Implementation of green communication in the city of Surabaya to build a clean and sustainable environment

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Abstract

The city of Surabaya in the East Java region, as the second largest city in Indonesia, has a population of around 4 million people in 2023, is one of the cleanest cities in Indonesia and even won the ASEAN Environmentally Sustainable City (ESC) award in the Cleanest Big City Air category according to the criteria clean air, clean land, and clean water. In achieving this achievement, the Surabaya city government has provided education to the people of the city of Surabaya to behave in a way that cares for a healthier and more sustainable environment, including through the arrangement of green open spaces which reached 21.99% (exceeding the Indonesian national performance index of 20%) or an area of 7,357.96 hectares (ha) of the Surabaya city area of 33,451 ha, this green space is capable of absorbing 642,794.59 tonnes/year of CO_2 gas. Apart from that, the Surabaya government also carries out emission tests in different places on non-electric motorized vehicles 4 times a month in different places and urges the public to use comfortable public transportation in the form of Suroboyo buses for routes in the city and Wira Wiri micro buses for routes through village. So it has an impact on the quality of the city of Surabaya with an AQI (Air Quality Index) index of 90.31 (medium). Apart from that, the city of Surabaya has a website that displays the air quality in the city of Surabaya in real-time, which is equipped with instructions for Surabaya residents to use personal protective equipment and avoid areas with poor air quality.

Keywords: Clean, environment, green communication, implementation, sustainable.

1. Introduction

Green communication is a type of communication related to environmental and sustainable issues [1] [2]. This includes the use of communications to convey information, education and messages that support environmentally friendly actions and contribute to sustainability. Green communication can be applied by organizations, companies, governments and individuals to educate, influence behavior and promote more sustainable practices in society. The aim is to raise awareness about environmental issues and encourage positive changes in behavior and actions that support a healthier and more sustainable environment.

Surabaya city government in increasing awareness of the Surabaya city community about environmental issues and encouraging positive changes in behavior and actions that support the environment to make it healthier and more sustainable, the Surabaya city government has carried out several communication approaches, including arranging green open spaces equipped with sa - shutters and instructions to the public to behave cleanly. Green open space aims to be the lungs of the city because plants can absorb CO_2 gas produced by the

exhaust fumes from non-electric motor vehicles (the majority of vehicles in the city of Surabaya use fossil fuels). Another way to educate the public to care about a sustainable environment is to providing public transportation facilities such as the "Suroboyo bus" with scheduled routes and trips and the "Wira Wiri micro bus" to serve densely populated village areas. Apart from that, the Surabaya government also provides emission testing services to the people of Surabaya city 4 times a month in several different places, so that people know the CO_2 gas emissions from the vehicles they use. This is another form of educating the public to care about a sustainable environment.

The Surabaya city government also uses a website to provide information to the public about air quality in real time so that the public can prepare tools to avoid the impact of air pollution and choose routes with low pollution. This air quality information is in collaboration with the Surabaya Meteorological Center and Kominfo Surabaya to be able to provide consistent information to the citizens of Surabaya.

2. Methodology

The steps taken by the Surabaya city government in building green communications are as follows:

- Identifying air quality in the city of Surabaya: To be able to determine the air quality of the city of Surabaya, the Surabaya city government has identified air quality through measurements in a number of areas that are used as measurement points at certain time intervals related to activities in that area
- Identifying the environmental conditions of the city of Surabaya: Air quality is caused by activities, whether motorized vehicles, factories or other activities that can cause changes in air quality. For this reason, it is necessary to identify the environmental conditions of the city of Surabaya.
- Identifying the behavior and awareness of Surabaya city residents: To determine the level of awareness of the people of the city of Surabaya regarding the environment, especially air pollution, it is necessary to identify the behavior of the people of the city of Surabaya.
- Identifying the infrastructure of the city of Surabaya: To determine the air quality of the city of Surabaya, measuring instruments are needed, so it is necessary to identify the infrastructure.
- Design and build green open spaces (RTH): Green open spaces have the ability to absorb CO_2 gas, so it is necessary to organize green open spaces in order to maintain air quality in the city of Surabaya. The wider green open space in densely populated areas and heavy traffic areas is very beneficial for maintaining air quality in those places.
- Arranging city transportation facilities (Buses and Micro Buses): Apart from arranging green open spaces, another way to educate the public to care about a sustainable environment, the Surabaya city government has arranged comfortable transportation for Surabaya city residents in the form of Suroboyo buses and micro buses.
- Carrying out periodic emission tests in different places in the city of Surabaya: To carry out sampling of emission sources from motorized vehicles, the Surabaya city

