a lower level of revenue and has a smaller fiscal surplus than Cape

Town. Similar to Nelson Mandela Bay, the assets of Buffalo City cover its immediate short-term liabilities almost twice over, with only 11% of its assets covered by debt. Buffalo City raises revenue equivalent to 47% of its main appropriations with its expenditure equivalent to 50% of its main appropriation. However, Buffalo City has a fiscal deficit, compared to the massive fiscal surplus of Cape Town and Nelson Mandela Bay. Thus, although Nelson Mandela Bay and Buffalo City exhibit better financial management, Cape Town City is more financially sustainable than the rest of the cities in this index. Ekurhuleni and eThekweni come fourth and fifth respectively with much lower fiscal surpluses than Cape Town and assets barely adequate to cover their respective short-term liabilities. Johannesburg, Mangaung and Tshwane fall sixth, seventh and eighth respectively, with inadequate assets to cover their short-term liabilities and fiscal deficits in Tshwane and Mangaung. As at date, Johannesburg and Tshwane are under administration due to gross financial mismanagement and failed audits

Level of sustainable security in urban governance

Table 9: Sustainable security in urban governance

City	Score	Rank	UGI Weighted (0.20)
Cape Town	70.25	4	14.05
eThekweni	19.78	8	3.96
Ekurhuleni	39.62	7	7.92
Johannesburg	40.77	6	8.15
Nelson Mandela Bay	89.59	2	17.92
Tshwane	45.61	5	9.12
Mangaung	91.08	1	18.22
Buffalo City	75.94	3	15.19

The variables in the sustainable security sub-category assess the level of sustainability in the quality of life of the residents of the cities in this index, as per the mantra of the SDGs of “leaving no one behind.” Mangaung, Nelson Mandela Bay and Buffalo City place first, second and third respectively. These 3 metros have the least number of people with no access to schooling, health, shelter, energy, sanitation, waste management and food security. The City of Cape Town, Tshwane and Johannesburg places fourth, fifth and sixth in that respect, with Ekurhuleni and eThekweni coming seventh and eighth. However, each of these cities have a challenge or two with sustainable security. Buffalo City has a challenge with food security with 27% of its residents living below the food poverty line. In Nelson Mandela Bay, 25% of the residents live below the food poverty line. Johannesburg has difficulties with access to health as earlier intimated in the Equity sub-category, shelter and energy sustainability as measured by the number of residents with no access to health services, shelter and electricity. Cape Town has a moderate level of difficulty with shelter as measured by the number of formal dwelling backlog. Ekurhuleni’s main challenge is energy sustainability whiles eThekweni struggles with education (number of people with no schooling), no water and living below the food poverty line. Tshwane’ key challenges lies with sanitation and waste management, as depicted by the number of residents with no access to sanitation and refuse removal in Tshwane.

Urban governance score and ranking

On the basis of the cumulative weighted urban governance index score for each of the five sub-categories that constitute this index, Table 8 details the final score and ranking of the 8 cities in this index.

Table 9: Urban Governance Index Score and Rank

City	UGI	Rank
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Cape Town	67.37	1
Johannesburg	55.53	2
Tshwane	54.67	3
eThekweni	52.91	4
Nelson Mandel Bay	46.59	5
Ekurhuleni	44.71	6
Mangaung	39.36	7
Buffalo City	36.94	8

The City of Cape Town ranks first as the best governed city with an urban governance index of 67.37. City of Johannesburg emerges as the second-best governed city with a UGI of 55.53, Tshwane ranks third with an index of 54.67 and eThekweni fourth with an index of 52.91. Nelson Mandela Bay places fifth with an index of 46.59, Ekurhuleni sixth with an index of 44.71, Mangaung seventh with an index of 39.36 and Buffalo City eighth with an index of 36.94.

8 LIMITATIONS OF THE STUDY

The main limitation faced in executing this assignment was with data availability. Data on most of the variables that could have been used to construct this index was only available up to 2011. Consequently, the study had to restrict itself to variables that had data available as recently as the year 2018. Fortunately, Statistics South Africa had data available on all the variables in four of the five sub-categories of the index for the year 2018. However, of difficulty was the Participation sub-category of the index, which had no data for metros. Consequently, approximations of the variables had to be constructed using metro population to provincial population ratios to approximate metro level data from provincial data on the variables in this sub-category. These variables were the number of voting stations, voter turnout, number of protests and number of wards. In the next census year, 2021, a wider range of variables will be available to facilitate an update of the index using a broader range of both quantitative and qualitative variables. The only other limitation of this study is that this project was woefully underfunded.

