

Building the Character of a Community Concerned with Ecology through the Environmental Reforestation Program in Madiun City

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Abstract: Environmental damage in urban areas is getting worse due to physical development, pollution from motorized vehicles, motorbikes and cars, and pollution and the lack of Green Open Space (RTH). Research gap in the context of this study, air pollution causes unhealthy urban environments, exhaust emissions from cars, motorbikes, dirty air, reduced oxygen (O₂), causing hot air to minimal greenery. This study uses a qualitative research approach with descriptions in the form of narratives, stories, words to the subjects studied. Data collection methods through observation, in-depth interviews, and documentation, data sources are obtained from primary data, namely the community, while secondary sources are environmental NGOs, students, community leaders. Data analysis is carried out through the Interactive Miles and Huberman model which includes the stages of data collection, data reduction, data presentation, and drawing conclusions from data. To explore the data, researchers used the Social Construction Action theory study by L. Berger, T. Luckman, namely a theory that focuses on human social actions in social interaction. The results of the study indicate that a community construction process is needed in order to obtain social change in society, create environmental awareness, with large trees that produce O₂.

Keywords: Air Pollution; Greening; O₂; Social Construction.

Introduction

Floods, air pollution, garbage in slum areas are problems in big cities, including the city of Madiun due to the limited public knowledge and awareness about population and the environment (Antjak et al., 2022). Gap Research studies the increasing number of motorized vehicles, cars in cities creating air pollution that is detrimental to public health. The increasing number of people and the destruction of the environment in our surroundings, because of air pollution encourages us to realize that it is necessary to cultivate in society and our students the need for a mental attitude of behavior that cares for the environment by keeping air pollution reduced by

reducing the use of cars, bicycles motor causes air pollution (Cox et al., 2009).

The future sustainability of the Indonesian nation and its government. depends on the awareness of the Indonesian people on the environment and controlled population, by preventing uncontrolled air pollution (Shimray, 2024). Especially the city of Madiun. Environmental damage in urban areas is getting worse, both caused by physical development and air pollution, noise pollution, random waste pollution and poor "Ruang Terbuka Hijau (RTH)". So that this causes the environment in urban areas to be unhealthy, gas emissions from cars, motorbikes, dirty air, reduced oxygen (O₂), causing hot air to lack of urban greenery. It is time for mayors, regents and staff to create City Forests or reforestation, so that a city that is green, full of

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plants and trees can be seen which creates a cool, comfortable, healthy and beautiful atmosphere (Johnston, 2015).

Reforestation aims to create a healthy, pollution-free, beautiful environment, reducing air pollution. The benefits of reforestation (Reforestation) are for the health of city residents, producing O₂ (Oxygen) gas (Thobroni et al., 2024). Greening in the City of Madiun, preventing air pollution, creating the lungs of the City, so that the citizens of the (Perecman & Curran, 2011) City become healthy, the environment is healthy, unlike the situation, conditions as shown below, Unhealthy air due to CO₂ pollution from motorized vehicles in the City of Madiun. Air pollution by vehicle emissions disturbs the health of Madiun City (Mukuhlan & Nyamupingidza (2014). The people of Madiun City are currently restless and anxious because the destruction of the city's environment due to air pollution, air pollution, many motorized vehicles, motorbikes result in environmental damage.

For this purpose, everyone must care about the environment by improving the quality of the environment, namely protecting urban forests, creating more "Ruang Terbuka Hijau (RTH)", to protect the natural surroundings. There should be no such thing as borderline air pollution, environmental damage, air pollution. For this reason, it is necessary to create green open spaces / urban forests as an effort to create clean air and a healthy environment.

"Greening" is a term that is employed to characterize the act of tree planting. This is, of course, because trees possess green foliage, and consequently, the term used to depict the practice of planting trees is "reforestation" (Bohn et al., 2024). Numerous individuals engage in greening practices as a means to conserve the natural environment, recognizing that trees offer a wide array of advantages (Mansourian et al., 2003). These benefits extend not only to the environment and nature, but also to all living organisms, including humans and animals (Muharrikatiddiniyah et al., 2024). Trees used in reforestation initiatives encompass a variety of species, typically selected for their multifunctional attributes (Saklaurs, 2006). These may include features such as water retention in their roots, versatile wood, or the production of substantial fruit. Commonly planted tree species in reforestation efforts include mangrove trees, teak trees, acacia trees, and others. These activities are often conducted in urban areas, such as city parks, along roadways, and other designated locations (Tusyana et al., 2019). Furthermore, greening efforts are frequently implemented within school environments to cultivate students' affection for the environment and foster a responsible attitude towards nature (Anjarwati, 2019). Photosynthesis is the process of converting water compounds (H₂O) and carbon dioxide (CO₂) assisted by sunlight absorbed by chlorophyll to produce glucose

compounds (C₆H₁₂O₆) (Sari et al., 2023). Glucose produced besides being used directly by plants will also be stored in the form of food (fruit).

