Urban Areas in Indonesia: How Does Smart Living is Implemented?

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Abstract

This study aims to analyze how the implementation of smart living in urban areas in Indonesia. Because Indonesia is included in the ten countries with the fastest urbanization growth in 2014, where urbanization growth is also accompanied by the emergence of various complex problems in urban areas. A mature urban strategy is needed to minimize the occurrence of various problems such as environmental crises, social problems, and irregular urban planning due to rapid urbanization. One of these problems can be overcome by implementing smart living, where the city provides comfort in terms of the environment, sustainable resources, physical, and non-physical beauty, visual or not, for the community and the public. The measurement of the implementation of smart living in urban areas is seen from several indicators such as cultural facilities, health conditions, individual safety, housing quality, educational facilities, touristic, and social cohesion. This study uses qualitative research with data analysis using Nvivo 12 Plus and VOSviewer software. The data sources that the author uses are journals obtained from Scopus which are then downloaded in RIS format and processed using VOSviewer and Nvivo 12 Plus. The results of this study indicate that in implementing smart living in urban Indonesia, the security guarantee indicator has not been able to be fulfilled and has the lowest percentage compared to other indicators. Meanwhile, the indicators that have been able to be fulfilled and have the highest percentage are health service facilities.

Keywords: development; smart living; urban

1. Introduction

Globally, urban regions have a larger population density than rural ones, with 55 percent of the world's population living in urban areas in 2018. In 1950, fewer than 30 percent of the world's population resided in cities. Urbanization is projected to account for 68 percent of the world's population by 2050 (Water, 2018). From 1950 to 2019, urbanization in Indonesia rose from 19.13 percent to 55.99 percent. Surprisingly, the island of Java in Indonesia is seeing the most rapid urbanization increase. In 2015, 145 million people, or 57% of Indonesia's total population of 255.18 million, resided on the island of Java. Sumatra has the second-largest population, with 55.20 million people, or 22 percent. 21 percent of the population resides on Kalimantan, Sulawesi, and other islands. With an average density of 129.8 individuals per square kilometer in 2015, provincial population densities are likewise quite diverse. Java is the most densely inhabited island, with an average population density of 1,120.3 inhabitants per square kilometer, while Papua has the lowest density with 9.6 inhabitants per square kilometer. The second most populated locations are the islands of Bali and Nusa Tenggara, with a population density of 717.7 inhabitants per square kilometer in Bali and 192.8 inhabitants per square kilometer on average (Figure 1).

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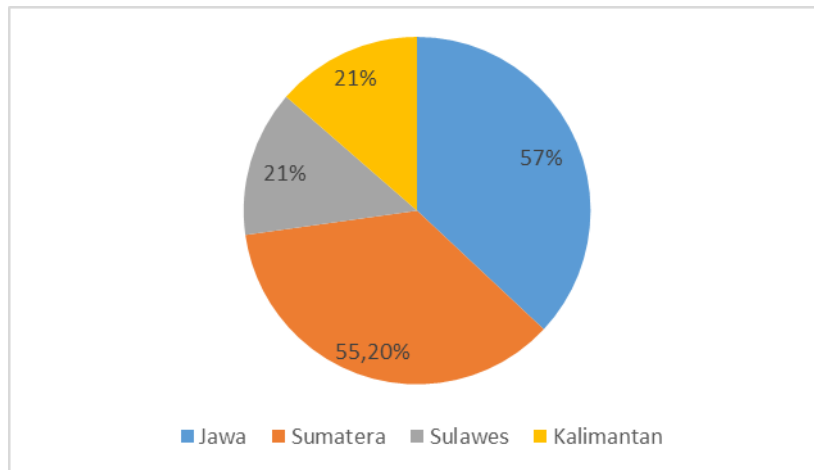Email: umikullsum.1997@gmail.com

