

INTI 1(1)

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Submission date: 25-Jun-2023 11:21AM (UTC+0500)

Submission ID: 2122131925

File name: 7_2022._Inti._Mei._Budi.pdf (207.31K)

Word count: 3337

Character count: 18028

Urban Forest: The Role of Improving The Quality of The Urban Environment

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ABSTRACT – Urban development has consequences for the emergence of environmental problems in urban areas. With the increasing development of various activities such as road construction, transportation activities, industry, settlements and other activities, this often results in a decrease in the area of green open space and is often accompanied by a decrease in the quality of the environment. This resulted in the city becoming unhealthy, polluted and dirty. The development of green open spaces in the form of plants or green parks is needed to maintain the preservation of nature and create healthy conditions for city dwellers. Ecosystems in urban areas have urgency to be carried out immediately and carefully monitored. This paper presents important matters related to the role of urban forests in improving the quality of the environment.

Keywords: RSW, ship cooler, fishing boat.

A. URBAN ENVIRONMENT PROBLEMS

Currently there is a need to maintain environmental conditions and urban landscapes that provide a functional, efficient, comfortable, healthy and aesthetic atmosphere for city dwellers. Problems related to the environment in urban areas such as increasing air temperature, increasing levels of CO₂, higher levels of air pollution, damage or loss of various habitats, decreased groundwater, flooding and conditions of damage to the natural environment in cities which are exacerbated by social problems.

The increasingly inharmonious relationship between humans and nature has resulted in environmental conditions in urban areas becoming only economically advanced but ecologically backward (Dobbs et al., 2011). Whereas the ecological stability of the city is very important, as important as the value of its economic stability.

Urban greening is one of the efforts to fill green open spaces. This needs to be considered and improved in form and structure to become an urban forest. The development and development of urban forests is also expected to

support the realization of a green expanse in urban areas that can help improve and maintain the microclimate, increase aesthetic value and have water catchment areas and create balance and harmony with the city's physical environment. In general, the purpose of urban forest management is for sustainability, rehabilitating critical land, eliminating pollutants, and creating harmony and balance in urban ecosystems which include environmental, social and cultural elements (Derhé et al., 2016).

B. URBAN FOREST IS A MUST

To create an urban forest that is efficient, comfortable, healthy, and aesthetically pleasing, it is everyone's obligation to protect the environment. Planting urban forests has an important role for the earth, because the earth has undergone major environmental changes such as high concentrations of greenhouse gases due to human activities, which can cause climate change and damage the ozone layer.

Damage to the urban environment is not only caused by humans alone but also caused by natural damage or natural events such as tectonic earthquakes, volcanic eruptions and hurricanes. Other damage has occurred everywhere such as forest destruction, desert formation processes, sand, destruction of various species of flora and fauna and erosion.

Furthermore, if it is associated with an increase in population, mobility will increase, first in the information age which is marked by very rapid advances in science and technology. This will create new groups that emerge in society, such as industrial social groups or service sellers. The quality of the population will further increase in line with the increase in public education. The occurrence of environmental damage in urban areas can occur due to uncontrolled population growth and is not balanced with an increase in quality or ability to manage resources. Population growth in quantity is not balanced with the development of quality and the balance of mobility of its distribution.

The economic advantages of urban communities will always be followed by an increase in income, which creates greater demands for urban facilities and infrastructure. This is a reflection of the strong correlation between the level of urbanization and the level of income. Urban areas will need better housing facilities such as other basic services and quality urban infrastructure including transportation. These conditions will cause environmental impacts that are already felt, especially the problem of air pollution, water pollution and soil pollution, noise problems and decreased air quality in this city (Djaelani, 2021).

This condition must get the attention of all parties through cooperation between the community and the government in urban areas, for example by planting house yards with various types of plants, trees and for the government to plant flowers and trees regularly on every roadside and corner of the city, so that the city becomes green again as a urban forest (Darmawan, 2021). Urban forest is a necessity for its existence as an effort to improve the quality of the environment.

19 C. THE ROLE OF URBAN FORESTS IN IMPROVING ENVIRONMENTAL QUALITY

Efforts to develop forests in urban areas are a means to improve environmental quality. This can be done through the provision of plants (vegetation) along roadsides, city corners and every yard of people's houses, with a variety of plants, ranging from grass, trees and flowers. With this planting will bring cool clean air and bring beauty and physical and social comfort (Alpert et al., 2000).

