

City Design Observation Based on Factoral Ecological Approach in Jayawijaya Regency

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Abstract. Background: The downtown area is not only the center of the city's productive activities, but also a place for religious, recreational, social, cultural and administrative activities. The growth of informal support activities around the building that cannot be denied its existence occupies pedestrian paths so that it reduces the dimensions of the area for pedestrians and makes pedestrian path conditions inadequate. The elements of the natural environment of Wamena City are very dominant, as well as the formation of an artificial environment. such as buildings, elements of urban planning and people's lives have given a specific image of Wamena City. Meanwhile, the development of the physical form of the city occurs through two processes, namely; formal processes, namely through planning and design processes, and organic processes, namely processes that are not planned and develop by themselves. One of the things that need serious attention in urban design is looking at the environmental conditions. The approach of factorial ecology and ecosystems with various constituent components such as abiotic and biotic factors is an inseparable part. Abiotic factors include temperature, water, humidity, light and topography, while biotic factors are living things which include humans, animals, plants and microbes. Furthermore, ecology is a process that regulates the diversity and distribution of species of organisms. The limitation of the scope of the study is how to plan and design settlements in Jayawijaya district, and how to make the concept of settlement planning in Jayawijaya with a factorial ecological approach. While the purpose of this research is to produce observations of urban design using a factorial ecology approach for recommendations to related parties. Methodology: Observational research on urban design based on a factorial ecological approach in the district Jayawijaya. Covers the observation of urban design in Jayawijaya district and a factorial ecological approach in Jayawijaya district. Results: One of the things that need serious attention in urban design is looking at the environmental conditions. The approach of factorial ecology and ecosystems with various constituent components such as abiotic and biotic factors is an inseparable part. Abiotic factors include temperature, water, humidity, light and topography, while biotic factors are living things which include humans, animals, plants and microbes. Furthermore, ecology is a process that regulates the diversity and distribution of species of organisms. The condition of urban facilities and infrastructure affects environmental conditions and ecological factors. In the analysis of environmental parameters, it experienced high rainfall of 172.4 MM and high humidity of 84.4% RH, also supported by temperatures varying between 14.5 C to 24.5 C, resulting in flooding and puddles of water in the area. urban areas, which causes the drainage to be clogged with waste in the form of plastic waste which is very difficult to decompose. It can also be caused by human activities that throw garbage in rivers or sewers so that it hinders the flow of water, and the reduction in water catchment areas due to the conversion of land which was originally green open land into built up land. According to the opinion of residents around housing and settlements, that some of the waste is sent from urban activities. Solid waste originating from organic and inorganic substances which are considered useless and must be managed so as not to disturb the environment. The residential environment must be equipped with a solid waste system that refers to the technical rules for the provision of a solid waste system in an urban environment. Discussion: It is necessary to improve urban drainage because the use of the drainage system is to protect urban assets both material and non-material due to rain, erosion, flooding, and other disasters. Basically, the urban drainage system aims to control surface runoff and other environmental elements that have a risk of damage, drain surface water to water receiving bodies and or to artificial infiltration buildings, which must be provided in urban housing environments. In this case, green open space is needed in the city center. Plants and green plants found in green open space can absorb carbon dioxide (CO₂) levels, increase oxygen levels, lower temperatures by providing shade and coolness, become water catchment areas, and reduce noise, and are very much needed by living things. The existence of vegetation in the form of tree preservation on the side of the road is also able to minimize the presence of puddles in

urban areas. By planting trees on the side of the road. According to Yulya that in a certain residential area there was no inundation at first, but recently there has been inundation, causing severe environmental deterioration. Conclusion: The need for socialization and counseling related to the importance of building an area by looking at environmental conditions, so that suggestions and infrastructure can function properly. To protect urban assets, both material and non-material as a result of rain, erosion, flooding, and other disasters. Thus, minimizing the occurrence of severe environmental deterioration.

Keyword: observation, design, ecological, jayawijaya.