Figure 1. Percentage of Urban Population in Indonesia

Rapid urbanization requires the increase of housing, social services, commercial land usage, and other forms of urban infrastructure. Lack of stringent enforcement of land use limits in metropolitan regions has led to urban sprawl, or the unregulated extension of urban areas into ecologically sensitive areas, agricultural fields, and other inappropriate development locations. In addition, deviation from present development plans exacerbates this issue. This state leads in several urbanization-related problems, including pollution, traffic congestion, urban drought, lessened city attractions/recreational areas, infrastructure deterioration, diminished social services, and decreasing green open space. This will ultimately result in a decline in the quality of urban living. Existence of conflicting land use issues persists, especially in places undergoing fast expansion due to strong demand for degraded land use. The existence of the illegal industry in the urban region has wrecked the ecosystem. Metropolitan land comprises just 2% of the total land surface on the planet, yet urban areas account for 60-80% of overall energy consumption and 75% of greenhouse gas emissions (Roseland, 1991).

The city must be prepared to address concerns such as resource shortages, the growth of slum settlements, waste and pollution problems, transportation congestion, and environmental deterioration due to its rising population density (Widyaningsih, 2013). Thus, we need a public policy that incorporates all government actions and inactions (Tsumagari & Ojha, 2021). In order for a policy to give considerable advantages to its population while avoiding damage, the government must take discretion while implementing it and analyze the reasons for its implementation and the benefits of cohabitation holistically.

A city is intelligent if it can give its citizens and tourists with a pleasant atmosphere, sustainable resources, and physical and non-physical visual and non-visual beauty (Cohen & Zarowin, 2010). Smart living is described as using information and communication technology (ICT) to fulfil market needs (city inhabitants), and community participation is essential for a smart city in this process (Utomo & Hariadi, 2016). This idea emphasizes public engagement and active citizenship in city administration via the use of a citizen-centric strategy, resulting in a more dynamic and intimate connection between residents and service providers (Hasibuan & Sulaiman, 2019), with assistance from the commercial sector (Wanto, 2018). And in accordance with all potential outcomes, situations, and circumstances in each region (Utomo & Hariadi, 2016). To accomplish intelligent living, security must be assured, education and health services must be readily available, and the function of the media must be augmented (Suranto et al., 2021). A "smart city" is one that is instrumented, interconnected, and intelligent (Harrison et al., 2010).

