Examining the Potential of Urban Sustainability Attainment in Cities of the Global South: City of Ekurhuleni Experiences

L.P Matshika
Masters Student
University of Johannesburg, Department of Urban and Regional planning, Office 6062, Sixth Floor, John Orr Building, Beit and Siemert Street, 2028. Johannesburg, South Africa
lpmatshika1997@gmail.com

T. Gumbo
Head of Department and Associate Professor
University of Johannesburg, Department of Urban and Regional planning, Office 6062, Sixth Floor, John Orr Building, Beit and Siemert Street, 2028. Johannesburg, South Africa
tgumbo@uj.ac.za

J. Chakwizira
Professor
North West University, Department of Urban and Regional Planning, Faculty of Natural and Agricultural Sciences, Building G5, Potchefstroom Campus, North West, South Africa
Jame.Chakwizira@gmail.com

Abstract

Sustainability has become a phenomenon appreciated globally in debates, policies, and legislations, with varying goals being set towards the attainment of sustainability. The implementation of SDGs at local level can lead to better lives for all people in both rural and urban communities. Globally, there has been several interventions and efforts to implement the SDGs albeit with varying intensity and support. The strategies and approaches to appropriate and effective adoption and implementation of SDGs, particularly in cities of the developing world, have not been well documented. Consequently, this paper examines the strategies and approaches of implementing SDG-11 towards the attainment of urban sustainability in the city of Ekurhuleni. The paper bestows the escapade of the approaches and strategies for the implementation of SDG-11, though data which was collected by means of interviews with officials and relevant stakeholders in the City of Ekurhuleni and through observations. The results of the study divulge that the City of Ekurhuleni has sufficient policies, legislative frameworks, and strategies to implement SDG-11. The paper concludes by providing proposed recommendations to inform the effective implementation of SDG-11 for the attainment of urban sustainability in the City of Ekurhuleni.

Keywords
Urban Sustainability, Sustainable Development Goals (SDGs), SDG Goal-11, Global South, City of Ekurhuleni

1. Introduction
The use of the phrase sustainability has become dominant in legislations and policies globally, in developed and developing countries. Be that as it may, Smith *et al.,* (2021) agree that the implementation of principles of sustainability and achieving the goals which are set for sustainability has proven to be difficult. SDGs are mandated to improve the lives of people and ensure that development takes route that is inclusive and leaves no one out, while also ensuring that it is sustainable for future generations. Upon the adoption of SDGs, a crucial note was made that it is important to follow a bottom-up approach in their implementation to ensure their effectiveness (Turcu, 2013). This implied that the local government must play a crucial role to ensure that SDGs are effectively implemented. The

United Cities and Local government (2016) prescribed four main activities critical to the implementation of SDGs at the local level, which are to raise awareness about SDGs; create alignment to SDGs at subnational level; facilitate engagements at national level on the implementation of SDGs; and to produce disaggregated local data and indicators (UCLG, 2016).

The SDG goal-11 highlights the importance of municipal jurisdictions in the agenda towards achieving sustainable cities. It highlights that there is an important role that needs to be carried out by the regional and local governments, together with local municipalities and other stakeholders. The standalone goal would allow for the integration of different components of sustainable development, address urban challenges and provide opportunities and strengthen the linkages between urban and rural areas (Reddy, 2016). The questioning of the implementation approaches of SDG-11 aids towards the search for better ways to achieve localization of the SDG. This contributes towards finding alternative solutions for implementation of policies and ensuring that policy makers have established ground towards finding ways to ensure that formulated policies are well implemented and realized. It allows for a reimagining of the tools and techniques which are being used to implement the goal at a local level, the roles that stakeholders play to ensure its implementation, assessing if its impact is seen and that local people and communities are benefiting from it. It fills the gap of "what is done wrong" and allows for the establishment of better ways to implement policies and frameworks that move towards the attainment of urban sustainability.

Consequently, the paper focuses on examining the potential and possibilities of attaining urban sustainability in cities of the Global South, with experiences from the City of Ekurhuleni, South Africa. It starts by highlighting the concept of urban sustainability and urban sustainability indicators and proceeds to provide theoretical underpinnings for the study. The paper goes on to delineate the study area, the methods and materials utilized to amass data and push on to present the results and discuss the findings. The paper ends by providing a conclusion and recommendations, with an emphasis on the need of the realization of the role that local governments play in the implementation of policies, facilitation of public participation, establishing measures for urban sustainability and ensuring that cities and communities are resilient, safe, and sustainable.

