

Environmentally Friendly Application to Green Open Space on the Banks of the Kayan River, Tanjung Selor Arab Village Kalimantan Utara Province

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Abstract: Green Open Space (RTH) is one of the important components of the environment as the main element of urban spatial planning which has a major influence on people's welfare. One type of urban green open space that must be maintained is river border green open space on the banks of the Kayan River, Tanjung Selor, Bulungan Regency, North Kalimantan Province. Riparian zone is a buffer zone between aquatic ecosystems (rivers) and land. This is what efforts are made to create green open spaces that are environmentally friendly. In general, this study aims to find out how to apply environmentally friendly green open spaces on the banks of the Kayan River, Tanjung Selor Arab Village, North Kalimantan Province. The method in this study included direct observation of the spaciousness of the existing green open space conditions on the banks of the Kayan River, especially in the Arab village area, as well as direct observation at several predetermined points, namely: parking circulation, garbage disposals and lighting. The results of this study note that there is a need for improvements both physically and non-physically related to existing infrastructure on the banks of the Kayana River so that environmentally friendly applications are fulfilled.

Abstrak: Ruang Terbuka Hijau (RTH) merupakan salah satu komponen penting lingkungan sebagai unsur utama tata ruang kota yang berpengaruh besar terhadap kesejahteraan masyarakat. Salah satu jenis RTH perkotaan yang harus dijaga adalah RTH sempadan sungai ditepian sungai kayan Tanjung Selor Kabupaten Bulungan Provinsi Kalimantan Utara. Sempadan sungai (riparian zone) adalah zona penyangga antara ekosistem perairan (sungai) dan daratan. Hal inilah yang upaya dalam mewujudkan ruang terbuka hijau yang ramah lingkungan. Secara umum penelitian ini bertujuan untuk mengetahui bagaimana Penerapan Ramah Lingkungan Pada Ruang Terbuka Hijau di Tepian Sungai Kayan Kampung Arab Tanjung Selor Provinsi Kalimantan Utara. Metode dalam penelitian ini meliputi observasi langsung kelapangan terhadap kondisi esisting ruang terbuka hijau yang ada ditepian sungai kayan khususnya di wilayah kampung arab tersebut, serta melakukan pengamatan langsung di beberapa titik yang telah ditentukan, yaitu : sirkulasi parkir, tempat pembuangan sampah dan lampu penerangan. Hasil penelitian ini diketahui bahwa perlu adanya perbaikan baik secara fisik maupun non fisik terkait prasarana yang ada ditepian sungai kayanagar terpenuhinya penerapan ramah lingkungan.



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INTRODUCTION

Green Open Space (RTH) is one of the important components of the environment as the main element of urban spatial planning that has a major influence on the welfare of the

community one type of urban RTH that must be maintained is the RTH of the river border on the kayan river in Tanjung Selor, Bulungan Regency, North Kalimantan Province. The riparian zone is a buffer zone between aquatic (river) and inland ecosystems. This is what is important in realizing green open spaces that are environmentally friendly. This zone is generally dominated by plants. The plant is in the form of grass, shrubs. Vegetation in the riparian zone has several important functions, including: to control erosion, protect the surface of the water, especially in maintaining the stability of water temperature, sediment catchers, means to increase groundwater supplies, habitats of various flora-fauna, as well as natural boundaries of settlements and development. In other words, the RTH on the river border is a buffer for environmental quality (Yanti, 2018). Green open space is open space whose use is more of a green filling of plants or vegetation naturally or cultivated. Green Open Space is expressed as spaces within the city or a wider area, either in the form of city parks, campus parks, home parks, green paths, urban forests and riverbanks (Permen PU 05,2008).

Green open space is also a place to socialize between city residents, if the density of a city is higher, it has an impact on the lack of children's playgrounds, places to relax for residents, family gathering places, so that the lack of green open space can also reduce social activities between city residents. A city RTH is defined as a land overgrown with trees within an urban area that serves as an environmental buffer in terms of regulating water, air, flora and fauna habitats that have aesthetic value with a solid area, which is a green open space for trees, and the area is designated by the authorities as the city's RTH.

Basically, this green open space is very important for the balance of the environment in the city, in addition to being a place to socialize green open space can also reduce hot temperatures, groundwater conservation, noise cancellation and dirty air filters due to vehicle activities in the city.