The purpose of smart living in a smart city is to provide a pleasant, comfortable, and efficient environment (Supriyantiwi et al., 2020). Smart living is the quality of life impacted by fundamental necessities, security and safety concerns, and the desire for ease and comfort (Ratnasari, 2020). The availability of potable water within a certain region (Setyowati et al., 2019). In addition to alternative replanting via vertical gardens (Jayanti et al., 2020), more sophisticated industrial and community waste management is necessary (Kamil et al., 2021; Saputro, 2019). Smart living also includes a welcoming environment, most notably by providing people with full access to public services, technological and social infrastructure, a high degree of security, a diversified cultural landscape, and a pleasant atmosphere. In Indonesian cities, over 338 innovations connected to smart cities have been created and implemented, but only 109 of these innovations have been recorded in the form of programs and websites that provide unique solutions to municipal issues (Hutama & Djunaedi, 2019). Consequently, this research will investigate the implementation of smart living in metropolitan regions of Indonesia by analyzing different indicators of smart living, such as cultural amenities, health conditions, individual safety, housing quality, educational facilities, tourism, and social cohesion.
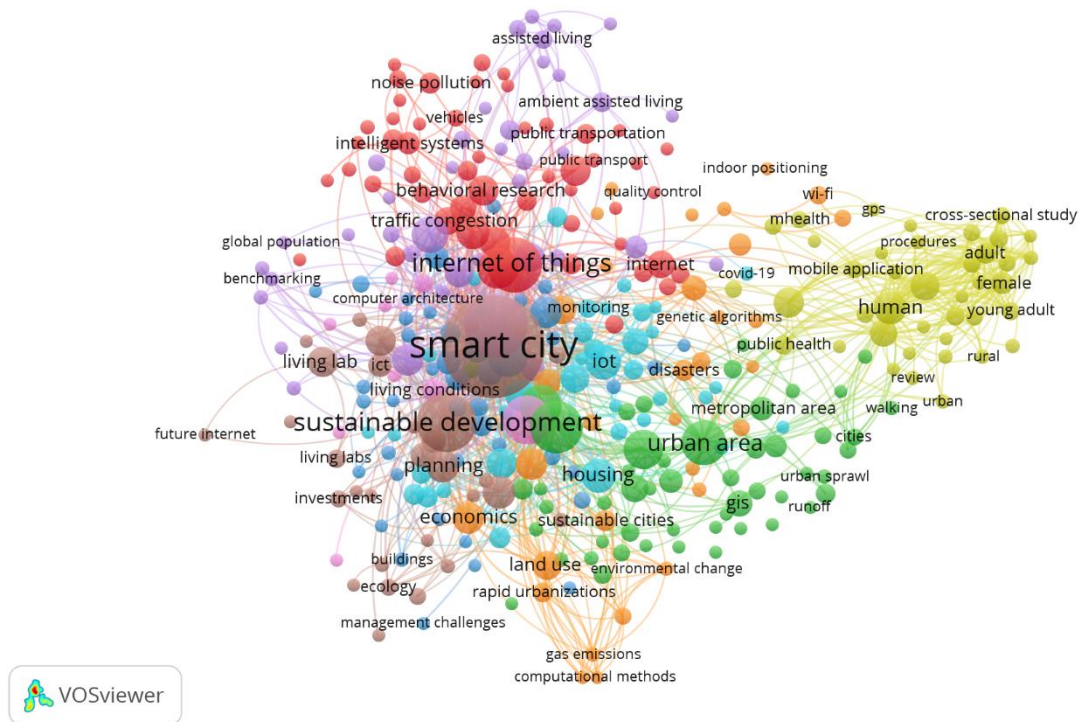
Figure 2. Nework Visualization of Smart Living Urban Area

Figure 2 shows the findings of Vosviewer, which generates nine clusters. The clusters are denoted by green, orange, red, blue, and yellow nodes. The image illustrates the intimate connection between intelligent living and sustainable growth. Urban area is a complex system with three significant notions (Tan et al., 2018): the first is a complex and complex system/problem, as urban areas are plagued by multiple environmental, population growth, and social issues. Second, cities have design, of course to find solutions, can be designed, and their behaviour is predictable and controllable, and third is co-evolution, in the sense that if an urban area needs to be altered, a single and simple 'solution' may not be sufficient and they may need a so-called 'supportive environment' to facilitate change. Thus, in this study, we discuss the problems that arise in urban settings, one of which may be resolved via the concept of smart living.

The following aspects must be considered for urban living to be intelligent (Cohen, 2013; Kassim et al., 2019): (1) Cultural facilities, notably the presence of a facility in the metropolitan area for exploring the region's potentials that is charming and has become a region's signature. (2) Health circumstances require that a city be able to provide services and amenities connected to healthy environmental conditions in the region, such as the availability and satisfaction of the requirement for clean water and pollution-free air for the area's population. Individual safety is a state of mind in which individuals of a community feel comfortable in their surroundings, for example, safe from acts of harassment aimed at women, safe from a joke, or safe from any other threat. (4) Housing quality refers to the environmental quality of an area that allows it to be utilized as a safe place to live, such as excellent environmental quality and the capacity to absorb water to prevent floods in the region. This includes formal and informal education that adds to the quality of the community. Tourism is an endeavour to attract more tourists in order to develop a region as a travel destination. (7) Social cohesiveness, when the community has a vested interest in the success of all development activities in their region.