1.1 Objectives
The implementation of SDGs at local levels can lead to better lives for all people in both rural and urban communities. Globally, there have been several interventions and efforts to implement the SDGs albeit with varying intensity and support. The strategies and approaches to appropriate and effective adoption and implementation of SDGs, particularly in cities of the developing world have not been well documented. Consequently, this study examines the strategies and approaches to the attainment of urban sustainability at Ekurhuleni local Municipality. The research aims and objectives of the study are as follows:

Aim
- To examine the strategies and approaches of implementing SDG-11 towards the attainment of sustainability in Ekurhuleni Local Municipality.

Objectives
- To review the policy and legislative framework for the implementation of SDG-11 to support the attainment of urban sustainability in Ekurhuleni Local Municipality.
- To assess the strategies of attaining urban sustainability in Ekurhuleni Local Municipality.
- To examine the stakeholder roles in the implementation of SDG-11 to support the attainment of urban sustainability in Ekurhuleni Local Municipality.
- To formulate a framework to inform the effective implementation of SDG-11 to aid the attainment of urban sustainability in Ekurhuleni Local Municipality.

2. Conceptual and Theoretical Synopsis
The use of the term sustainability is diverse in its underpinnings. Initially, the concept heeds its definition as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987;37). As it became operational, dimensions emerged and the concept began to be looked at from the social, economic, and environmental dimensions (Hermundsdottir and Aspelund, 2021), and has provided for a balanced integration of these dimensions for the benefit of future generations (Ranjbari et al., 2021).

2.1 Concept of Urban Sustainability

The concept of urban sustainability proceeds with varying definitions from various scholars. Many scholars have argued that sustainability is not difficult and controversial concept, rather straightforward (Zeng et al., 2022) even though, it needs to answer three questions of what, how long and when. It needs to answer, "what system or subsystem persists, for how long, and when do we assess whether the system or subsystem or characteristics have persisted" (Costana and Patten, 1995; 193). Various authors have argued that the concept of sustainability and sustainable development are used interchangeably. Conversely, the United Nations Educational, Scientific and Cultural Organization (UNESCO) argues that sustainability is a long-term goal, or is thought to be one, while sustainable development is the continuous processes and pathways undertaken to realize it. Urban sustainability tries to develop a contemporary intervention to development that regulates the performance of cities (Farhan and Alshamari, 2021)

Urban sustainability is a city's capacity to meet the formal, functional, social, economic, and cultural set standards that provide individuals in a society with the opportunity to live and thrive without them negatively impacting on the environment, social, and economic conditions The concept of urban sustainability proceeds with varying definitions from various scholars. Notably, there is no universally accepted definition for the concept of urban sustainability. Evans and Fordham (2000) contend that urban sustainability is a city's demand-based approach to carry out activities that yield long-lasting benefits, or deal with long term urban problems. Hanson and Lake (2000;2) argue that "urban sustainability does not suggest urban self-containment, isolation or insulation from global processes, but rather the development of global-local relationships conducive to sustainability". It alludes to the facilitation and coordination that occurs between the formal and functional strategies, and its implementation rests on two factors, the provision of sustainable infrastructure and policy by urban institutions and the sustainable behavior of people living in urban areas.

2.2 Urban sustainability indicators

Urban sustainability indicators (USIs) are a set of tools which are employed in cities to measure the effective implementation and progress towards the achievement of urban sustainability (Verma and Raghubanshi, 2018). They provide policy makers with relevant information about the state of the environment to highlight priority areas, recognize weaknesses and strengths in those areas (Pupphachai and Zuidema, 2017). These indicators are utilized in cities globally, to facilitate decision making processes, and to provide information and knowledge about the management of programmes and projects. USIs follow a spatially focused approach (Verma and Raghubanshi, 2018) and are used to quantify urban sustainability, through the provision of feedback on the implementation of policy and finding best policy measures that demonstrate the attainment of urban sustainability. Different cities measure urban sustainability in various ways, focusing on various aspects of urban sustainability. Be that as it may, it is prominent that USIs need to be both subjective and objective, in that, they should be easily understood, measurable, and reflect on the state of the local circumstances, while they "measure what is measurable, rather than what is important" (Turcu, 2013). Although there are USIs that are universally realized, these indicators cannot be used world over and be applied to all cities, as cities have differing qualities and face different challenges. This has seen many cities developing their USIs either based on Top-down models, which are based on traditional hierarchies and a backed by scientific or qualitative indicators, or bottom-up models, which focus on the relationships between public and private participators, individual behaviours and the levels of community activities. Both models have their limitations, hence, indicators are best established based on the situations occurring on the ground.