The yard of the house has a dual function, which is an integration between the function of nature and the function to meet the socio-cultural and economic needs of humans. Dual functions in the form of hydrology, conservation of genetic resources (germplasm), effects of the social microenvironment and production.

The main elements that can affect human life include sunlight, air temperature, wind and humidity. The interaction of these elements will be able to bring comfort, heat, cold or ordinary. Planting trees, making and flowers as urban forests, plays a very important role in changing the temperature in order to improve environmental quality.

Every leaf from wood trees, grass and flowers planted in urban areas will be able to intercept, reflect, absorb and transmit sunlight. Its effectiveness depends on the species, for

example, shady, leafy, branched and many, each species has a characteristic shape, color, texture and size. Growth (vegetation) is useful as a liaison and forms space as a barrier, taper and floor and can also turn a large space into a narrow one and provide a quiet and comfortable atmosphere. Park trees as urban forests can be used to create a unique setting in improving the quality of the environment to make it more beautiful, comfortable and cool.

The growth of urban forests is very beneficial for improving environmental quality in cities, in addition to controlling erosion and groundwater, reducing air pollution, reducing noise, controlling waste water, controlling traffic and blinding light, reducing light reflections and reducing unpleasant odors or odors. Various plant characteristics and their effects can solve engineering problems related to the environment, namely leaf flesh that reduces sound, twigs that move and vibrate to absorb and cover sounds, ubesen or hairs that can hold water particles, stomata to replace g₅. In order for the role of urban forests to be able to improve the quality of the urban environment, it is necessary to choose the types of plants that are suitable for planting. This selection is intended, so that the plant can grow well (Wallace et al., 2017).

For the growth of plants properly, horticultural, ecological and other physical conditions should be considered (Robinson & Handel, 1993). These requirements are to consider the response and tolerance to the temperature of the need for water, the need and tolerance for sunlight, the need for soil, pests and diseases, as well as the physical requirements, namely the purpose of reforestation (planting urban forests), cultivation requirements, canopy shape, texture, color and aroma, there are many examples at home and abroad that prove that the planting of urban forests (greening on the roadside or in parks is planted with productive plants such as fragrant flowering plants.

Public perception of reforestation allows almost all people to expect and like reforestation. People are used to planting trees and other plants so it is not difficult to invite people through reforestation. Implementation and maintenance can be fostered through clear collaboration between the community and the government. Greening the city along the roads and rivers of city parks (Johnson & Handel, 2016). Green environmental parks around buildings such as hotels, schools, factories, offices, yards. They are all urban forests.

Urban forest planting has a role in improving the quality of the urban environment, but this role is highly dependent on the vegetation planted for it. The various roles and benefits can be described as follows:

- a. By planting urban forests in the lungs of the city, plants as green elements, in their growth produce acid (O₂) which is very beneficial for living things for respiration. By setting the environment (micro) the vegetation will create a cool, comfortable and fresh environment.
- b. The creation of the living environment, reforestation can create a scope for living things that exist in nature, which allows natural interactions to occur.
- c. Natural balancing is the establishment of a natural habitat for animals that live in urban areas.
- d. Oro-Hitrology, control for groundwater supply and prevention of various erosions. In addition, by building urban forests, it will be able to reduce water pollution and help clean water.
- e. The role of urban forest planting is to protect the surrounding natural physical conditions, such as strong winds from the sun, gas or dust.
- f. Planting urban forests plays a role in reducing air pollution, vegetation can absorb certain pollutants. Vegetation can filter dust with its canopy and dense foliage.
- g. By building a forest, it also plays a role in bringing educational value, that is, from various plants, it will bring characters that provide scientific value so that it is very useful for education, in the form of a natural laboratory. In addition, it can be used as a means of recreation and education as well as being in an urban forest route with various plants containing scientific value. By planting urban forests through good and thorough planning will be able to add to the beauty of the city.
- h. The color health and character of the urban forest can be used for eye and soul therapy.
- i. By building forests, it has a role to reduce noise pollution (noise) and absorb sound.
- j. The planting of urban forests contains social, political, and economic values. Urban forest plants have a high social value, such as state guests coming, for example planting certain trees in the space provided (Khairi & Darmawan, 2021).
- k. Planting of urban forest wars as an indicator or indication for the environment that there may be harmful things happening to the growth and development of the city.

