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The Role of Public-Private Partnerships (PPPs) in Smart City Development in Uganda

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Abstract

An innovative and smart city development paradigm is vital in dealing with the impacts of unprecedented urbanisation that most nations, especially developing countries, including Uganda, are experiencing. This paper explores the role and contribution of public-private partnerships (PPPs) in establishing sustainable cities in Uganda based on a review of the existing literature. Findings revealed that public-private partnerships do facilitate innovative city development. Critical factors such as a lack of appreciation of the private sector for public sector activities, poor infrastructure, inadequate human resources, weak policy, and legal and institutional frameworks continue to affect the implementation of innovative city development in Uganda. For innovative city development to work through public-private partnerships, critical factors such as geographical and social contexts shape the conceptualisation of a smart city. The significance of this study lies in its ability to provide a deeper understanding of the accomplishments of PPPs in promoting innovative city development in the country. This study focused on smart city governance as a component of a creative city concept. The study focused on the National Land Information System (NLIS) to ensure Uganda's efficient land administration system. However, the researcher also looked at capacity building, networking for urban sustainability and people-friendly mobility, and smart/intelligent urban mobility for smart city development. Considering the need for more systematic studies on PPPs and smart city development in Africa, this study recommends that it is imperative to empirically explore the contribution of PPPs in smart city development in African contexts as a whole and the Ugandan context in particular.

Keywords

Public Private Partnership, Urbanization and Smart City Development

1. Background to the Study

Uganda is steadily urbanising, with about 28 per cent of its population living in

urban centres (Uganda Bureau of Statistics, 2021). Policy experts have projected that 30 percent of Uganda's almost 45 million people will be living in towns and cities by 2035. This projection resonates with the study of Huang et al. (2021) in China, which asserts that the rate of urbanisation will increase within the next three decades. The study by Huang et al. (2021) also highlighted that while urban centres constitute a small land area, they represent the most significant consumers of energy and resources and emit the highest proportion of greenhouse gases. For instance, Kampala, the country's capital city, is faced with several problems, which include the growth of informal settlements, encroachment on wetlands, and inadequate sewage and water treatment plants to service its current population of 1.5 million, all of which are exerting pressure on the natural environment (Kampala Capital City Authority, 2019).

Besides, the 2030 Transformative Agenda on Sustainable Development, defined by 17 Sustainable Development Goals (SDGs), presents an opportunity for Uganda to renew its commitment to sustainable development principles. Sustainable development is a fundamental principle that runs through the Uganda Vision 2040, the Second National Development Plan, and the 1995 Constitution of the Republic of Uganda. The Government of Uganda is taking steps to ensure that this transformation is cognisant of brilliant growth tenets stipulated by all the SDGs, the 2015 Paris Agreement on Climate Change and the 2063 Agenda of the African Union (Michael, 2018). This recognition implies that the envisaged transformative sustainable growth must be socially inclusive and uphold the environment's and natural resources' integrity.

In recent decades, smart growth has gained traction in discussions about city governance and policy proposals (Moura & de Abreu e Silva, 2021). Similarly, a study by Huang et al. (2021) indicated that more than a quarter of a billion humans would shift from villages to urban centres in three decades. Moreover, this accelerating urbanisation has resulted in ill health, traffic jams, and air and water pollution (Huang et al., 2021).

Scholars worldwide initially promoted intelligent city conception as a new and innovative agenda focused on using administrative skills, market mechanisms, and engineering expertise to address the failings of the current development paradigm. According to numerous legal, policy, planning, and institutional frameworks, the government of Uganda has shown a commitment to smart growth and sustainable development concepts. It recognizes that smart growth development is the preferred strategy for implementing sustainable development and wealth creation. Similarly, the second National Development Plan 2015-2020 (NDP II) seeks to strengthen Uganda's competitiveness for sustainable wealth creation, employment, and inclusive growth and achieve lower middle-income status by 2020 with a per capita income of US$1039.

Furthermore, the government of Uganda developed the Uganda Smart Growth Development Strategy to operationalise the broad smart growth tenets highlighted in Agenda 2030, the Uganda Vision 2040 and the NDPII (2015-2020) to support

the country's accelerated transition to middle-income status. The National Green Growth Development Strategy is one of the steps the government has taken to achieve the envisaged transformation in an inclusive and environmentally sustainable way (The Republic of Uganda, 2016). The strategy suggests a new urban growth model encouraging a more compact and connected national transition by 2040.