2.3 Theoretical frameworks

This section will follow two models to form a theoretical discussion on the idea of urban sustainability attainment. The models SymbioCity Approach model and the Eco2 City model are deployed to provide theoretical basis for this study.

2.3.1 SymbioCity Approach

The SymbioCity approach is an approach towards sustainable urban development that is integrated and holistic. It integrates multiple dimensions of urban sustainability, spatial, socio-cultural, institutional, environmental, and economic dimensions in a way that is mutually supportive. The approach considers functions and systems and their relationships with one another and includes all relevant stakeholders to ensure synergies (Oginga, 2018). This approach is aimed at promoting and encouraging sustainable urban development in low and middle-income countries. It provides guidance and tools which can be used to support the processes towards sustainable urban development. The concept of this approach can be adjusted to fit a certain region, town, city and urban area. It aims to complement but not replace existing regulatory policies and frameworks in cities and urban areas (Ranhsgen and Growth, 2012).

The SymbioCity approach provides support for urban sustainable development approaches through process-oriented and methodological support. It emphasizes urban development through the local context. The approach can follow two entry points, which is a multidisciplinary approach, that provides an analysis of the area from different perspectives in order to identify the synergies that are there between different aspects, or a sectorial approach, which provides an analysis of a specific urban system in detail in order to identify potential synergies which relate to the specific system (Chiarotti et al., 2018). The SymbioCity approach, according to Ranhgen and Growth (2012) has the following main objectives: to encourage and support multi and transdisciplinary co-operation among stakeholders, and a holistic integrated approach; to contribute to capacity building by mutual sharing of knowledge and experience between different stakeholders, primarily at local government level; to serve as a basis for dialogue and cooperation between stakeholders, particularly at local level, but including regional and national institution to serve as a guide for urban sustainability reviews, based on a combined multidisciplinary and sector approach, which can be applied on different urban levels or scales; to contribute to the development of city-wide strategies for short, medium and long-term improvement of urban areas, including all dimensions of sustainability; and to support cities and towns in identifying practical and integrated systems solutions for sustainable urban development.

2.3.2 Eco2 Cities Approach

The Ecological cities as Economic cities (Eco2 cities) is an initiative that was introduced by the World Bank and launched in Singapore in 2009 as part of an Urban Strategy. The initiative was launched as part of the World Bank efforts in sustainable development and climate change (Chaudhuri, 2019). The initiative recognizes that cities are where most challenges are located, and change through poverty reduction, environmental sustainability, economic growth and climate change can be achieved through cities. This approach is positioned towards helping cities to achieve economic and ecological sustainability (Ranasingte, 2013). It combines the idea of attaining an ecological city and economic city in one framework. Ecological cities are those that enhance the citizen well-being through urban planning and management practices that produce benefits from ecological systems while protecting the nurturing them for future generations. Economic cities are cities that provide opportunities and create value for its citizens and society by using assets of cities, both tangible and intangible to enable a productive, inclusive, and sustainable economic activity. Eco2 cities then, build up on the corporation and interdependence between economic and ecological sustainability and their ability to strengthen each other on the urban context. The Eco2 cities initiative is a bottom-up approach and provides cities with a framework that is analytical and operational to tackle the challenges related to a particular city (Suzuki et al., 2010).

The approach follows four key principles, formulated through the understanding that cities will encounter challenges when adopting a new framework. The challenges were anticipated in the framework, taken together with key lessons learnt from practices in cities, the four strategic principles were developed which are; A city-based approach, which acknowledges that cities are the forefront for implementing change and managing it in an integrated approach. They are not only the drivers of the economy and homes to the populations but also responsible for most of the harmful emissions and energy consumptions; An expanded platform for collaborative design and decision making, which presents that a city can follow a three-tier platform towards achieving collaborative processes. The first tier enables collaboration within the city and engagements between all the city departments, the second tier allows for the city as a service provider to engage with the businesses, contractors and residents, and the third tier entails collaborations in the scale of the entire urban area with other institutions such as the private sector stakeholders, academia, senior government officials and non-governmental organizations; A one system approach, which is a one system approach about viewing the city and the urban environment as one complete system. Making it easier to design elements that are integrated and work well together. (Suzuki et al., 2010); and an investment framework that values sustainability and all capital assets which speaks to the incorporation of the life cycle costing in all the financial decisions being made using a life cycle costing method or tool that can be used to understand the life cycle costs and cashflows (Suzuki et al., 2010).