transportation department provides regular emission testing services in different places in the city of Surabaya.

- Create a website with information on the air quality of the city of Surabaya: The Surabaya city government also utilizes information technology in the form of a website that displays the results of air quality measurements in various places in the city of Surabaya along with instructions for using tools to avoid air pollution and find routes that are not exposed to air pollution.

3. Results and Discussion

In order to develop green open space in urban areas, a city must be able to fulfill a public green open space area of at least 20 percent in accordance with the mandate of Law Number 26 of 2007 concerning Spatial Planning. Currently, green open space in Surabaya has reached 22 percent, which means that the area of public green open space in the city of Surabaya has exceeded the minimum limit recommended by the central government. The details are for green open space for cemeteries covering an area of 284.95 hectares, green open space for fields and stadiums covering an area of 361.08 hectares, green open space for lakes/reservoirs/boezems covering an area of 198.23 hectares, green open space for public facilities (public facilities) and social facilities (fasos) for settlements covering an area of 205.50 hectares, green open space in protected areas covering an area of 4,570.33 hectares, green open space in a grand forest park covering an area of 66.03 hectares, and green open space in parks and green belts (JH) covering an area of 1,672.75 hectares. So, the total of all green open spaces in Surabaya is 7,358.87 hectares or 22 percent of the area of the city of Surabaya.

Fig. 1. Green open space in the form of bosem and plants
Source: google.com

The total green open space of the city of Surabaya can absorb 642,794.59 tons of CO_2 gas/year. In fact, with so many green open spaces, Surabaya City's IKU (Air Quality Index) achievement is 90.31, which means it exceeds the national IKU achievement.

Apart from that, the city of Surabaya is also able to improve environmental quality through the green community participation movement with the 3R (reduce, reuse, re-cycle) movement [3] as well as the Waste to Energy program through the gasification method.

Fig. 2. 3R movement of Surabaya city residents
Source: google.com

Surabaya has also developed the Green Transportation concept [4] in the form of Suroboyo buses and Wira Wiri micro buses to educate the public to use public transportation that is comfortable and has clear departure schedules and stopping places in order to reduce exhaust emissions from people's vehicles.

Fig. 3. Green transportation in the city of Surabaya
Source: google.com

The city of Surabaya continues to make improvements. One of them is by presenting a representative, comfortable and environmentally friendly terminal. It is the Joyoboyo Intermodal Terminal [TIJ] [5], which is claimed to be the first green terminal in Indonesia.

Fig. 4. The first green intermodal terminal in Indonesia is in Surabaya
Source: google.com

Surabaya is also developing a website-based air quality information system for the city of Surabaya so that the public can find out the air quality in real time [6], so that the public can choose routes or avoid areas where the air quality is not good.

Fig. 5. ICT-based air quality monitoring system
Source: google.com

Various innovations and programs developed by the Surabaya city government have finally succeeded in winning the award as the big city with the cleanest air in Southeast Asia or ASEAN. The award, which was the first to be won in history, was received directly by Mayor Eri at an event entitled "The 5 ASEAN ESC Award and the 4 Certificate of Recognition" which was held in Jakarta, Thursday (21/10/2021).

4. Conclusion

The city of Surabaya has implemented green communication in educating the public to care about a sustainable environment through the construction of green open spaces reaching 22 percent, so that it can absorb 642,794.59 tons of CO_2 gas/year. Green transportation and green intermodal terminals as well as the use of information and communication technology (ICT) to monitor air quality in real time so that it can educate the public to care about maintaining air quality and the environment.

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