A city's smartness is determined using a set of characteristics, including infrastructure based on technology, environmental initiatives, practical and highly functional public transportation, confident and progressive city plans, and people able to live and work within the city using its resources. Global cities recognised as leading in Smart City development include Singapore, Dubai, Oslo, Copenhagen, Boston, Amsterdam, New York, London, Barcelona, and Hong Kong SAR. The U.N. estimates that about a quarter of the world's population will live in Africa by 2015. These statistics mean African cities should rethink urban development. The smart city concept offers viable options. Other continents have already extensively embraced the idea. The top 5 innovative city initiatives in Africa include Konza Techno City in Kenya, Eko Atlantic in Nigeria, Hope City, Waterfall City in South Africa and Vision City in Rwanda. The government of Uganda has positioned Kampala to become Uganda's first smart city.

By smart city, the government of Uganda expect cities like Kampala, Gulu, Arua and Jinja to be innovative cities that use information communication technology (ICTs) and other means to improve the quality of life and the efficiency of urban operations and improve competitiveness. In doing so, these cities should ensure that they meet the needs of present and future generations concerning economic, social and environmental aspects. This study shows that the current status of PPP in the context of smart city developments in Uganda still needs to improve. This low level of smart PPPs, based on the findings of this study, is attributed to many factors, such as the inability of the private sector to participate in public sector activities like the management of the country's natural ecosystems, such as wetlands, weak policy, legal and institutional frameworks and poor infrastructure services.

2. Study Objectives

The study's overall objective was to investigate the contribution of PPPs to the prospects of smart city development in Uganda.

Specifically, the study aimed to achieve the following objectives:

- To examine the concepts of smart city development and public-private partnerships in Uganda
- To explore the role played by PPPs in promoting responsible urbanisation in Uganda
- To analyse the current status of PPP in the context of innovative city developments

3. Scope of the Study

This study aimed to explore the contribution of public-private partnerships (PPPs) towards sustainable city development in Uganda based on a review of the existing literature. The study also investigated how public-private partnerships (PPPs) facilitate innovation development. Other factors examined concerning the low level of smart PPPs included a lack of appreciation of the private sector for public sector activities, poor infrastructure, inadequate human resources and weak policy, legal and institutional frameworks, which affect the implementation of innovative city development in Uganda. The study also provides a deeper understanding of the accomplishments of PPPs in promoting smart city development in the country with a specific focus on the National Land Information System. The study primarily focused on cities such as Kampala, Jinja, Arua, Mbarara and Gulu.

4. Literature Review

The concept of smart city development began in the 1990s, marking the beginning of a new era in urban innovation (Lecomte, 2019). Since then, the literature discussing this new concept and the Information Communication and Technology - oriented urban-innovation approach has been growing steadily, along with the number of initiatives that cities all over the world have launched to pursue their ambition of becoming smart (Mora et al., 2018; ISOCARP, 2018). Defining smart cities is valuable as it provides a starting point to conceptualise the term's various parameters and measure success (Hollands, 2014; Joo & Tan, 2020). Despite scholars and other thinkers using the term "smart" or "intelligent" in cities, the term has been conceptualised severally. There are multiple criteria and contexts for conceptualising smart cities including smart technology, smart people and intelligent collaboration (Smith et al., 2022; Meijer & Bolívar, 2016).

However as argued by some scholars, the urban deployment of smart technology is critical in the smart city discourse (Angelidou, 2017). In addition to the urban development perspective, several studies have also suggested that the role of the inhabitants should not be under estimated since they render a city smart (Meijer & Bolívar, 2016). These studies imply that smart cities attract and cultivate highly educated people (Shapiro, 2006). The third criterion, "smart collaboration", means engagement of a multiplicity of stakeholders, including citizens, in city leadership (Jayasena et al., 2022; Ruhlandt, 2018), which necessitates that local governments work with corporations to tackle pressing concerns of cities including public health, the climate crisis, and pollution (Koppenjan et al., 2004). The second criterion of conceptualising a smart city encompasses smart economy, smart mobility, smart environment, smart people, smart living, and smart governance (Makieła et al., 2022). However, the policy contexts undermine the success of PPP in smart city development (Jacobson, 2018).