3. Study Area

The City of Ekurhuleni (CoE) is in Gauteng and is one of the three municipalities in the province. It is known to represent the industrial heartland of South Africa and it is home to the biggest Airport in Africa which is the OR Tambo international airport. It is located within the larger city region and has good inter and intra-regional linkages of different transportation modes, with the OR Tambo international airport and three core sub-continental export harbors being Maputo, Richards Bay, and Durban (Figure 1).
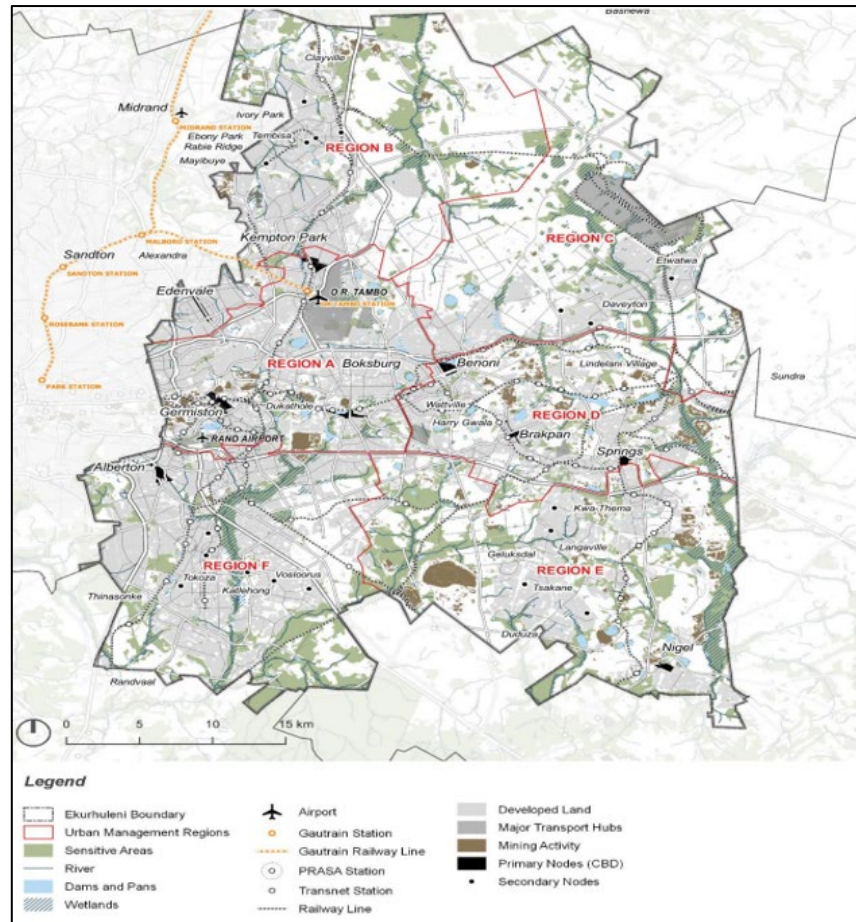
Figure 1: Extract from City of Ekurhuleni Growth Management Strategy, 2020

The spatial structure of the CoE comprises of nine towns and settlements which were established the mining belt which are Alberton, Benoni, Boksburg, Brakpan, Edenvale, Germiston, Kempton Park, Nigel, and Springs. The city also consists of four historically disadvantaged communities which are in the outskirts of the urban areas which are Tembisa, Daveyton, the Katorus complex and the Kwatsaduza complex (MSDF, 2015). It also consists of the Actonville-Wattville area located in the south of the Benoni CBD. The CoE is recognized in the Gauteng City-Region as part of the economic and employment core, which also faces rapid urbanization resulting in various urban challenges (GDS, 2015).

4. Methods and Materials
This section presents the design and approach of the research, data collection instruments and data analysis.

4.1 Research design and approach
The paper followed a Case study research design and a qualitative research approach to understand the research problem from the perspective of the population it involved and to collect non-numeric data through interviews with Key informants from the City of Ekurhuleni, External Stakeholders, and academic scholars.

