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Living As Citizen in Smart City: A Literature Review on Strengthening Community Involvement

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Abstract

The idea of smart cities has gained traction recently. It has attracted much attention from administrators, legislators, urban planners, and others in response to the complicated problems caused by unparalleled urbanization. However, public participation or citizen engagement is essential in the smart city concept to achieve the goals optimally. This research will primarily focus on several methodologically crafted problem sets to produce thorough analytical results. They ask how the notion of "smart cities" fits into the bigger picture of how citizen engagement in green cities affects Indonesia's green economy and ultimately, how well Indonesia's smart cities align with the 1945 Constitution. This study looks at smart city-based policies from the perspectives of participation, economy, and constitution, which is different from previous studies. The findings indicate that several smart city programs and regulations still rely on local government policies, which means that residents' rights are not allocated fairly. The construct is significant in developing ecologically sound entrepreneurship through initiatives to promote interest in community participation through green entrepreneurship orientation. The smart city concept is a means of achieving the success of community engagement in promoting a green economy and constitution.

Keywords: *Citizen; Constitution; Enterpreneurship Public Participation; Smart City.*

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Introduction

A selection of cities have developed and implemented policies in the last few years to become "smart cities". Cardullo & Kitchin, (2019) City administrations, frequently in collaboration with businesses, have adopted a variety of networked technologies to mediate the management of city services and regulate city life (Kamal et al., 2022) (e.g., city operating systems, urban control rooms, coordinated emergency management response systems, intelligent transport systems, smart grids, smart lighting, sensor networks, etc.). These have been complemented by several initiatives and services developed and provided by businesses and civic organizations, such as mobile/locative media and the sharing economy, which uses digital platforms to connect dispersed groups of people for more effective use of resources (e.g., digital platforms) (El Barachi et al., 2022).

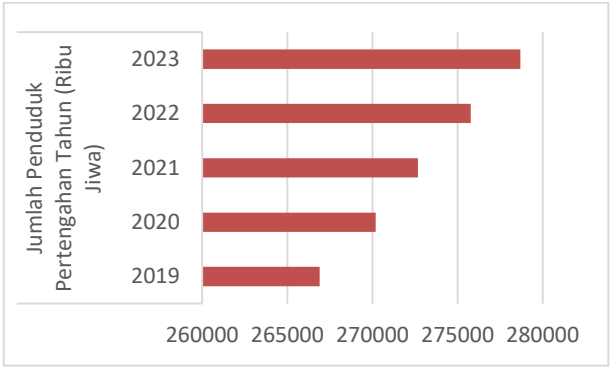
There are certain obstacles in smart cities. According to a UN report titled "World Population Prospects 2021", (Kementerian PPN/Bappenas, 2020) the world's population might increase to roughly 9.7 billion by 2050, 10.9 billion by 2100, and 8.5 billion by 2030(Adisa et al., 2024). the world's population lives in urban areas, with 3 billion predicted to do so by 2030 (Adisa et al., 2024). This information was previously recorded by the UN in 2020. Despite making up only 2% of the planet's surface, metropolitan areas are home to 50% of all people on Earth, account for 75% of global energy use, and contribute 80% of the global

warming effect on the warming planet. In light of Based on these data, cities have developed into hubs of social interaction and culture (Zhu & Alamsyah, 2022).

Nevertheless, the growing burden in cities is a result of population increase and migration. A decrease in the quality of public services, infrastructure, amenities, traffic congestion, and the environment are only a few of the urban issues that population increase has brought (Jha & Iqbal, 2020). These issues are all interconnected surroundings, all of which have a connection to poverty and other social issues with societal issues such as poverty issues (El Barachi et al., 2022).