Further, smart city policymakers, scholars and academicians have used to refer to the digitalisation of urban development and technological creativity in institutions

and management (International Society of City and Regional Planners (ISOCARP), 2018; Lecomte, 2019) encompassing such elements as smart economy, smart mobility, smart environment, smart people, smart living, and smart governance (Makieła et al., 2022). A smart city is about city managers and responsible government officials applying technology to improve how they run urban centres (ISOCARP, 2018). While the preceding studies offer crucial insights into the diverse meanings of a smart city, they predominantly offer Asian, Western European and North American understandings of the concept of a smart city. Therefore, exploration of how a smart city is conceptualised through the lens of African (Ugandan) realities is necessary.

In a further analysis of the role of PPPs in Smart City Development in Uganda, the authors of this paper reviewed the works of several scholars. Thus, Hollands (2014) conducted a study in New Castle, United Kingdom. This scholar analysed inclinations towards entrepreneurial governance in smart city conceptualisations and smartness from a multiplicity of perspectives right from small scale to flourishing participatory smart city interventions. On the other hand, Ruhlandt (2018) conducted a systematic literature review and suggested conceptual insights into smart city governance. Pianezzi et al. (2021) collected primary data from a local business association in Japan as the study participants. Pianezzi et al. (2021) also used secondary data in the form of a review of documents. Another piece of work that the authors of this current paper examined was that of Jayasena et al. (2022) who conducted a qualitative empirical study with ten interviews on PPPs on smart infrastructure development in Hong Kong SAR. The authors of this paper reviewed the work of Jayasena et al. (2022). The authors discovered that the latter analysed nine case studies of PPP formation in transport infrastructure projects in the Netherlands. Still in the context of the role of PPPs in Smart City Development, the authors of this paper reviewed the works of Mora et al. (2017) who conducted a bibliometric study using a keyword search on smart cities from 1992 to 2012 using many scholarly databases. This scholar conducted a systematic literature review, analysed local documents, and conducted direct interviews with local managers and participant observation. However, all these scholarly works reviewed had gaps in that none of them examined the concepts of smart city development and public-private partnerships in Uganda. It is also evident that there is no any direct mention of any exploration of the role played by PPPs in promoting responsible urbanisation in Uganda. And finally, the analyses carried out by the authors of this paper presented under the literature review section of this paper didn't delve into the current status of PPP in the context of innovative city developments in Uganda. It is these missing gaps that constituted a basis for working on this current paper.

5. Methods

Research Design: The researcher selected the study design based on the constructivist philosophical worldview assumption, methods of data collection, analysis and interpretation, the nature of the research problem and the researcher's personal

experiences in the field of urban development. In a nutshell, this choice of the research design considered the study's motivation which was largely to understand the role of public-private partnerships in innovative city development in Uganda. Accordingly, the researcher deemed it fit to select a qualitative type of research design. Therefore, this study was undertaken by reviewing the existing literature and assessing and analysing secondary data on innovative city development and public-private partnerships. Reports, official documents, articles, regulations, bylaws, and newspaper articles found on different electronic databases, such as Google and Google Scholar search engines, were also reviewed by following the references in the scanned documents. The keywords used to find these documents were "smart growth", "smart city growth", "public-private partnerships", and "smart city development". The author evaluated these articles based on their depth regarding the subjects under review. Research papers were categorised into three general groups and summarised in terms of the different themes. The first group was "smart growth", "smart city growth", "Smart city development". The second group comprised details on public-private partnerships; the third group had elements related to innovative city development and public-private partnerships.

6. Results of the Study

6.1. The Concepts of Smart City Development and Public-Private Partnerships in Uganda

As argued in the literature review section of this paper, among the key concepts defining intelligent city development are three critical criteria of conceptualisation: smart technology, smart people and intelligent collaboration (Smith et al., 2022; Meijer & Bolívar, 2016). On the other hand, another criterion for conceptualising a smart city encompasses smart economy, mobility, environment, people, living, and governance (Makieła et al., 2022). However, the policy contexts undermine the success of PPP in smart city development (Smith et al., 2022).

Smart collaboration, on the other hand, means engagement of a multiplicity of stakeholders, including citizens, in city leadership (Jayasena et al., 2022; Ruhlandt, 2018), which necessitates that local governments work with corporations to tackle pressing concerns of cities, including public health, the climate crisis and pollution (Koppenjan et al., 2004). In this case, the urban deployment of innovative technology is critical in the intelligent city discourse (Angelidou, 2017) because smart cities attract and cultivate highly educated people (Shapiro, 2006). Understanding smart cities requires advancing in six critical strategic action fields, including intelligent environment, smart mobility, smart people, innovative economy, smart living, and smart governance (Dudzevičiūtė et al., 2017; Makieła et al., 2022).