4.2 Data collection instruments
The study utilized both primary and secondary data to draw results. Primary data was collected in the form of semi-structured interviews with Key informants from the City of Ekurhuleni, Scholars, and external stakeholders (Figure 2).
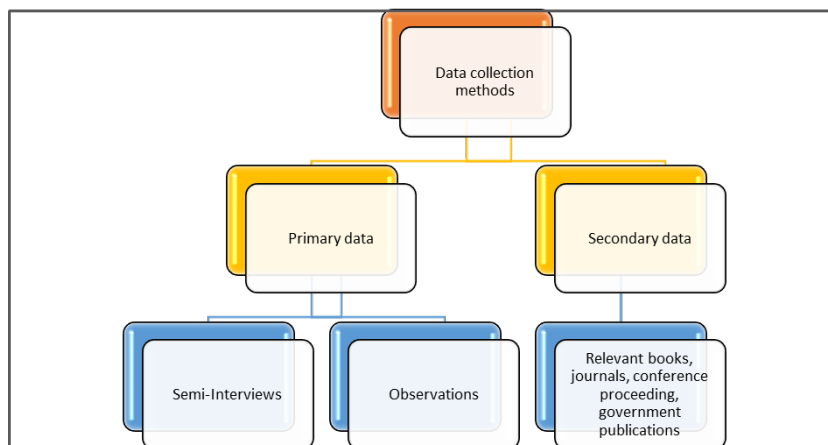

Figure 2: Data collection instruments; Author, 2021

Secondary data was collected through an extensive review of books, journals, conference proceedings, and government publications. The data was analyzed through thematic analysis and the themes that emerged informed the results of the study.

4.3 Data Analysis
The study used the thematic analysis method to identify, analyze and report on the occurring themes and connect the elements which occur in the collected data.

5. Results and Discussion
The analysis of the data to produce results lead to the identification of themes from the interviews with the Key informants and the review of the secondary data collected. The diagram below shows the emergent themes identified through the data analysis (Figure 3).
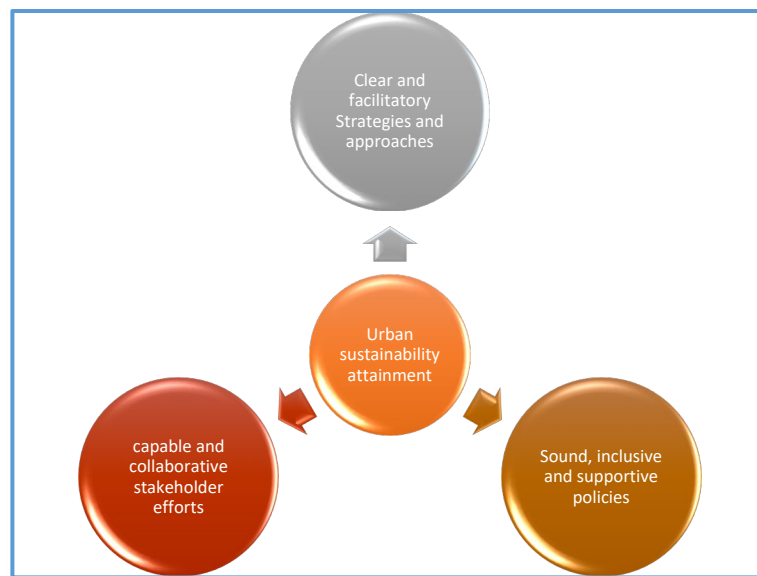
Figure 3: Emergent themes; Author, 2021

The city of Ekurhuleni has demonstrated capacity and potential for the attainment of urban sustainability through the implementation of sound, inclusive, supportive, and integrated policy and legislative frameworks. The city has outlined clear and detailed strategies and approached, with a concise vision and implementation plan to assist in facilitating and implementing the strategies. The stakeholder's effort towards collaboration and their capacity to fulfill their roles provides a demonstration that the city of Ekurhuleni is positioned and moving towards the attainment of urban sustainability, and effective implementation of SDG-11.

5.1 Policies and legislative frameworks for the implementation of SDG-11 to support the attainment of urban sustainability

The policies and legislative frameworks in the city of Ekurhuleni were reviewed to understand how the City of Ekurhuleni implements SDG-11 to support the attainment of urban sustainability. The various policies and legislative frameworks reviewed show that the city of Ekurhuleni has capable policies and legislations, which are sound, inclusive, and supportive, and allude to cities and human settlements which are resilient, safe, sustainable, and inclusive. Policies and legislative frameworks play an important role as they provide direction to the municipalities on the activities that ought to be undertaken to realize urban sustainability. The policies and legislative frameworks in the city provide and integration of the national, provincial, and local spheres of government, with clear set goals and interrelated aims. The interlink between these policies is an important aspect that shows communication and working together between intergovernmental departments.