The smart city concept, which is intended to address urban issues (Trencher, 2019), is one of the solutions that have been put up to speak to the issues of urbanization, sustainability, and potential solutions to urban problems that take the environment into account context (Kamal et al., 2022). Through smart living, smart environment, utilities, smart economics, smart mobility, and smart society, a smart city seeks to enhance the quality of life for its inhabitants (Brinkerhoff & Wetterberg, 2016). Smart infrastructure, smart buildings, smart energy, smart healthcare, smart technology, smart citizens, and smart governance were added to the list (El Barachi et al., 2022). It is commonly acknowledged that the idea uses state-of-the-art technology to solve the problem.

Indonesia, one of the world's most populated nations, is not exempt from problems of urbanization. The process of population concentration at specific geographic locations, particularly in metropolitan areas, is sometimes referred to as urbanization, particularly in cities. The Central Bureau of Statistics in Indonesia, in 2022 findings were made public by the Central Bureau of Statistics (BPS) in January 2023 (Zhu & Alamsyah, 2022). In September 2022, 275.020 million people were living in Indonesia, up 32.56 million from the 2010 demographic survey. According to BPS estimates, by 2045, this figure will have increased to 311.6 million.



Graphic 1. Indonesia's Population Growth

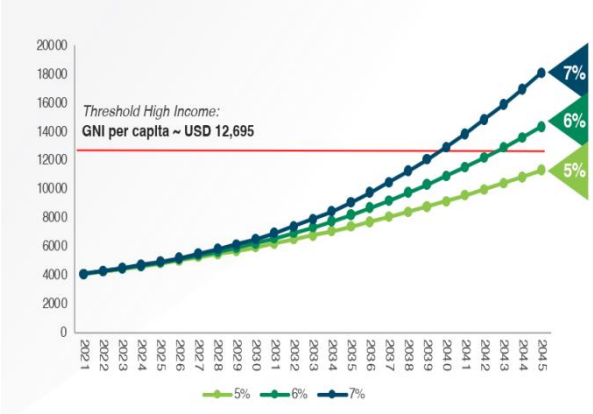
As the country's population grows older, urbanization becomes a more significant portion of it. Indonesia's urban population in 2022 is expected to reach 27,520,000, accounting for 55.8% of the country's overall population of 270.6 million, according to World Meter. To reach 280,600 thousand individuals, this domination grew by 0.7% from the year prior. It'santicipated that by 2035, this ratio will rise to 66.6 percent. Undoubtedly, the above-described conditions of excessive urbanization present unique difficulties.

Overcrowding will lead to issues in the displaced villages as well as the destination cities, such as a rise in the population of impoverished individuals living in slums and an increase in urban crime. To address this issue, the government introduced the smart city method, which aims to address the challenges faced by contemporary cities. Conversely, the notion of a smart city is regarded as a duty. On the other hand, the idea of a smart city is viewed as a way for the state to uphold citizens' rights. In granting residents' rights to high-quality services and a safe environment.

Literature Review and Research Focus

The idea of a "green constitution" has already surfaced as a new route in addition to the idea of smart cities for national development strategies across multiple nations throughout several nations (Kamal et al., 2022). The phrase "green constitution" first came into use in the 1970s to refer to the way that constitutionalism and the ideas of sustainable development and environmental preservation interact. Upon initial observation, there seems to be a connection between the notion of green constitution and smart cities, namely with the shared objective of attaining environmentally sustainable development. The concept of a "green constitution" mandates that all policies of the government, particularly those about urban development, must be compliant with the constitutional provisions that protect the human right to a healthy and safe environment and wholesome surroundings (Adisa et al., 2024).

Joining the P4G in 2019, Indonesia demonstrated its commitment to the green economy. According to this, Indonesia is dedicated to green growth, as evidenced by its leadership during the G-20 presidency in 2022. To inspire the younger generation to constantly choose green economic growth in their business endeavors, this style of thinking is a commitment to global recovery and sustainability. Vision 2045 for Indonesia declared with confidence that Indonesia will reach a high economic status by 2036 exceeding the USD 12,695 Gross National Income (GNI) per capita level (Department of Development Planning, 2019), (World Bank, 2021). Since the COVID-19 epidemic, the situation has evolved (Kementerian PPN/Bappenas, 2020).