Regarding smart city development, Public-Private Partnership describes a spectrum of possible relationships between the public and private actors. They jointly define the objectives, the methods, and the implementation of a cooperation

agreement. The collaborative public-private partnerships (PPPs) model has offered a blueprint for developing smart cities (Liu et al., 2020; Ruhlandt, 2018). Therefore, exploration of a smart city through the lens of African and Ugandan realities was necessary and thus was the investigator's interest in undertaking this study.

6.2. PPPs and Urbanisation in Uganda

The idea of "partnership" suggests that public and private actors can reconcile potentially conflicting values, beliefs, and practices (Koppenjan et al., 2004; Reeves, 2008). As indicated in the scope of this study, the implementation of the National Land Information System (NLIS) is an example of the accomplishments of PPPs in promoting smart governance (The Republic of Uganda, 2015). This study should have dug deeper into other aspects of smart cities, such as smart economy, mobility, environment, people, and smart living. The National Land Information System (NLIS) has made a profound contribution to the improvement of service delivery across the land sector with a substantial reduction in the time required for land transactions, minimisation of opportunities for corruption, increase in accountability and strengthening of tenure security (The Republic of Uganda, 2015).

The results registered since the implementation of the NLIS include an increase in the number of land transactions, decentralisation of the cadastral and registration services, securing of land records and maps, establishment of audit trail of land transactions, improvement in the quality of documents and their management, instant retrieval of land related information, better service delivery to the stakeholders, improvement in public perceptions of land service delivery and increased sustainability of land governance. Therefore, as the name suggests, a PPP brings together the public and private sectors in a long-term contractual relationship to deliver high-quality public services (Kampala Capital City Authority, 2019).

6.3. Current Status of PPP in the Context of Smart City Developments in Uganda

The Public-private partnerships and innovative city development in Uganda have included the following partners:

The Green Global Growth Institute (GGGI) has supported Uganda's Ministry of Lands, Housing, and Urban Development in completing the national urban policy through its smart cities programme. It has also invested in addressing the country's increasing solid waste management crisis and recently completed the national urban solid waste policy. Furthermore, the initiative also supports Arua and Gulu City in developing sustainable physical development plans.

The European Union (E.U.) has also allocated 60 million Euros to support the Uganda government in implementing the smart growth strategy. Sweden, Norway and other individual E.U. countries are considering funding intelligent growth efforts in Uganda through the Smart Climate Fund, the Global Environment Facility

and other international windows for an intelligent economy. Similarly, the United Nations Development Programme country office in Uganda mobilised USD 24.1 million from the Smart Climate Fund to implement the Presidential Initiative to restore the country's degraded wetlands.

The "Cities SHIFT Capacity Building and Networking for climate and people-friendly mobility" supports cities such as Jinja to identify challenges and opportunities in its urban mobility system with the hope that the towns could shift towards more eco-mobile modes of travel, i.e. walking, cycling, shared and public transport. Funded by Hewlett Foundation and EcoMobility Alliance, a vital part of this project is to adopt Eco Mobility SHIFT+, a methodology designed for cities to measure urban mobility performance and make informed decisions based on the areas that need improvement.

In 2015, the World Bank implemented a project that focused on preparing an urban environmental profile for Kampala. A component of the assignment promoted intelligent urban development in Africa by enhancing the relationship between urbanisation, ecological assets, and ecosystem services. The overall objective of this project was to link the study of urban environmental issues with the advancement of more sustainable urban growth.

Kampala Capital City Authority (KCCA) signed an MOU with the City and Eurometropole Strasbourg in April 2019 as part of the North-South cooperation agreement. The thematic areas of cooperation include education, Smart spaces, and urban agriculture. In collaboration with ICLEI (Local Governments for Sustainability), Kampala undertook an Urban Natural Assets Mapping Project in 2017 funded by Urban Natural Assets for Africa: Rivers for Life (UNARivers) implemented by ICLEI's Cities Biodiversity Center. The project undertook a participatory mapping process in Kampala and the Greater Kampala Metropolitan Area (GKMA) to map the urban natural assets within the set administrative jurisdictions.