The problems of urban community life which are currently a hot topic for study and improvement, especially in metropolitan areas. Because the comfort of people's homes is a basic right that the government must be able to fulfil for its people. How the government regulates and rearranges their urban areas which are no longer in balance between the population and the availability of land in urban areas which also has an impact on other problems that arise in urban areas. So, the presence of the concept of smart living is one of the answers to the problems regarding the feasibility of life in urban communities which should be addressed. Thus, this paper will explain and try to analyze the implementation of smart living in urban areas in Indonesia.

2. Research Methods

This research adopts qualitative method. This study attempts to examine and grasp a central phenomenon via the use of software by identifying problems, reviewing relevant literature, setting research goals and objectives, collecting data, analyzing, and generating reports (Creswell, 2008). VOSviewer and Nvivo 12 Plus are bundled. The researcher identifies concerns important to the topic at hand, namely the

Indonesian government's development plan for urban sustainability, before conducting literature studies on the topic from numerous articles, international journals, national journals, books, and related documents. The third step, in which researchers must establish the research's aims and objectives, include determining the Indonesian government's urban sustainability development strategy. In addition, the researchers collected data from a range of worldwide papers available through Scopus and processed it using Nvivo 12 Plus and VOSviewer in order to respond, explain, and evaluate the data. After completing the investigation's series or stages, the researcher reported the findings in a journal-style outcomes report. Figure 3 showcases the research stages.
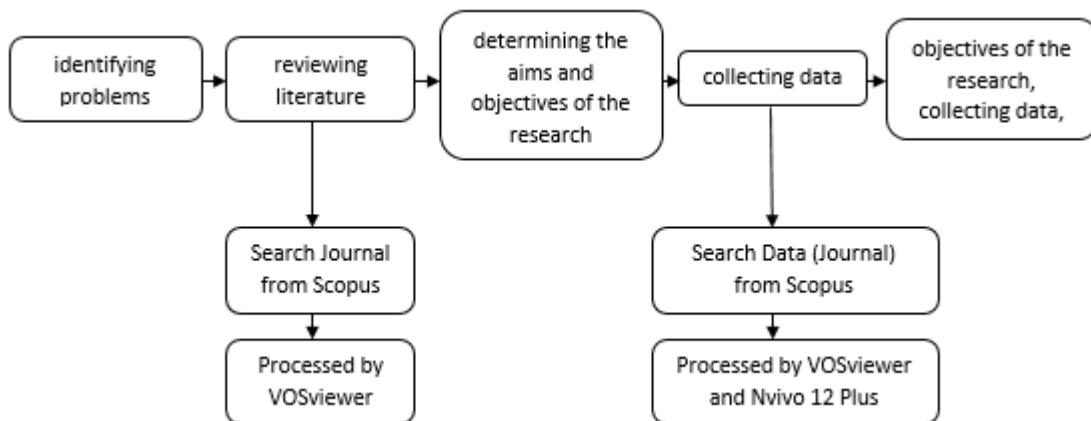

Figure 3. Research Stages

3. Result and Discussion

Urban areas are currently a favourite area for people who want to improve their lives, especially in terms of economy. Because cities are considered as places that can provide jobs and opportunities to make more money than in the countryside or their initial residence. However, due to the lack of readiness to face the urbanization trend, cities in Indonesia are faced with various problems that must be faced. These problems are more directed towards the sustainability of urban life (see Figure 4). Figure 4 shows that "living" is one of the main problems in urban areas and a careful planning and development is needed so that cities can realize the smart living concept. Figure 5 is the result of the data processing using Nvivo 12 Plus, where these concepts are concepts related to urban areas in Indonesia. Realizing smart urban living in Indonesia is closely related to the existence of technology, environment, people, government, event, and development that are interconnected to achieve smart living in urban areas. These components are parameters in creating a decent and comfortable life for urban communities in Indonesia.

Figure 4. Word Cloud of Smart Living in Urban Area (Processed by Nvivo 12 Plus, 2022)

How is Smart Living Implemented in Indonesia?