Thus, the planting of urban forests is very important for the livelihoods of people in the city because green plants will be able to absorb CO₂ and produce O₂. To realize these conditions, a joint effort is needed to plant trees in the city in order to improve the quality of the urban environment.

D. FORESTS AND ITS GROUPS

Urban forest is a plant community (vegetation) in the form of trees and their associations that grow on urban land (Shoo et al., 2015). In the environmental system usually includes land or water such as forests, lakes, oceans, agricultural sites and urban areas. Urban forests are located far outside the city limits, as long as the intensive interaction between residents of a city and the intensive interaction between residents of a city and the forest takes place continuously which can bring benefits. The open space overgrown with woody vegetation in urban areas provides the greatest benefit to the environment for residents in the use of protection, aesthetics, reactions and on, in the form of a green line. Furthermore, the urban forest can be grouped according to the urban planning in the field of urban forest development. The city groupings are as follows:

- a. Urban forest conservation
- b. Industrial urban forest
- c. Urban forest residential area
- d. Forest city tourism
- e. Urban forest animal breeding

The design towards forming an ecological structure, functioning to preserve a comfortable, healthy, aesthetically pleasing environment and being able to present wild animals is an urban forest that meets the rules of landscape in urban areas (Brown et al., 2014). Urban forests that are designed according to their grouping can also reduce temperature, noise and dust and can also increase humidity. The grouping of urban forests can be grouped based on their shape and structure, so urban forests can be grouped as follows:

- a. Form an urban forest. The shape of the city depends on the form of land available in the form of an urban forest.
- b. Forest structure. The structure of the urban forest is the composition of the number and diversity of the vegetation communities that make up the urban forest. The arrangement of urban forests, grouping urban forests will be more useful according to programs and plans in urban forest development.

E. THE URGENCY OF THE REALIZATION OF THE URBAN FOREST

Every development will always pose a risk of change and sometimes have a bad impact on the environment, even though in development development there are already provisions and regulations that regulate such as spatial planning and regulations that establish a plan (Livesley et al., 2016). In this case, the regulation already has legal force but is always ignored by the implementing parties, especially forest development by utilizing the land around the city to plant various types of woody plants.

In the context of disseminating and publicizing the functions and roles of urban forests to government agencies and private parties, it is necessary to cultivate and develop them so that they have the same perception in urban planning and policy makers because until now, in fact, city development and its role are many who do not understand and lack of participation in its cultivation. caused by the following factors:

- a. The development of the city continues to increase which causes many plants or green lanes to turn into concrete paths and concrete gardens, this is due to low compliance with regulations.
- b. Development actors do not fully understand the importance of a decision in space utilization and are still unable to interpret the plans that have been prepared, as a result, many deviate from the existing plans.
- c. Unplanned urban expansion will undermine the role of parks, plants and trees as green belts.
- d. The low level of socialization programs regarding plant planting, so that public awareness to play an active role is still relatively lacking.

To overcome these problems, spatial planning can be done again by providing urban forest space, but this is very difficult to do and most likely impossible. This is because even though spatial planning has been arranged, it changes very quickly because there are many different perceptions from designers, policy makers and the community and there is still an assumption that land provision for urban forest development is not useful. Therefore, it is necessary to find out how to maximize the function of the existing urban forest or the land allocated for urban forest to absorb or minimize the negative results of urban activities.

Urban forests and parks that have grown and exist need to be improved or developed on the remaining land so that their functions can be improved, namely by planting ideal types of plants, both in terms of functions and benefits to the environment.

It is necessary to cultivate the same perception about urban forests, both designers, policy makers and the community so that they will benefit from urban forests and have the motivation and initiative to manage and maintain them so that every level of society is ready to carry out urban forest development.

City development can achieve its goals if it can support especially social and economic life, city designers need to pay attention to the economy and population, environment and other public facilities so that there is equality and balance.

In accordance with the functions and benefits, the design and arrangement of urban forests need to be adapted to various urban environments such as offices, settlements, roads, green open spaces, and tourist areas in the form of design engineering.

Through urban forest counselling to the community, it can be conveyed about the importance of creating a healthy, beautiful, clean, comfortable and natural urban living environment so that it can be used as a complementary component in realizing progress, resilience and the future of urban residents

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