Graphics 2. Projection of GNI per Capita (USD/capita, Atlas Method)

The situation has evolved since the COVID-19 epidemic. Picture 2 shows a Growth projection for Indonesia under several post-COVID scenarios. For Indonesia to achieve a 6% annual economic growth is needed to propel the nation from a middle-income to a high-income status by 2045 (R., Kamurnian Tafonao, Artha Lumban Tobing, 2023). Indonesia must undergo a structural transformation to move its economy from one with a lower to one with a higher level of productivity to accomplish this aim. To recover from the COVID-19 crisis and accelerate the trajectory of greater growth in the medium- to long-term, this structural reform is being done within the framework of economic transformation (Anindra et al., 2018).

According to the above description, this research will primarily focus on a few issues. Formulation of problems is established methodologically to produce thorough and long-lasting analysis results. The issue statement asks how the idea of a "smart city" fits into the larger picture how community involvement in green cities affects Indonesia's green economy and finally, how well Indonesian smart cities align with the Republic of Indonesia's 1945 Constitution. This study looks at smart city-based policies from the perspectives of participation, economy, and constitution, which is different from past studies. Employing the methodology of "Constitution and Green Economy". Offers fresh viewpoints and insights into constitutional law in general as well as the field of public policy research and the idea of

smart cities specifically. In light of this, it is worthwhile to investigate Indonesia's policies on smart cities, particularly as they relate to the notions of a green economy and constitution.

Method

In A critical assessment of the methods and strategies employed to ensure that public engagement in urban local government is successful has been conducted through a review of the literature. Both direct and indirect involvement tools have a rich history of research (Frederickson, 2018). Aides to public engagement are merely beliefs and are therefore illusory. The selection of instruments for planning goals and the local authorities' plans to include local communities in the planning process will determine the participation strategies. As demonstrated by earlier studies, smart governance is dominating.

Picture 1. Results from Reviewing Some Articles

Title	Result of Research
Empowering Smart Cities Through Community Participation a Literature Review	The paper facilitates a review of literature from varied research fields to understand the role of community participation in a smart-city context and to identify the different tools and techniques, that empower people to participate in city governance to make it smart
Defining Smart City, Smart Region, Smart Village, and Technopolis as an Innovative Concept in Indonesia's Urban	Indonesia's unique conditions require a specific definition of smartness that represents Indonesian conditions, such as the will of the people, history, culture, impact of technology, and so on.
How are citizens involved in smart cities? Analysing Citizen Participation in Japanese "Smart Communities"	Drawing on analysis of official documents as well as on interviews with each of the four Smart Communities' stakeholders, the paper explains that very little input is expected from Japanese citizens. Instead, ICTs are used by municipalities and electric utilities to steer project participants and to change their behavior.

	The objective of Smart Communities would not be to involve citizens in city governance, but rather to make them participate in the co-production of public services, mainly energy production and distribution.
Smart City Implementation Modeling in Indonesia	The implementation of smart cities in Indonesia still has big challenges, so breakthroughs are needed, one of which can use "platform integration."
Smart City Policy in Indonesia: An Overview from the Green Constitution's Perspective	The smart city concept is consistent with the rights enshrined in Indonesia's green constitution, but policies continue to rely on local government initiative and discretion, resulting in citizens' rights not being placed proportionally
Being a 'citizen' in the Smart City: up and down the scaffold of Smart Citizen Participation in Dublin, Ireland	This article investigates the role of public participation in decision-making, transforming the same into a smart city in the real sense. The article also highlights the adaptable tools and techniques for effective public participation and the limitations of this approach in the existing planning machinery in India.
Green Economy Index: A Step Forward To Measure The Progress Of Low Carbon & Green Economy In Indonesia	The index is built based on various indicators that have leverageto sustainable development in Indonesia, based on the Indonesian Green Economy model, indicated by strong economic growth, supporting environmental protection and social inclusion

Table 1. Results from Earlier Research

According to the methodology of the study, data was gathered through a review of the literature, which included documents such as proceedings, publications, previous research findings, the Indonesian constitution, and books. After that, the data were presented and subjected to descriptive and qualitative.