The author uses 10 indicators in analyzing and seeing how the implementation of smart living in Indonesia. Based on Figure 5, it can be seen that the provision of health facilities is the highest component that is well available in Indonesia, then followed by industrial waste management, and household waste

management which has a small percentage difference. While the lowest is the security guarantee. The low security guarantee in Indonesian cities is indicated by the community's insecurity when they walk alone in public space (Figure 6). DKI Jakarta is the area that has the lowest percentage of the community's perceived safety when walking alone in public space. Because only 41.17% of the people feel safe when they walk alone in public space. Then followed by West Java, which is 52.01% of the people who feel safe when walking alone and Bali is the highest area with 81.32% of the people feeling safe when they walk alone in public space.
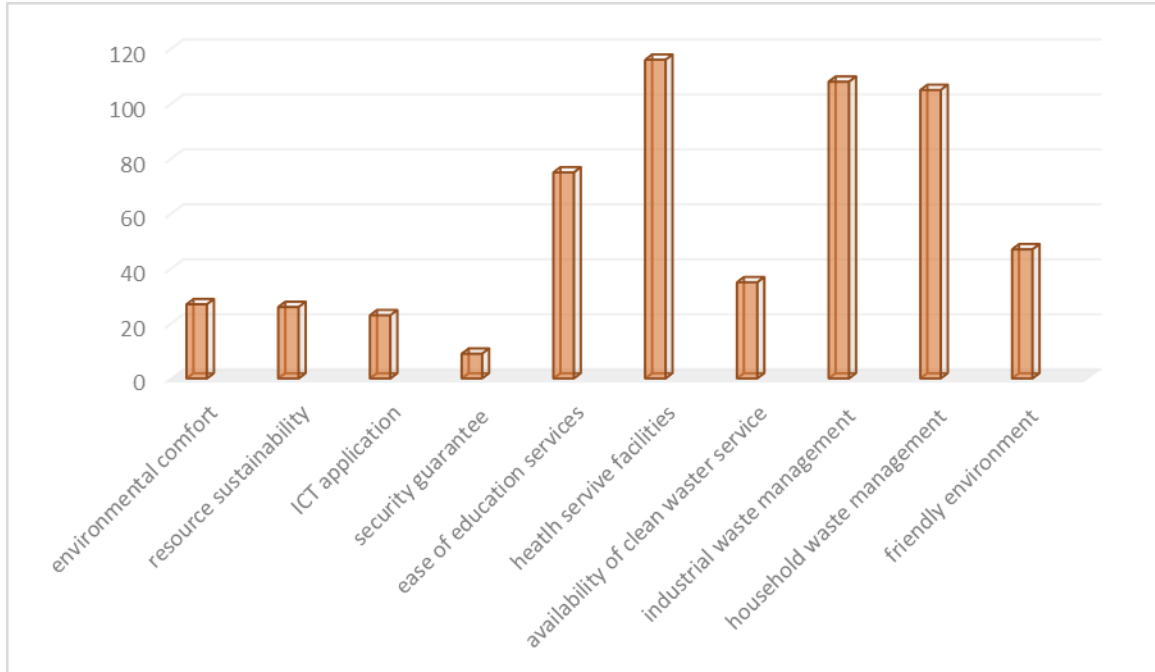