Green open space has many benefits for urban life. The benefits of green open space based on the Government Regulation of the Republic of Indonesia Number 63 of 2002 are as follows: (1) the city identity and the preservation of the city's Green Open Space can be used as a place for biodiversity collections, with flora and fauna for an area. Some types of plants and animals are symbols of a city or region. The green open space area of the city can be viewed as a conservation area outside the conservation area, because in this area can be preserved flora and fauna in a nature conservation manner carried out outside its natural habitat which aims to prevent damage, protection and conservation of natural resources; (2) the use and removal of airborne particles. Hairy and long-winded leaves like sunflower leaves, kersen leaves have a high ability to absorb and absorb particles from the air (Obuse, 2019). The broadleaf tree species is able to reduce particles in the city's dirty air by up to 30%, while the needle-leaved tree is able to reduce particles in the city air by up to 42%; (3) penyerap and lead particle absorber. The classification of the ability of tree species to absorb lead particles from the air is as follows: a) Types of trees with excellent absorbability: ketapang (*Terminalia cataoaa*) and bungur (*Lagerstroemia speciosa*); b) Types of trees with moderate absorbing ability such as mahogany (*Swietenia mahogany*), mountain cypress (*Canagium odoratim roxb*), walnut (*Canarium commune*), acacia (*Acasia*), dadap (*Erythrina cristagalli*); b) kground-

water conservation, the extent of rainwater that can be absorbed into the soil is determined by the type of plant, planting distance, rain intensity, rainfall, and rainfall. The root system of trees and seresah that turns into soil organic matter will increase the number of soil pores, infiltration and percolation of rainwater; c) light dampening, the effectiveness of trees in dampening and softening sunlight depends on their size and density. Tree species can be selected based on the height and lushness of the canopy (Li et al., 2021).

Eco-friendly architecture, which is also green architecture, includes harmony between humans and their natural environment. Green architecture also contains other dimensions such as time, natural environment, socio-cultural, space, as well as building techniques. This shows that green architecture is complex, dense and vital compared to architecture in general. In the Regulation of the State Minister of the Environment Number 8 of 2010 concerning Criteria and Certification of Environmentally Friendly Buildings, an environmentally friendly building is defined as a building that applies environmental principles in its design, construction, operation, and management and important aspects of handling the impact of change (Azis & Sakdiyah, 2021).

According to Stephen Carr in *the Book Pubic Space* (Arya, 2008) there are several types of green open space. These types each have different characteristics, namely: 1) central park Built and arranged as part of the city's open space system, open space for the benefit of the entire city, sometimes with the city center; 2) downtown park The city's green parks with grass and trees are located in the city area, can be traditional, historic or new parks; 3) commons The area is vast, only the area of grass pandag for public use is

now used for leisure activities; 4) neighborhood park Open spaces are built in residential environments, built and arranged as part of the city's open space system or as part of new housing developments, including playgrounds, sports fields, etc; 5) Mini park Small town parks, bounded by buildings, include fountains or water elements as a complement; 6) community park An environmental park designed, constructed or regulated by local residents on vacant land. Meliptui viewing garden, play arena, and community garden. Sometimes it is also built on private land and is not officially seen as part of the city's open space system; 7) greenways and parkways. Natural areas and recreational spaces connected by pedestrians and bicycle roads.

Basically, every region has a good spatial layout, especially since the government is trying to improve all systems by restructuring. The existence of these improvements is better for the government to realize the dream of becoming an attractive urban planning. So that the city becomes a trigger for the development of adequate development with the implementation of various strategies and readiness of programs that have been regulated by the government (Anderson & Cook, 2014).

The high number of developments makes the distribution of the city even better, this is also seen in the form of various kinds of roads that have been categorized as maximum roads to be walked, the importance of which is awareness triggers to become a modern economy-based area and become a developed and developing area so that it is enjoyed by various tourists (Popa et al., 2021).

The purpose of this study is to find out how environmentally friendly applications in green open spaces on the banks of

the Kayan River, Kampung Arab Tanjung Selor, North Kalimantan Province.

METHODS

The research method includes direct observation to the field of existing conditions in the field by means of a qualitative approach (Sugiyono, 2007). among others: (1) survey Research Site The first research method is to conduct a survey to the location aimed at determining the existing condition of the object to be studied, and then it can be concluded that the method plan to be carried out; (2) foto / Documentation furthermore, taking photos and documentation related to the object of study, aiming to be the subject of study and can assist in the analysis of objects related to the theme; (3) measures,

donot forget to take measurements in order to obtain the dimensions and size of buildings related to the research object which will later be used as material for analysis related to the research theme; (4) wawancara, you can collect data related to the object of study by interviewing people around the object or people who are in charge of guarding the object though, in order to obtain more valid data; (5) analysis after obtaining the results of documentation and interview results, an analysis of the data processing is carried out with limitations on the title of the study in order to reach the conclusions of this study; (6) The conclusion is that it can be concluded that some of the conclusions of the entire analysis of the research results, then the overall results of this study are known.

