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Smart green open space outlook: pattern identification (case study: Yogyakarta City and Batu City)

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Abstract

Green open space is always a discourse in urbanization context. Research and policy sometimes couldn't match each other because research typically has been done more advance and faster than policy implementation. On that condition, smart city is a paradigm to be considered as a tool to gain sustainability. This research identifies the environmental degradation on Green Open Space (GOS). This research was done by primary and secondary data collecting, social media, and interview along the process. The research takes two cities as locus Batu City in East Java and Yogyakarta City. This research put some sample in Japan and Taiwan as lesson learned. The result has shown that it needs more commitment from local government on providing green open space on both city and using campus as main role model. Furthermore, government should provide people with smart platform to report disobedience of land using so that real time update could be monitored.

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1. Introduction

The high rate of population growth is mainly because urbanization is one of the problems of cities in Indonesia. The big number of urban population is creating a high pressure on the utilization of urban space, especially the reduction of open spaces in urban areas, both green open space (GOS) and non-Green Open Space. This condition causes the phenomenon of land conversion of open space into developed regions. The effect is the reduction of urban green open space. The quantity of green open space diminishing accompanied by low quality caused the ecological carrying capacity could not maintained city environment. In the end, it is likely to cause environmental damage to the city center in the form of flooding and pollution. On the other hand, the settlement with all the activities of the occupants require a comfortable and cool environment. Coolness and shade of a settlement embodied by the presence of green open spaces that are in the neighborhood. Implementation of green open spaces in residential areas, especially in urban areas, can work aesthetically, hydrological, climatologically, protective and socio-cultural (Hastuti, 2011).

In other hand, tools of development has been penetrated by the rising of smart city paradigm which emphasizes the use of innovation, technology, and efficient approach (Harison&Donnelly, 2011). Green Open Space (GOS) is one of the important parts of a city but there is no exact technology informs real time updates on it. The existence of green space such as urban forests, parks, green line, and the field. In Yogyakarta, wide open spaces of green cities based on the inventory of the Parks Department and Health is 51 108 m² or only about 5.11ha (1.6% of the city), which consists of 62 parks, urban forests, botanical gardens, and green line. When the vast amount converted in the average number of population needs, so every resident Yogyakarta simply enjoy the green open spaces of 0.1m² (Journal of Landscape Architecture of Indonesia number 04 of 1998). Yogyakarta becoming increasingly crowded with a variety of development activities undertaken to meet the needs of society.

And the second case is Batu City. Tourism is an activity to gain leisure time or other refreshing actions. It uses space to gain its existence in attracting people to come. Batu City is one of the biggest tourism destination in East Java, Indonesia. It is an autonomous region in East Java and according to Regulation No. 11 Year 2001, Batu City has a city planning to realize Batu City as a secure, convenience, productive, and sustainable as an agropolitan city also as a competitive tourism city in East Java. This city also wants to realize a function as natural keeper especially for keeping water resource of Brantas River. Batu City is in the hinterland of Malang Raya Regency having horticulture area. As a natural keeper, it has various land configuration from flat to cliff, also national forest area of R. Soeryo with 5,343 ha in width. This forest is being water reservoir with more than 20 tourism destinations on it

2. Methods

This research uses a mix method between quantitative and qualitative. It uses data of spatial descriptions, maps, set of periodically data. This research explores the problems and potencies into a case study, then make an outlook. This outlook could be visualization of the future prediction, numeric scheme, and also concept. Thus, seeing the trend is the key in here.

3. Result and Discussions

Sector of trading, hotel, and restaurant contributes 44% of local earnings of Batu City in 2011. In the centre of Batu Municipality, the area is 23% of Batu City, but it has been a central of Batu City developmet. In this city, it is counted as 384,454 m³ of wastes per day. Then the research goes to a question whether the water supply in Batu City will adequate to supply water needs of citizen and visitors in this city in 2025. To make a clear understanding, this research use the term of "people" as the additional function of Batu City citizen and the visitors. There is Taman Rekreasi Selecta with the highest number of visitors, 44% from year's total visitors. Then, Jatim Park (30%), Cangar Hot Water Spring (11%), BNS (7%), and Kusuma Agrotourism (6%). Now, more than 50% of the area in Batu City is shelter area. It could be combination of some built area, not only for housings. The visitors are people coming from other region or outside Batu City. Here are some data to know the trends of the people in Batu City from year

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