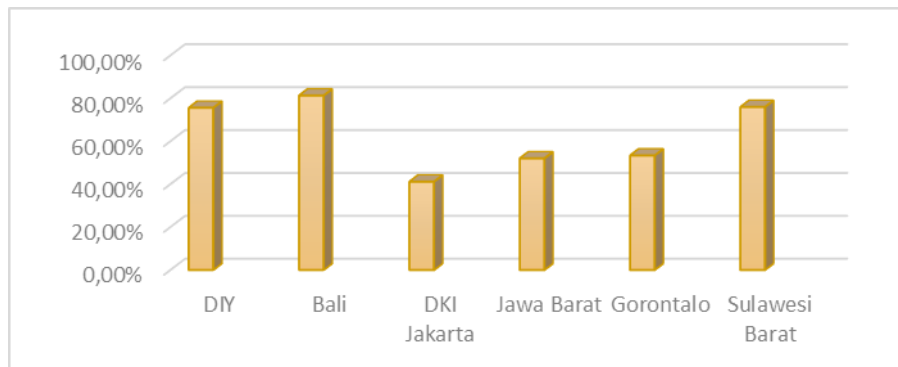*Figure 5. Indicators of Smart Living* (Processed by Nvivo 12 Plus, 2022)

Figure 6. Percentage of People Feel Safe Walking Alone in Public Space
Source: (Direktorat Statistik Ketahanan Sosial, 2021)

ICT application, which is still the second lowest indicator after security guarantee, as shown in Figure 5 shows that cities in Indonesia are still low in using ICT in their daily activities or activities, both the government and the people who use ICT. Urban areas in Indonesia, in 2016 only 35.86% applied ICT, and this percentage continues to grow from year to year (Figure 7).
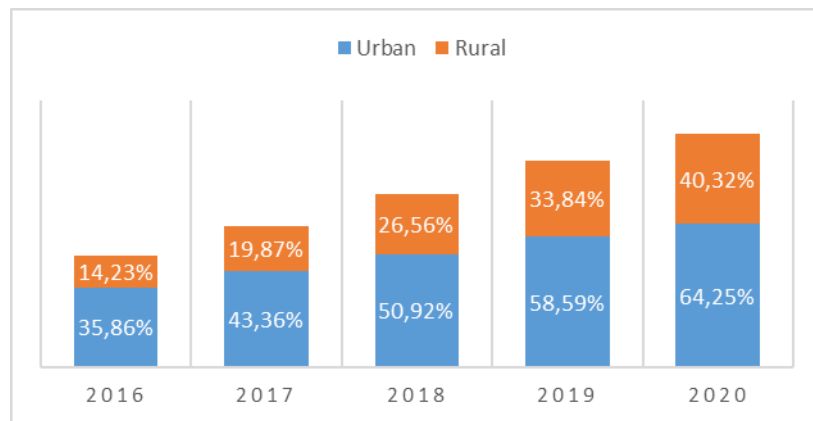
Figure 7. ICT Application in Indonesia
Source: (Badan Pusat Statistik, 2020)

The graph in Figure 7 shows that although urban areas have a higher percentage of ICT application than rural areas in Indonesia, the use of ICT is still relatively low in Indonesia, which in 2020 only reached 64.25% (Figure 7). In fact, to create smart living in urban areas, the application of ICT in the continuity of government and community activities depends on the progress of ICT. However, in fact in Indonesia, which is still 64.25%, and has not yet reached the maximum implementation of ICT, so that the implementation of smart living has not been able to reach its maximum in urban areas in Indonesia. Furthermore, environmental comfort and resource sustainability are still low in Indonesian cities. This can be seen from the high number of uninhabitable housings in urban areas. In 2017 the uninhabitable houses were 7.62%, slightly decreased in 2018 which was 7.42%. However, in 2019 there was a considerable increase, namely 13.86% of uninhabitable houses in Indonesian cities (Badan Pusat Statistik, 2019). The uninhabitable houses are houses that do not have access to proper drinking water resources, inadequate sanitation, and inadequate housing conditions. The condition of uninhabitable houses is accompanied by the unavailability of sufficient clean water for urban communities in Indonesia. It can be seen that the availability of clean water in urban areas which is still limited and has not been able to meet the needs of urban communities in Indonesia can be seen in Figure 8.
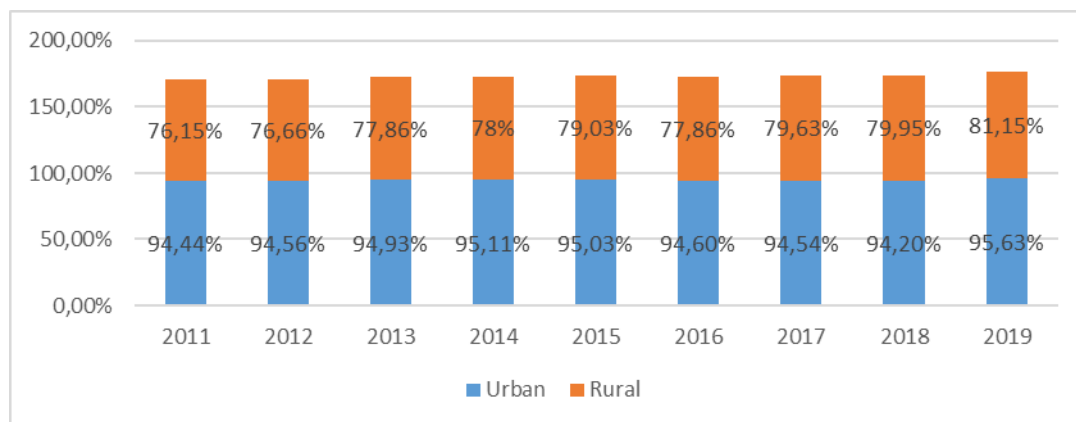