Results and Discussion

The smart city concept consists of three main dimensions, namely technology, people, and institutions. Smart city participation is realized through one of its dimensions, namely institutions. Institutions are government governance to increase institutional roles, participation, and community involvement. This dimension consists of supporting elements such as government, policies, and regulations. However, in realizing a participatory smart city, encouraging institutional factors alone is not enough, a combination of these three dimensions must be utilized to create community participation as expected. Institutional factors alone will not be able to work alone if they are not supported and strengthened by

other factors, namely humans and technology. In particular, the concept that describes the strengthening of institutional factors is smart community (Arafah & Winarso, 2020).

Governments in developed countries have moved towards a democratic and participatory government model. The community is given freedom and space to participate in the process and determination of government policies. Participatory governance provides opportunities for people to become aware of the problems they face and the potential they have. So that in the future it is hoped that development can touch society more, development will become more effective and efficient in utilizing its resources, society will be more responsible for development and utilization of development results, society can learn through the development process, create solidarity in society, and form the characteristics of an independent society. and able to decide things that affect their future (Parwoto (1997) Arafah & Winarso (2020).

Development will be more successful if the community has and creates a commitment to participate as development actors and is supported by community members who can serve as role models, directors, mentors, and motivators. Therefore, citizen participation is needed because they are the implementers of various existing development activities. In addition, through community participation, conditions, and situations can be created that are better, fairer, more involved, and full of consideration and responsibility. There are three dimensions of direct participation which are important factors in the participatory government model, namely: 1) participating parties, which can be done openly for community members who want to be involved, while other processes can also involve representative interested parties; 2) participation that creates a result or decision, rather than just building communication, generally participants are only listeners and do not take part in making certain decisions; 3) there is a relationship between discussions, public activities and policies (Fung (2006) in Maryani & Eka (2023).

When viewed in the context of a smart city, the participation required starts from a passive form to approaching the ideal or perfect form of participation. Three forms of participation characteristics are considered appropriate to the smart city context, namely informative participation, participation that only involves the public answering questions, but does not have the opportunity to be involved and influence the decision process. In interactive participation, the community plays a role in the analysis process for planning activities, and forming or strengthening institutions, the community also plays a role in controlling the implementation of their decisions, so that they have a share in the entire activity process. The last is a form of independent participation (self-mobilization), the community takes its initiative freely (not influenced by outside parties) to change the system or values that they uphold, the community also holds control over the use and/or use of existing resources (Prety, J. in Maryani & Eka, 2023).

Community Participation in the Smart City Context

Based on survey results from the Smart City Index (SCI), there are three Indonesian cities included in the Smart City Index list, namely Jakarta, Medan, and Makassar. These cities claim that their cities have implemented the smart city concept but it is not yet certain whether this is to the actual vision and mission of a smart city. Likewise with city residents, whether there is equality and justice in accessing and using ICT for all levels of society, and whether the community is involved and participates in it. This is a challenge in itself in developing and implementing the smart city concept.

It is hoped that the existence of a smart city can increase community participation in utilizing applications to easily provide input and criticism to the government. In Indonesia, several programs created to increase community participation have not been effective; this

could be caused by several things, but more importantly due to a lack of outreach to the community.

Jakarta, Surabaya, Tangerang, Malang, and other big cities have implemented the e-Musrenbang program. Musrenbang stands for Development Planning Deliberation. By Law number 25 of 2004 concerning the National Development Planning System, Musrenbang is a forum between actors to prepare National development plans and Regional development plans.