9 RELIABILITY, AUTHENTICITY AND UNIVERSALITY OF THE DATASET

The data used in the construction of this Index is from Statistics South Africa and Electoral commission of South Africa. These are national data sources of the Republic of South Africa, with global reputation for accurate and reliable data. Other sources such as the National Treasury, Municipal IQ, World Development Online of the World Bank and the Joint Research Centre (JRC) of the Organisation for Economic Cooperation and Development (OECD) were also consulted in the process. The data and methodologies used are reliable, authentic, replicable and universally acceptable. Any limitations faced and measures used to address those limitations are clearly explained in section 9 of this report.

10 CONCLUSION

The governance of cities has emerged as a key challenge in the development of nations. This is due to increasing urbanisation which projects a complex future characterised by inadequate resources, challenges to service delivery, the need for environmental sustainability and measures to address poverty and inequality in their multidimensional context. The Sustainable Development Goal (SDG 11) speaks to “making cities safe, inclusive, and sustainable” which is the main objective of urban governance. In line with this objective, several indices have emerged globally to monitor, evaluate, review and enhance the quality of urban governance across the globe.

The South African Cities Network (SACN) has instituted the State of the Cities Report (SOCR) which captures and

reports on the performance and conditions of South African cities in relation to key development roles, targets and outcomes. Core to the functions of the SACN and the SOCR is the need for quality, reliable and authentic data. Thus, the Common Data Framework for Cities (CDFC), was established to help manage data, indicators, and reporting requirements. However, this data framework has significant data gaps that need to be addressed by ensuring that data keeping becomes an integral part of city governance in South Africa.

This project was therefore commissioned by the SACN to help establish a criterion by which the quality of governance in South African cities can be monitored, reviewed, measured and improved over time for future generations. The proposed Urban Governance Index (UGI) for South African cities is designed to be specific to South Africa's urban challenges and fully representative of the South African reality. It draws from several theoretical frameworks namely social exclusion theory, participation theory, the Batho Pele principles, Sen's capability approach and instrumental freedoms, and the Sustainable Development Goals.

In constructing the UGI, these frameworks are used to create five sub-categories, namely effectiveness of governance, equity in governance, participation in governance, accountability in governance and sustainable security. Each of these five sub-categories are equally weighted to yield the overall UGI. The sub-categories and UGI are scored across a scale of 0 – 100 with higher figures representing better governance outcomes while lower figures denote poorer governance outcomes.

The results of the UGI for South African Cities show that the City of Cape Town is the best governed metro among the eight metros with a UGI score of 67.37. The second-best governed metro is Johannesburg – 55.53, third is Tshwane - 54.67, fourth is eThekweni – 52.91, fifth is Nelson Mandela Bay – 46.59, sixth is Ekurhuleni – 44.71, seventh is Mangaung – 39.36, and the eighth is Buffalo City – 36.94. These scores are the cumulative sum of the weighted UGI scores for each of the five sub-categories of the index.

However, each of the metros have different governance challenges. In the case of Cape Town, equity – in terms of access to basic services, accountability in financial management and performance, and sustainability with respect to leaving no one behind, need to be improved. Johannesburg must address its challenges with effectiveness, accountability, and sustainability. Johannesburg has challenges with spatial planning, poverty reduction, crime control, quality of infrastructure and administrative efficiency. Tshwane needs to improve the level of equity in the metro, the quality of its accountability, participation – in terms of representativity in governance processes and sustainability. eThekweni's key governance challenges are effectiveness in governance, accountability, and sustainability. With regard to effective governance eThekweni needs to improve the level of human development and spatial planning in the metro. Nelson Mandela Bay governance draw backs lies in the level of participation and equity in governance in the metro. Ekurhuleni, Mangaung and Buffalo City are challenged in almost all five sub-categories. Mangaung leads the other metros in sustainability in governance while Buffalo City leads in accountability in governance. Thus, each metro has its unique governance challenges that they need to address despite the overall UGI scores and rankings.