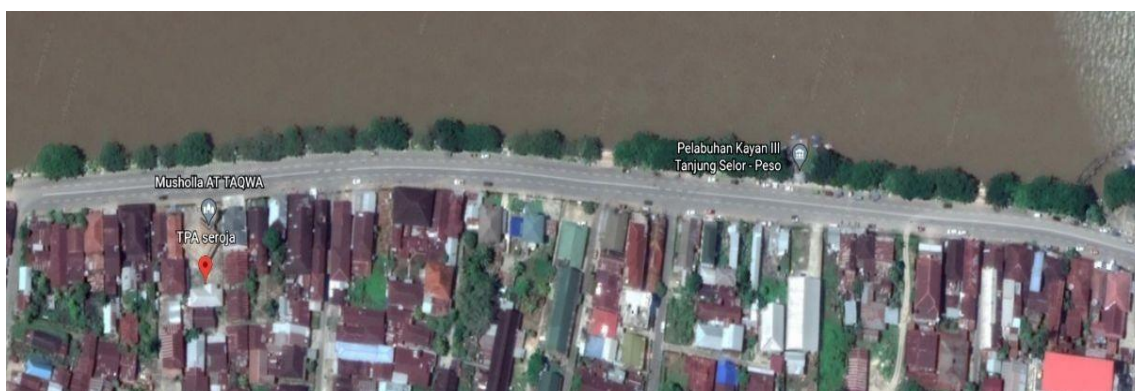


Figure 1. Measuring Point Plan on Long Ruman

RESULTS AND DISCUSSION

The object of the study is the edge of the park located on Jl. Soedirman Kec. Tanjung Selor, Bulungan Regency, Prov. North Kalimantan, this bank is the first riverside green open space built in the Tanjung Selor area as well as a tourist attraction for the people of Tanjung Selor.



Figure 2. View of the Village River Bank

This bank has a length of approximately 600m from the port of goods kayan 1 tanjung selor to the bend of Jl. Soedirman, and the middle of the bank has a small port, namely the port of Kayan 3 tanjung selor-peso.

Parking Circulation

The condition where the parking area on the edge area only uses the existing road body because along the Soedirman road does not have a available parking area and finally the shoulder of the road becomes the parking lot.



Figure 4. Parking Conditions

Due to limited land at the location, at least install signs and barriers to the parking area to make it seem neat and well organized



Figure 5. Parking Area Recommendations

Green Open Space Edge Lighting

The lighting conditions at the location are not good, especially at night, the lack of repairs results in damage to the lampposts on the banks resulting in a lack of lighting, the only lighting at the location of the street light poles.

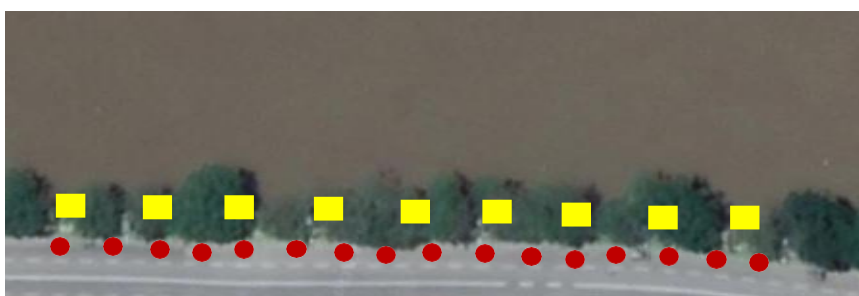


Figure 6. Lamp Point Laying Recommendations

Information

- Big lights
- Small lights

Due to the damage to the lamp and the distance of the lamp is approximately 10m which results in less effective lighting in the garden, it is recommended that the distance of small lights is 4m per dotted and large lamps 8m per point



Figure 7. Trash Can Recommendations

Waste Management

The garbage on the banks of the river is very poorly maintained, causing visitors to litter, sometimes people who visit throw garbage in the river because the trash cans are inadequate and the garbage is only put in sacks, sometimes wild animals often damage sacks which results in garbage scattering on the road.

This section will add trash cans at several points so that users of the kayan river bank do not throw garbage in any place and appeal not to litter, as for the solution of laying garbage cans with a distance of laying garbage bins, which is 10 meters.

CONCLUSION

The garbage on the banks of the river is very poor in number and unkempt this results in visitors littering, sometimes people who visit throw garbage in the river because the trash cans are inadequate and the garbage is only put in sacks sometimes wild animals often damage sacks which results in garbage scattering on the road.

There needs to be rules related to good parking arrangements so that parking on the side of the road can be well organized and not arbitrarily parked. likewise, regarding the arrangement of lighting lamps, it is necessary to pay attention so that the lighting around the green open space can function as desired (Hirschman, 2016).

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