Based on research conducted, researchers found that the level of community participation in the village musrenbangdes in Sekura Village is still low. Only 72 (48%) of the community members attended, while those who did not attend were 78 (52%). Residents who attended also tended to minimally contribute ideas about village development (Maryani & Eka, 2023). Apart from that, research conducted where the results of the study focus on analyzing the problems that cause the low level of participation of the Surabaya community in several areas. Some of the problems include the lack of socialization and education about the E-Musrenbang program, not all people having access to the Internet, the E-Musrenbang system being considered complicated and difficult to use by most ordinary people, and finally the lack of public trust in the government (Ramadani et al., 2024).

From the case above, it can be seen that based on the objectives of holding e-Musrenbang, its implementation has not met expectations. The opportunity for the community to assist has not been fully channeled due to the lack of community awareness and ability regarding the use of e-musrenbang. On the other hand, some proposals are only given to certain parties, such as elites at the RW or sub-district level. So it is then necessary to strengthen the concept of smart communities, groups that can provide aspirations are expected to be able to become representatives of the community in representing and representing their groups, so that they can convey aspirations in a supportive atmosphere. By strengthening the concept of smart communities, it can be ensured that the voice of society from the lowest level can be present and can later influence policies in the city development processFrom the case above, it can be seen that based on the objectives of holding e-Musrenbang, its implementation has not met expectations. The opportunity for the community to assist has not been fully channeled due to the lack of community awareness and ability regarding the use of e-musrenbang. On the other hand, some proposals are only given to certain parties, such as elites at the RW or sub-district level. So it is then necessary to strengthen the concept of smart communities, groups that can provide aspirations are expected to be able to become representatives of the community in representing and representing their groups, so that they can convey aspirations in a supportive atmosphere. By strengthening the concept of smart communities, it can be ensured that the voice of society from the lowest level can be present and can later influence policies in the city development process.

Apart from e-Musrenbang, in Badung Regency there is The Public Complaints Information System Application (SIDUMAS) which is an online-based community aspirations service innovation developed by the Badung Regency Communications and Information Service. Furthermore, there is the SP4N-LAPOR application which can be used by the public to express aspirations and complaints directly online. This application has been implemented in several areas in West Java, South Sumatra, South Kalimantan, and East Java. Then, there is also the Adminduk application released by the Population and Civil Registration Service under the name Dukcapil Smart application.

The programs launched by the city government were created to capture the aspirations of city residents, but it is not yet certain whether these hopes can be realized and can reach all levels of society, especially the lowest groups of society who are generally the poor who are most entitled to receive services and participate fully.

The Republic of Indonesia's 1945 Constitution and the Green Constitution's Reference to Smart Cities

Based on clause 31 paragraphs 5 of the 1945 Constitution, the 4th amendment, the government is mandated to advance science and technology by supporting religious values and national unity for the sake of the advancement of civilization and the welfare of mankind. This formulation aims for the government to play an active role in advancing science and technology, while still upholding religious values and strengthening national unity.