Figure 8. Availability of Clean Water Service in Indonesia
Source: (Kementerian Kesehatan, 2020)

The availability of clean water in urban areas tends to decrease (Figure 8), as seen from 2014 the availability of clean water in urban areas was able to reach 95.11% higher than the previous year. However, in 2015 there was a slight decrease in the availability of clean water in urban areas, namely to 95.03% and continued to experience a decrease in the percentage of clean water availability in 2016, 2017, to 2018, and a slight increase in the availability of urban clean water in 2019 was able to reached 95.63%. The availability of clean water is one of the main components that must be achieved up to 100% so that people can live comfortably and achieve smart living. Because clean sir is one of the needs that is closely related to the survival of the community. Clean water is used by the community for cooking, drinking, washing clothes, bathing, and for other activities. If the availability of clean water cannot be met, then this is because if people cook or drink and bathe with unclean or dirty water, then this will become a health problem that must be faced by urban communities.

The author's findings which have been described in Figure 5, 6, 7, and 8 show that the implementation of smart living in Indonesia is still not fully implemented and does not meet the eligibility standards of people's lives, especially in urban areas. Because there is still a very low level of public security guarantees in public spaces, because there are still many crimes occurring in public spaces. So that in this indicator, the community has not been given a sense of security. In addition, the availability of

clean water which tends to decrease in urban areas is still a task and a problem that must be solved together. Because water is one of the people's daily needs which is very important for the sustainability of people's lives.

4.   Conclusion

According to the study's findings, the security guarantee indication cannot be satisfied in urban Indonesia and has the lowest percentage when compared to other indicators. While health care facilities have the greatest proportion of metrics that have been met. The implementation of smart living in Indonesia which includes 10 main components, namely environmental comfort, resource sustainability, ICT application, security guarantee, ease of education service, health service facilities, availability of clean waste management, industrial waste management, household waste management, and friendly environment shows that the security guarantee is the lowest indicator that cities in Indonesia have not been able to realize. The sense of security that is still low that urban communities must feel when they are alone when in public space. The lowest indicator that has not been able to be applied in urban areas in Indonesia is the use of ICT in government activities and urban communities. This is because the application of ICT is still low, which is only 64.25% in urban areas in Indonesia that have applied ICT. In addition, the availability of suitable housing for urban communities has not yet been fulfilled and the availability of clean water for urban communities has decreased, it is our collective duty. Because to realize smart living in urban areas, all aspects/components of feasibility, safety, and comfort of people's residences are the main goals that must and can be realized.

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