The Growth and Development Strategy plays an important role in the city achieving urban sustainability, with a goal to position the City of Ekurhuleni as a sustainable city by 2055. The IDP clearly outlines the implementation plan and way forward towards the achievement of the sustainable city by 2055. The policies and legislative frameworks of the city are interrelated and speak from common ground, this is important to ensure that the city is moving towards a similar goal and its policies are addressing its urban problems. Although the City of Ekurhuleni is still faced with many challenges such as urbanisation, development on the urban edge, spatial segregation and a backlog in housing provision, the policy environment provides promising ground that if they are well implemented, the city can address its challenges and achieve is policy goals, thus building a city and communities which are resilient, safe, sustainable, and inclusive.

5.2 Strategies and approaches for the attainment of urban sustainability

The strategies and approaches for the attainment of urban sustainability in the City of Ekurhuleni were assessed. The City of Ekurhuleni houses various strategies which are being implemented to aid with the attainment of urban sustainability. These strategies include the Strategic Urban Developments, which are city wide projects that are critical projects towards the building of the city and ensure strategic development throughout the city, creating jobs, providing housing, promoting spatial transformation and inclusion in the city. The city also realizes housing provision as a strategic element, although there still exists a backlog in housing provision in the city, there has been various interventions being done and houses being provided. Transit Oriented Development is also denoted as a strategy towards urban sustainability. It speaks to building communities which are connected, with transit nodes being in proximity with commercial and residential units and encouraging the use of public transportation and walking rather than being dependent of private vehicles.

The provision of sustainable energy is also one of the strategies of the City of Ekurhuleni to achieve a sustainable city and communities. Notably, the provision of PV solar light units and portable solar lighting units to informal settlements in Ekurhuleni has been an important aspect of the city in ensuring that its residents have access to efficient energy. The city has also established a solar farm in the O. R. Tambo Precinct in Wattville, solar panels are also used in some of the customer care centres such as in Boksburg and in Kempton Park. This is an important aspect for the city in the move towards the use of more efficient and clean energy. The city also denotes Disaster Risk Reduction as an important strategy for attaining urban sustainability. The Disaster Management Plan alludes to strengthening institutional capacity, risk reduction actions and disaster response actions while also providing training and awareness in communities to mitigate and deal with disasters.

5.3 Stakeholder's roles in the implementation of SDG-11 to support the attainment of urban sustainability

Stakeholder's play different roles in the implementation of SDG-11 and the attainment of urban sustainability. Stakeholders can be categorised into broad categories, being those who are affected by the project, those who affect the project, and those who may be interested in it. Stakeholders play many different roles, such as facilitation of engagements from within and outside of organisations. These engagements in turn lead to decision making processes which shape the future of organisations and the outcomes received by those who are affected. In the three broad categories of stakeholders, the community, which is also denounced as the primary stakeholders, are the ones which are affected. They are at the receiving end of the outcomes of decision-making processes. Community is important as it is where people live and where development takes place. These stakeholders are usually represented by ward councillors, which have a role of delivering information to the community about any developments and represent the needs of the communities through corporation with municipal officials. A major challenge being faced is that individuals are hesitant in participating through communities and other participation processes, where they feel that their needs are not taken into consideration and their involvement is just a "box-ticking" procedure.

Municipal officials are the stakeholders who are regarded as those who affect the project, their role is strategic, as they are recognized as the decision-making stakeholders. Municipal officials are also responsible for initiating engagements with other stakeholders, encourage and ensure that local communities participate in the processes that will lead to the decisions that affect them. Various tools are used by municipal officials to gather participants on processes such as consultations, call for comments and submissions, and they facilitate shared corporation to ensure that there is shared responsibility in the development of communities. The professionals, as those who might be interested includes a wide range of stakeholders such as researchers, academics, the medial and private sector practitioners. These stakeholders have an interest in developments that takes place, and how it rolls out, the effects it has and the benefits it brings also in the future. Thus, the city of Ekurhuleni incorporates these three different stakeholders in their means to implements SDG-11 towards the achievement of urban sustainability.

6. Policy implications and lessons learned

Given the results of the study, it is evident that city-based approaches, where cities and communities are at the forefront of implementing change in the spaces they occupy need to prevalent. Mutual sharing of knowledge among stakeholders and communities, and the facilitation of capacity building among individuals is an important aspect of the implementation of policies and the attainment of urban sustainability. There is a need for the establishment of intrinsic integrated approaches to facilitate the inclusion of communities in decision-making and policy implementation to ensure that there are no synergies, perspectives and potentials which are ignored. This emphasizes

the establishment of stronger relationships between stakeholders and the communities they serve, to facilitate the development of strategies which are holistic and incorporate all dimensions of urban sustainability, and to identify practical solutions to the challenges that cities are facing.