Not only glucose, in the process of photosynthesis, plants also produce oxygen (O₂) which is needed by humans and animals. Specifically, the rate of photosynthesis is not only influenced by carbon dioxide (CO₂), water (H₂O), and light, but also by other factors such as temperature, leaf age, plant growth stage, carbohydrate translocation, and photosynthate levels. Even so, the main factors for photosynthesis to take place are carbon dioxide, water, and light.

There are two reactions in photosynthesis, namely the light reaction and the dark reaction (Calvin-Benson cycle). It is called the light reaction because the process requires light, while the dark reaction does not need light (Nurhuda & Hasanah, 2024). But doesn't photosynthesis need sunlight, why is there a dark reaction?. Overall photosynthesis still requires light, but sunlight absorbed by chlorophyll is only used in the light reaction. In the light reactions a process occurs that produces ATP and NADPH₂ molecules. Apart from these two molecules, the light reactions also produce oxygen, which can be said to be only a by-product of photosynthesis. After the light reaction, it then proceeds to the dark reaction where ATP and NADPH₂ molecules are processed into glucose. The dark reaction does not require sunlight. Such is the process of photosynthesis in plants. Therefore, it is hoped that you will be able to love and preserve plants more after reading the explanation about the photosynthesis process.

Problem Formulation

So, in general, the current environmental problems in the city of Madiun are: How can community and local government efforts increase reforestation in the City, How to limit the number of motorized vehicles and cars in the City?, How to create an urban forest or green open space in the Madiun city area? And How to realize the character of public awareness and the formation of environmental care behavior in the City of Madiun?

Research Objectives

Creating the character of a community that cares about the environment, is healthy, clean, cool, comfortable. Construct a social community that cares about the environment with greenery. Make changes to the behavior of people who care about the environment and understand a healthy environment

Method

The research subject includes the research location and data sources, so this research is included in the field research category (Nilan, 2002). The subject of this

research is Madiun City. This research is qualitative in nature, aiming to gain an in-depth understanding of the subject's experiences, such as behavior, perceptions, motivations and actions (Mustofa et al., 2024). This is achieved through comprehensive descriptions using words and language in a natural context, using natural methods. Descriptive research in this context is an approach that seeks to collect information about a particular theme, symptom or situation with the aim of gaining a comprehensive understanding of the research subject.

Data collection methods are a crucial aspect of research (Moser & Korstjens, 2018), data can be collected from diverse settings, sources, and in various ways. In terms of data collection methods, there are several options, including interviews, observations, documentation, and questionnaires. In this study, data were gathered through observation, interviews, and documentation techniques (Mukuhlani et al., 2014). Interviews were carried out with informants selected using the Snowball Interview method, guided by pre-prepared interview questions. Interviews served as the primary data collection method, aimed at obtaining more reliable information from the informants, and were complemented by observations and documentation from the employees (Pintrich, 1991).

Interviews were conducted with Public figures, Bureaucracy / ASN, Student, and Youth to obtain data relating to activities to create Green Open Space or Ruang Terbuka Hijau (RTH) in Madiun City.

Primary sources in data collection refer to main sources, especially those from the community, residents, mayors and city officials (Mukuhlani & Nyamupingidza, 2014). Secondary sources, on the other hand, include environmental managers, environmental NGOs, the Environmental Service, and the Health Service in Madiun. In qualitative research, data is collected from various sources using different data collection methods and is carried out continuously until data is reached.

The data processing framework adopted in this research is based on the Interactive model developed by Miles and Huberman. This model consists of several stages, including data collection, data reduction, data presentation, and conclusion drawing/verification, as

detailed in the Miles and Huberman Interactive Data Processing Model (Martin et al., 2021)

The research was carried out in stages: observing the condominium environment; interviews with residents/ASN in Madiun City; documentation of the results of the interview; writing down interview data and drawing conclusions.



Figure 1. The process of social construction

Result and Discussion

Results

In this section, it is explained the results of research and at the same time is given the comprehensive discussion. Results can be presented in figures, graphs, tables and others that make the reader understand easily (Baier et al., 2019; Flanagan et al., 2020). The discussion can be made in several sub-sections.

To find out the actual conditions of the environment and oxygen, the authors interviewed city residents, from Public figures, Bureaucracy / ASN, Student, and Youth, as follows

Table 1. The actual conditions of the environment and oxygen

Interview Material	Environmen-tal Conditions	Respondent	Percentage %
How is Madiun urban forest reforestation.	Green	Public figure	19
	Dry	Bureaucracy / ASN	30.6
	fertile	Student	15
	Lush	Youth	35.4
Citizens' Hope Tree Assistance for the community	Owning Land For greening	Public figure	27.2
		Bureaucracy / ASN	6.6

