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Smart growth, smart city and density: in search of the appropriate indicator for residential density in Indonesia

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Abstract

Smart growth is one of the efforts of controlling the natural resources consumption. Smart City aims to create a high quality of life. The primary element of the city-forming is the built-space density. House grew sporadically, creating the land and building size characters. Similarly, the nature of resident's social, cultural and economic. A housing density indicator that comes from the physical and non-physical nature of residents is considered necessary. The indicators of residential density are compared. Then, it will set up indicators that best fits the character of housing in Indonesia to reach smart growth and smart city.

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1. Introduction

1.1. Definition of Smart Growth and Smart Cities

At this time, research on Smart Growth and Smart Cities increasingly arranged. At the same time as physical development in the world's cities, it's very important to find the solution of the problems in urban areas. In the beginning, this article delivered with understanding the basic of the Smart Growth and knowing when Smart Cities were beginning.

Base on fundamental nature, the city has been established by the building environment to make a solid (Kostof, 1991). The settlement and housing are the most significant in shaping the built environment in urban areas. The housing provides a huge part in forming the building density in urban areas. This time, the phenomenon in the field

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shows that residential use consumes land quickly and in a massive way. Afterward, the building densities become excessive. In urban areas, it has to be controlled so that the quality of life can maintain.

Based on this, it is very important to control housing density in a suitable way. Urban residential density has reached the final phase of overcrowding. Therefore, urban residential density needs to be controlled with some mechanisms that according to social and local economy indicator. The aim is to be there is no rejection from the people. Planning that comes from the unique indigenous or homegrown people is expected to give effectiveness and efficiency of better implementation. That planning is more compatible with the desires of the society itself. In the larger scope, the value of urban residential density, which is base on a unique local people, will strengthen sustainable development in urban areas.

Controlling the building density crowd is one of some approach to achieve sustainable development. On the beginning, urban development focused on physical, economic and social aspects. After that, the urban development also approaches on environmental and sustainable agendas. It is necessary that urban development has to address on smart growth. As a factual example, a house in urban areas with landed house type becomes such of problem and challenges to achieve smart growth. In a collective description, smart growth aims to make a compact city, not create a city development in a sprawl condition (Turner, 2007; Song, 2005).

Smart Growth is a healthy development in economic, environmental and social. The basic concept of the Smart Growth among others:

- There is mixed land use;
- A compact, effective and efficient building design in a city;
- The environmental facility can achieve by walking;
- Have a strong sense of place;
- Preservation of open spaces;
- Development by the needs of the society;
- Have some choices of transportation;
- The decision for development is fair, cost effective and can be measured;
- Development decision is based on the people agreement and other stakeholders.

There is a difference between smart growth and smart city. If smart growth plays a role as "pot" of physical nature of urban areas, the smart city play a part as "content" of urban areas. The idea of the smart city has arisen because of two dynamisms circumstance. The first is an enhancement of technology development and the second is drawing of people's needs. Urban issues resolved by an attainment of science and technology (Angelidou, 2015).

The concept of the smart city first used in the year 1994 by Dameri and Cocchia (Jucevicius et.al, 2014). Since the year 2010 number of publications that discuss smart city increased rapidly. This publication related to the arising smart city projects and support from the European Union. Refer to the opinion of some researchers city's information systems were affected city technology stage. The "digital" city that interconnected to society follows the well-informed people. Therefore, people can reach higher knowledge, and a positive condition for a smart city will realize (Jucevicius, et.al, 2014).

Based on research that prepared by Caragliu, Chiara del Bo and Peter Nijkamp (2009), the explanation of Smart City is a city that have a strong focus and purpose for every aspect in the social community upturn into public services. The technology used to encouragement to realize the smart city. So that, all social classes acquires a justice and the benefits of the urban fabric. The landscape of Smart City formed from several aspects; there are the local nature, priority of city development, the city requires and global market forces.

Until now, the term of a smart city is still not clear enough.

Smart cities – Preliminary Report 2014, ISO/IEC JTC 1 Information Technology books, state the description of smart cities. Smart City is a new concept and a new model, which applies the new generation of information technologies, such as the internet of things, cloud computing, integration of big data and space/geographical information, to facilitate the planning, construction, management and smart services of cities. Developing Smart Cities can benefit synchronized development, industrialization, informatization, urbanization and agricultural modernization and sustainability of cities development. Smart Cities is to pursue:

- Convenience of the public services;

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