7. Conclusions and Recommendations

Cities and communities are crucial in the implementation of policies and facilitating decision-making. They are the places where people live. The local sphere of government is best positioned to provide strategies which can be implemented and monitored in collaboration with communities and stakeholders. The implementation of SDGs at local levels is challenged by various factors such as ensuring that they are in alignment with the municipal plans, programmes and budgets, monitoring the implementation of the SDGs, getting funds to fulfil SDG related work and having the SDGs endorsed by local politicians and parties. There is a need for realization of the role that can be played by local governments in the implementation of policies, facilitation of public participation, establishment of measures for urban sustainability, and ensuring that communities are safe, resilient, and sustainable.
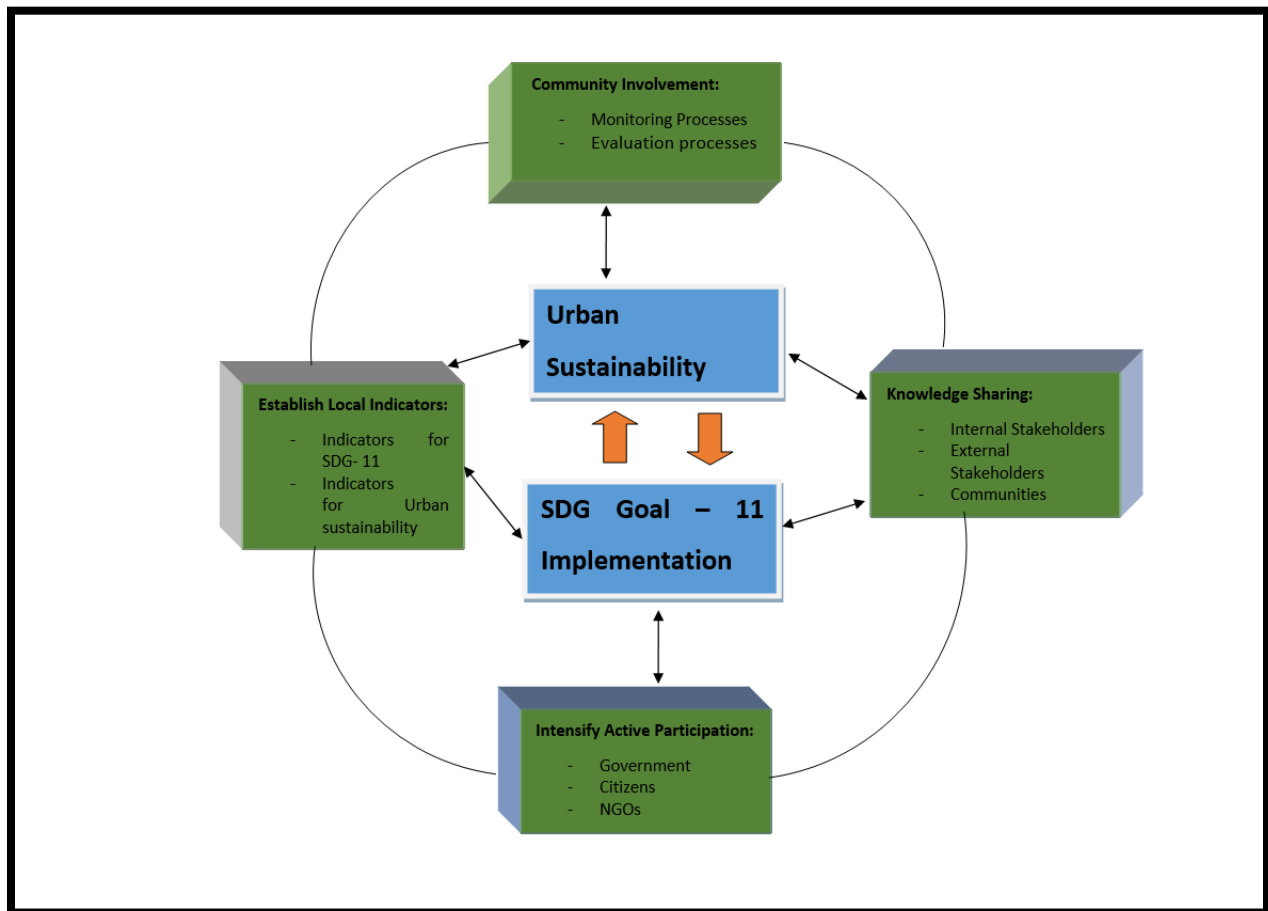