There were two main limitations in the execution of this project, the first being availability of data and the second being woefully inadequate funding. The year 2021 is a census year which gives the opportunity to update a lot of variables that will be useful in constructing this index in subsequent years. In terms of funding the SACN needs to set aside proper project funding to update this index in subsequent years.

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URLs CONSULTED

Institution	Url
City of Johannesburg	http://www.joburg.org.za/index.php?option=com=content&view=article
Daily Maverick	https://www.dailymaverick.co.za/article/2020-09-03
Electoral Commission of South Africa	www.elections.org.za
European Commission	http://ec.europa.eu/science-environment-policy
International journal of financial research	www.sciedu.ca/ijfr
Municipal Data and Intelligence	www.municipaliq.co.za
National Treasury, South Africa	www.treasury.gov.za
Statistics South Africa	www.statsa.gov.za
World Bank	www.wdionline.org

APPENDIX

METADATA OF VARIABLES

VARIABLE	SOURCE	DEFINITION
EFFECTIVENESS		
Size of public sector	StatsSA	# of people working in public administration and defense service
Gini Index	StatsSA	Income inequality measure.
Gross value added	StatsSA	Value added of goods and services produced in a year (2018)
Level of poverty	StatsSA	Poverty gap; incidence of poverty from the upper poverty line
Human development index	StatsSA	A composite variable comprising life expectancy, literacy and subjective wellbeing
Infrastructure index	StatsSA	Overall Infrastructure Index
Level of safety and order	StatsSA	Overall crime index per 100,000 people
Population density	StatsSA	Number of people living in one squared kilometer space.
EQUITY		
Access to education	StatsSA	Functional literacy, age 15+, completed grade 7 or higher
Access to healthcare	StatsSA	AIDS deaths estimates
Access to housing	StatsSA	%age of households with access to housing by type
Access to water	StatsSA	Number of households who have access to water by type (none, RDP, piped, backlog)
Access to electricity	StatsSA	%age households who have access to electricity
Access to sanitation	StatsSA	%age households who have access to refuse removal by type (none, weekly, less often)
Access to healthcare	StatsSA	%age of the population with access to healthcare
Access to employment; youth and overall	StatsSA	%age employed by gender and race
PARTICIPATION		
Number of voting centers	IEC, SA	Number of voters registered to vote in the local and national elections (approximation from % of total number of protests per province using metro: province population ratio)
Voter turnout	IEC, SA	Number of people who voted in 2019 elections (approximation from % of total number of protests per province using metro: province population ratio)

Number of protests	IEC, SA	Number of protests (approximation from % of total number of protests per province using metro: province population ratio)
Number of wards	IEC, SA	Number of wards in metro. (approximation from % of total number of protests per province using metro: province population ratio)
ACCOUNTABILITY		
Total revenue	StatsSA	as a % of main appropriation YTD 31 December 2019
Total expenditure	StatsSA	as a % of main appropriation YTD 31 December 2019
Financial performance	StatsSA	Acid test ratio, current ratio and debt ratio
Fiscal balance	StatsSA	Fiscal balance: Revenue less expenditure, YTD 31st December 2019
SUSTAINABLE SECURITY		
Water backlog	StatsSA	Backlog of water supply, households below RDP level
Energy backlog	StatsSA	Number of households with no electricity connections
Food security	StatsSA	Share of households below the food poverty line
Health security	StatsSA	HIV/AIDS deaths estimates.
Shelter	StatsSA	Formal dwelling backlog- # of households not living in a formal dwelling
Sanitation	StatsSA	Number of households with no hygienic toilets
Waste management	StatsSA	Number of households with no formal refuse removal
Education	StatsSA	Total number of people with no schooling, age 20+ (across population group)