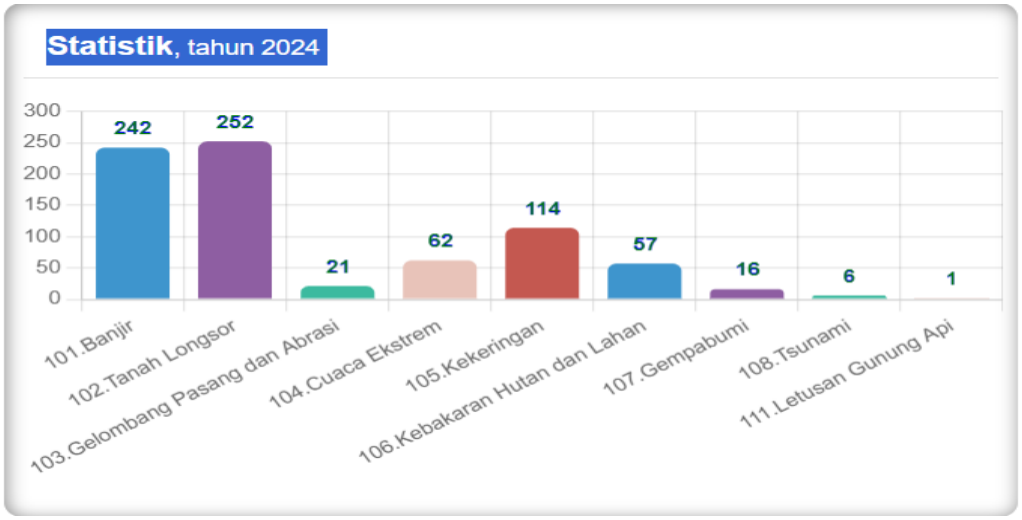
The application of the Smart City concept in an area is focused on the use of technology to provide solutions to various regional problems. The use of this technology is regulated in clause 31 of the 1945 Constitution, which directs that technology is the result of the application of human knowledge. This means emphasizing that science is the basis for creating tools that are useful for humans. This concept is not only supported by the 1945 Constitution but is also regulated in Law Number 18 of 2002.

Clause 31 paragraphs 5 of the 1945 Constitution were strengthened by Law Number 18 of 2002 concerning the National System for Research, Development, and Application of Science and Technology. Clause 4 of the law states that this system aims to strengthen science and technology support to accelerate the achievement of state goals, as well as increase competitiveness and independence in the international context. Clause 14 also allows the government, regional governments, and business entities to build science and technology facilities to facilitate institutional growth and foster a culture of science in society. In addition, Clause 20 paragraphs 1 and 2 emphasize the role of regional governments in developing science and technology policies and infrastructure in their regions, which are an integral part of the National System of Research, Development, and Application of Science and Technology.

The absence of national and integrated policies is one of the reasons why Indonesia's efforts to develop smart cities are still inefficient and do not fulfill sustainable standards. Indonesia has not yet had clear-cut legal frameworks to govern smart city development challenges, particularly about standards, requirements, and implementation guidance. For instance, the Ministry of Communication and Informatics' publication "Guidelines for Developing a Smart City Master Plan through the 100 Smart City Movements in Indonesia" is the only source of current smart city-based development guidelines. The fact that this book is a tool only for local governments to utilize in the design, execution, oversight, and assessment of smart city-based city and district development is also made clear.

Engaging in Green Economy-Based Green Entrepreneurship

In the last two decades, the impacts of environmental degradation, global warming, and climate change have increased and are increasingly worrying. This has had a significant negative impact on human life, such as tidal floods, air, water, and land pollution, as well as other extreme weather phenomena that occur in various parts of the world, including Indonesia. This situation shows that this change is caused by environmental damage which is increasingly widespread in many countries, including Indonesia. Based on the official Indonesian Disaster Information Data (DIBI) website, during 2024 (January to June) there have been 728 disasters in Indonesia (Badan Nasional Penanggulangan Bencana, 2018).



Picture 2. Disaster statistics in Indonesia for the period January-June 2024

In Indonesia, many economic development activities depend on the use of abundant natural resources such as oil, natural gas, coal, tin, and gold. So the priority of environmental protection and preservation is often neglected, causing various problems such as water and air pollution, land damage, forest fires, and changes in the function of agricultural land. This situation ultimately results in a decrease in the productivity of natural resources and the environment, which has an impact on poverty among people who depend on these natural resources.

Several parties blame development strategies and policies that are not environmentally friendly as the main cause of this environmental damage. Existing regulations often prioritize achieving economic goals over environmental interests and community welfare. As a result, natural resources and the environment are often overexploited to achieve economic growth and profit alone. Although economic growth and corporate and state profits continue to increase, the escalation of social and environmental crises is also increasing. This is often referred to as the "economic growth paradox", which arises due to greedy economic behavior. At the same time, the ideal point of economic growth that should reduce social and environmental crises is often not achieved (Friskila Angela, 2023).