Figure 4: Proposed framework for Urban Sustainability attainment and SDG Goal 11 Implementation; Author, 2021

The Figure 4 above presents a framework for the attainment of urban sustainability and the implementation of SDG Goal – 11. There is a need to develop local indicators for SDG-11 and urban sustainability in cities and communities which is relevant to its spatial challenges and the needs of the communities, and measure what is measurable. These

indicators at the local level will specifically focus on the efficient implementation of the SDG Goal-11 and should be developed through consultations with the community. The local government needs to take a leading role in the establishment of programmes and policy initiatives that inform the effective implementation of SDG Goal-11 taking cognisance of the relevant situations which are faced by the local communities. The roles and responsibilities of the local government need to be clarified with the provincial and national sphere of government providing support to ensure proper implementation of policies. Communities and individuals are discouraged to participate in co-production because mostly there is lack of feedback on the submissions that are made by them and this creates the perception that their concerns and inputs are not taken into consideration, that their participation was just a regularity. This alludes to the need for intensifying active participation from communities and citizens in the formulation and implementation of policies at local levels. This can be achieved through establishing learning programmes which will be championed by practitioners and stakeholders in the communities such as NGOs to provide knowledge to communities about the importance of their participation. The involvement of citizens and communities in the monitoring and evaluation processes will promote learning among them about these processes and will also aid in the achievement of accountability and transparency.

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Biographies

Lindokuhle Prince Matshika is a candidate planner and recently completed a Master's of Urban and Regional Planning at the University of Johannesburg, Faculty of Engineering and Built Environment. He holds an Honours and Bachelor's of Urban and Regional Planning from the University of Johannesburg, South Africa. His research interests include Urban sustainability and sustainable development, Urban transportation systems, transport planning and urban management. He has worked both in the public and private sector, focusing on policy formulation, growth management strategies, land use and development planning. He has previously been a student assistant for urban renewal and sociology in planning.

Prof Trynos Gumbo is a professional planner and currently a Full Professor and leader of the Sustainable and Smart Ciities and Regions (SSCR) within the Department of Urban and Regional Planning within the Faculty of Engineering and the Built Environment in the University of Johannesburg (UJ). He Holds a PhD from Stellenbosch University, South Africa as well as masters and honours degrees from the University of Zimbabwe (UZ), Zimbabwe. He has previously worked in the Africa Institute of South Africa of the Human Sciences Research Council as a research

specialist and Acting Head for the sustainable development programme. Prof Gumbo has also worked as an international instructor in the urban management masters programme within the Ethiopian Civil Service University College (ECSUC) in Addis Ababa in Ethiopia. Before, Prof Gumbo had worked as lecturer and Head of Department at the National University of Science and Technology (NUST) in Zimbabwe. He has attended and presented at several national and international conferences and has published widely in a variety of research areas that include informality, housing, urban planning, development and management. His research interests include urban transportation planning and management, sustainable and smart cities development, housing and economic informality, green economy and renewable energy generation from waste and innovative building technologies and materials.

Prof James Chakwizira is a registered professional planner with the South African Council of Planners (SACPLAN); a member of South African Council of Planners (SAPI), a Corporate Member of the South African Institution of Civil Engineering (SAICE), the current Chairperson of the Committee of Heads of Planning Schools (CHoPs) in South Africa and is a Council member and Deputy Chairperson of South African Council of Planners (SACPLAN). Professor James Chakwizira served as the Head of Department, Urban and Regional Planning, Faculty of Science, Engineering and Agriculture at the University of Venda (UNIVEN) for thirteen years from 2009 - 2021, prior to joining the North-West University Subject Group Urban and Regional Planning in 2021. James previously worked as Head: Roads and Traffic Engineering at the Scientific and Industrial Research and Development Centre (SIRDC). During the same period he deputised the Director—Building Technology Institute and was Acting Head: Housing and Infrastructure Development. He has also worked as a Senior Researcher and Acting Research Group Leader at the Council for Scientific and Industrial Research (CSIR) (Pretoria, South Africa) initially in the Rural Infrastructure and Services Competency Area and later in the Transport Systems and Operations Competency Area. He has over 27 years of practice, consulting, research and academia teaching in Universities in Southern Africa as well as having worked and practiced in Europe, Asia and Africa.