INDICATOR DATABASE

EFFECTIVENESS

Metro	Population density	Gini	Poverty Gap	Infrastructure Index	Size of public sector	Gross Value Added (Rands)	Crime Index	H.D.I
Cape Town	1761.27	0.62	0.295	0.89	65817.34	286500671.06	153.15	0.75
eThekweni	1541.00	0.62	0.309	0.84	46956.28	274493618.14	100.62	0.67
Ekurhuleni	1872.43	0.63	0.311	0.83	49846.20	195762344.42	95.94	0.71
Johannesburg	3224.60	0.62	0.311	0.87	60915.58	442086715.49	118.39	0.72
Nelson Mandela Bay	674.33	0.63	0.303	0.92	13044.11	73264823.25	118.14	0.70
Tshwane	552.29	0.62	0.312	0.85	83676.87	293642430.53	103.78	0.73
Mangaung	86.30	0.62	0.312	0.82	18966.63	58965747.69	128.18	0.68
Buffalo City	321.40	0.63	0.311	0.76	11222.07	41793978.77	121.40	0.67

EQUITY

Metro	Education	Health	Shelter	Water	Sanitation	Energy	Waste Mgt	Youth Unem-prate.	Total Unem-prate.
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Cape Town	236663.06	1016.00	1278731.77	1275614.53	1266614.85	1248491.36	1248491.36	0.43	0.20
eThekwini	326038.69	782	1108676.15	1068132.90	1091676.97	1058920.84	1058920.84	0.42	0.18
Ekurhuleni	226567.74	1263	1198736.08	1195560.14	1191825.47	1034191.50	1034191.50	0.58	0.32
Johannesburg	281519.96	1472	1734297.98	1729515.21	1728789.41	1600122.04	1600122.04	0.51	0.26
Nelson Mandela Bay	96168.57	251	382115.98	377704.57	376895.46	365096.02	365096.02	0.60	0.38
Tshwane	203613.73	1210	1116364.07	1109194.26	1111085.59	1033868.61	1033868.61	0.46	0.22
Mangaung	85735.38	444	270661.38	268517.41	265333.25	256004.14	256004.14	0.57	0.26
Buffalo City	80405.52	223	271377.29	261321.27	260072.77	240940.24	240940.24	0.62	0.33

PARTICIPATION

Metro	Protest	Voting centres	Voter turnout	Wards
Cape Town	0.12	266	1226515	253
eThekwini	0.07	352	1162964	304
Ekurhuleni	0.06	364	881843	129
Johannesburg	0.08	523	1264611	185
Nelson Mandela Bay	0.03	19	371278	139
Tshwane	0.06	343	829258	343
Mangaung	0.02	67	245043	91
Buffalo City	0.02	13	248699	93

ACCOUNTABILITY

Metro	Acid test ratio	Current Ratio	Debt ratio	Total Revenue %main Appro.	Total exp %main Appro	Fiscal balance
Cape Town	1.65	1.70	0.34	0.46	0.38	3368197
eThekwini	1.15	1.21	0.37	0.40	0.36	1035923
Ekurhuleni	1.11	1.21	0.27	0.47	0.44	1161399
Johannesburg	0.78	0.81	0.42	0.55	0.52	2460783
Nelson Mandela Bay	1.73	1.80	0.29	0.26	0.27	2222532
Tshwane	0.78	0.84	0.48	0.35	0.39	-16643
Mangaung	0.87	1.12	0.21	0.45	0.50	-306854
Buffalo City	1.94	1.97	0.11	0.47	0.50	-275823

SUSTAINABLE SECURITY

Metro	Education	Health Security	Shelter	Water Security	Sanitation	Energy Security	Env. Security	Food security
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Cape Town	38004.05	2390.86	254568.45	17607.62	80851.494	30240.41	113806.94	0.19
eThekwini	91520.6	10396.84	176879.45	107695.71	148131.92	49755.31	149132.70	0.27
Ekurhuleni	61996.55	7778.49	260389.33	24539.55	107832.95	164544.58	125757.38	0.21
Johannesburg	75505.98	11077.17	340033.56	17310.40	74247.492	134175.94	93525.66	0.20
Nelson Mandela Bay	19511.04	2169.35	27101.35	10842.50	24354.866	17019.95	22949.31	0.25
Tshwane	67974.79	7117.01	208332.04	14494.41	166705.41	82495.46	161698.99	0.18
Mangaung	20636.06	1923.72	38848.02	6842.84	37456.966	14657.25	34329.01	0.23
Buffalo City	20396.59	1861.96	66170.87	27769.83	33787.943	30437.05	89382.60	0.27

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