Collaborating with UKAID and United Nations Capital Development Fund (UNCDF), Cities Alliance undertook an Urban Public Space and Land Management assessment in Gulu. The report from these institutions revealed that no regulations and bylaws are available to the city council for public or open space action and that the urban authority fronted no proposal to address this issue despite the continued growth of informal sector businesses in Gulu city. Meanwhile, in collaboration with Coca-Cola Company and Nile Breweries Company, Mbarara City Council maintains Independence Park by planting trees, flowers and grass

7. Summary of Results and Findings

This research found out that despite many scholars and other thinkers using the term "smart" or "intelligent" in cities, the term has been conceptualised severally. There are multiple criteria and contexts for conceptualising smart cities including smart technology, smart people and intelligent collaboration (Smith et al., 2022; Meijer & Bolívar, 2016). This research also found that some gaps exist to

harmonise smart technology, smart people and smart collaboration in Uganda (Smith et al., 2022; Meijer & Bolívar, 2016). Unless these concepts of smart city development and PPPs are well appreciated in the country, the latter's contribution to the former will remain minimal (Smith et al., 2022).

This research found out that PPPs do play a critical role in promoting responsible urbanisation in Uganda. For instance, the National Land Information System (NLIS) has made a profound contribution to the improvement of service delivery across the land sector with a substantial reduction in the time required for land transactions, minimisation of opportunities for corruption, increase in accountability and strengthening of tenure security.

This study also found out that weak financing, technical know-how, and innovation exist on the side of the private sector to complement the public sector efforts. In addition, there needs to be a higher level of understanding, such as minimising carbon dioxide emissions, accelerating the economy, and advancing industries on the part of the private sector to foster smart city PPPs for smart city development in Uganda.

As demonstrated under the results section of this paper, there are many partners that are working with the government of Uganda to strengthen PPPs in the context of smart city development. These partners include The Green Global Growth Institute (GGGI), The European Union (E.U.), The United Nations Development Programme, the government of Sweden, Norway and other EU countries. According to the scope and findings of this study most of the support targeting smart city development is in the area of smart governance for instance the support to the National Land Information System under the Uganda's Ministry of Lands, Housing, and Urban Development, smart living through funding intelligent growth efforts in Uganda through the Smart Climate Fund, the Global Environment Facility and other international windows for an intelligent economy.

8. Conclusions

Based on the results of this study, it is justifiable to conclude that PPPs have played an essential role in promoting responsible urbanisation in different parts of the world, including Uganda. Another conclusion drawn from this study is that the current status of PPP in the context of smart city developments in Uganda still needs to improve. According to this study, this low level of smart public private partnerships (PPPs) was due to many factors, such as the inability of the private sector to participate in public sector activities like the management of the country's natural ecosystems, such as wetlands.

Therefore, from a policy perspective, considering the performance of systematic studies on PPPs and smart city development in Africa, there is a need for more systematic studies on PPPs and smart city development in Africa. This study recommends that empirically exploring the contribution of PPPs to smart city development in African contexts as a whole and the Ugandan context in particular is imperative.

9. Recommendations

The current study recommends sustainably raising agricultural productivity and supporting effective management and preservation of natural capital. This recommendation will enable Uganda and Africa benefit from breaking barriers to adopting innovations to improve climate resilience and managing land and natural resources to enhance opportunities. One mechanism of achieving agricultural productivity could be through prioritising investments in research and development, extension, and climate services to optimise farmers' and non-state actors' access to knowledge value chains has excellent potential to enhance Uganda's smart city development agenda. A further systematic study into ensuring that intelligent growth does not harm the poorest communities could be enormously impactful. It is also worthwhile to note that investment in the above areas is envisaged to generate the following outcomes for the country: jobs, low emissions growth trajectory with a focus on climate change mitigation and adaptation, increased incomes and economic gains and opportunities for all, sustainable biodiversity and ecosystem management, food and nutritional security, resource use efficiency and social inclusiveness. There is also a need to strengthen the link between national, local, and community-based organisations to close the gap between policy implementation and market access for diverse agriculture and natural resource-based commodities that provide opportunities for inclusion and value addition without exerting pressure on natural resources. There is also a need to strengthen political frameworks. So far, most progress in pushing smart growth in Africa has come from strong political will and leadership. Understanding what governance model allows such arrangements to work is a crucial research challenge. Some deep-rooted laws and behaviours also need to be modernised. Considering there is currently a large gap between the rich and poor in Uganda, there is a need to urgently promote inclusive urban development since smart growth emphasizes equity and social inclusion. For example, cooking and farming initiatives directly benefit poorer communities, environmental initiatives are often at odds with social ones, and corruption in government and private sectors is an issue.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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