For example, the Bangka Belitung Islands Province continues to carry out development in various sectors with economic growth as the main indicator. However, the forestry and mining sectors, which are the main pillars of this province's GRDP, also contribute significantly to environmental damage. In 2019, around 30% of the total forest area was damaged due to illegal tin mining and deforestation. This has disrupted environmental sustainability and triggered disasters such as floods and drought.

Data from (Ardiansyah et al., 2019) shows that greenhouse gas emissions in Bangka Belitung Province are increasing from year to year, mainly due to peatland fires which often occur due to rapid development. Integration between economic development and the environment is crucial to overcome this challenge. Therefore, the government needs to encourage a green economic paradigm in natural resource management policies, to avoid environmental damage and ensure fair and sustainable management of natural resources.

From the problems that arise above, it is important to implement a green economy based on green entrepreneurship. This is done to create sustainable economic growth while considering the positive impact on the environment and society. There are several views from experts regarding the importance of a green economy based on green entrepreneurship:

1. Focus on Sustainability, where Green entrepreneurship places environmental sustainability as a top priority in every stage of the business, from planning to operations. This includes efficient use of natural resources, reduction of carbon emissions, and environmentally friendly waste management.
2. Technological Innovation, green business encourages technological innovation to develop new solutions to support sustainability. This includes renewable energy technologies, recycled materials, and other high-tech solutions that help address global environmental challenges such as global warming and climate change.
3. Opening Market Opportunities, green entrepreneurship opens up new market opportunities that are growing rapidly. Consumers are increasingly choosing environmentally friendly products and services, driving the growth of businesses that focus on sustainability and provide added economic value.
4. Economic Resilience, In the context of economic resilience, the green economy contributes to broader and more stable economic diversification. Green businesses tend to be more resilient to fluctuations in natural resource prices and changes in environmental regulations, reducing long-term economic risks.
5. Poverty Alleviation, green entrepreneurship also has the potential to reduce poverty by creating new jobs in sectors such as renewable energy, sustainable agriculture, and sustainable management of natural resources.
6. Compliance with Regulations, Green entrepreneurship is often easier to adapt to increasingly strict environmental regulations in many countries. This helps companies avoid legal sanctions and build a good reputation for environmental compliance.
7. Reputation and Social Responsibility, Business experts admit that companies operating in the green economy are often rated higher in terms of social and environmental responsibility. This builds a positive reputation among consumers and the general public, which in turn supports long-term business growth.

Thus, a green economy based on green entrepreneurship not only changes the business paradigm towards sustainability but also creates opportunities to achieve inclusive and sustainable economic growth throughout the world. This approach is considered crucial in facing global environmental challenges and building a more sustainable future for future generations.

Conclusion

Several cities in Indonesia have only implemented one or a few aspects of the smart city. Due to a lack of understanding among local governments, technology-based innovations such as e-government monopolize the smart city image, causing it to be unsustainable. Smart city policies focus solely on the limited use of technology, ignoring other dimensions such as a smart environment, and a smart economy. As a result, existing policies have not been able to transform urban areas into "green cities" (eco-cities) and fulfill citizens' constitutional rights to a healthy environment, as mandated by the Republic of Indonesia's 1945 Constitution as a "green constitution". Based on the Indonesian Green Economy model, indicated by strong economic growth, supporting environmental protection and social inclusion.

The existing literature interprets the relationship between different perceptions and existing works and highlights significant contributions in related fields. In the process of reviewing the literature, gaps in previous research have been identified. It can be concluded that the findings show that some smart city programs and regulations are still dependent on local government policies, which means citizens' rights are not allocated fairly. This construct is significant in developing environmentally sound entrepreneurship through initiatives to encourage interest in community participation through green entrepreneurship orientation. The use of the smart city concept is a means to achieve successful community engagement in promoting a green economy and a green constitution.

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