Interview Material	Environmen-tal Conditions	Respondent	Percentage %
Reforestation Outreach	Residents are required to plant trees.	Student	35.6
		Youth	30.6
		The Role Of The City Government	
		Public figure	48.4
		Bureaucracy / ASN	16.6
Condition O2 Oxygen In The City	The impact of pollution on the health of citizens	Student	12.3
		Youth	18.7
		Public figure	0
		Bureaucracy / ASN	76.6
		Student	12.8
1-5 years old 6 -10 years old 11-15 years old 16-20 years old 21-25 years old > 25 years old	Instilled from an early age in city residents	Youth	0
		Character Establishment of Neighborhood Citizens	
		Public figure	46.2
		Bureaucracy / ASN	42.8
		Student	16.4
Environmental care	Reforestation Objectives: Motivation Create a cool clean environment, fresh air, healthy	Youth	12.1
		Motivation To Care For Reforestation	
		Public figure	1.7
		Bureaucracy / ASN	20.4
		Student	30.2
Good health.	Healthy people, fresh air.	Youth	40.2
		Advantages Of Cool Environment	
		Public figure	41.7
		Bureaucracy / ASN	43.8
		Student	11.4
Pollution Impact Bad air	Understanding healthy environment / awareness Reforestation	Youth	0
		Public figure	26.7
		Bureaucracy / ASN	27.2
		Student	7.3
		Youth	38

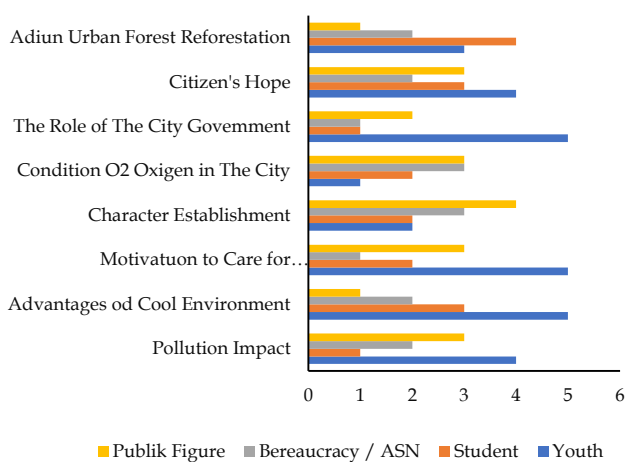


Figure 2. The Actual Conditions of The Environment and Oxygen

Discussion

The social construction of the community carries out social changes which include the fields of attitudes and behavior due to the strong motivation to create

quality greenery in the City of Madiun (Zimmerman et al., 2009). The process of social construction in the community, which occurs in changes in self-understanding of attitudes and behavior in the learning process of urban reforestation, is seen in changes in attitudes and conscious behavior towards environmental awareness (Vituze, 2018). In the current era, it cannot work using a pattern of forcing residents to be aware of the environment because the reforestation process can stagnate, not go well (Dent & Koenka, 2015). And this is not permitted by the City Environment Service, because the results in instilling behavioral attitudes in students are not maximal (Fujiwara et al., 2012).

To promote environmental awareness, love for greenery is carried out through socialization of environmentally conscious programs to students, both college students, vocational/high school students, elementary/junior high school children, PAUD/PGSD children and their teachers. For this purpose (Pintrich, 1991) Social Construction is needed in the attitudes and behavior of all components of society, starting from

mass organizations, community leaders, scholars, teachers, lecturers (Siscawati, 2012).

This is where changes in environmentally conscious behavior are formed with the motivation of discipline and love for greening, deepening knowledge of greening with all sincerity both self-taught and through simultaneous Reforestation led by the mayor organized by the Madiun city government, through city greening (Pressley et al., 1995). The social construction experienced by the community is obtained through collaboration with various parties including higher education institutions/PTN Hertati et al. (2023), environmental services and environmental in the city of Madiun with the socialization of the reforestation program, residents should deepen their knowledge of reforestation by attending debriefing from related agencies, so as to create social change in an environmentally conscious understanding (Bratamihardja et al., 2019).

The provision of Reforestation materials is very helpful in creating a society that cares about the environment which is being promoted by the government the city of Madiun in order to create a green, cool, comfortable environment. The community understands the importance of a healthy, fresh, beautiful, environmentally conscious environment (Vonkova & Hrabak, 2015). Changes in the behavior of residents of the city of Madiun in creating greenery as citizens who love the environment is a Social Construction in line with the theory of Thomas Luckman, Peter Berger, create a society of love, care and aware of the environment, created a cool city, fresh air (Fikriyya et al., 2020).

Conclusion

A community construction process is needed to achieve social change in society, creating environmental awareness, with large trees that produce O₂. Study of the phenomenon of community social construction, study of community social construction in creating an innovative living environment (Kismunthofiah et al., 2021). This research is intended with the main objective being to create clean air, fresh air, quality/professional quality oxygen. Realizing social change related to attitudes, behavior, environmental discipline according to regulations (Li & Zheng, 2018). Increase citizens' awareness to protect the environment by going green according to their scientific field

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Public figures, Bureaucracy/ASN, Student, and Youth to obtain data relating to activities to create Green Open Space or "Ruang Terbuka Hijau (RTH)" in Madiun City.

Author Contributions

Mr. Agus Prasetya is first author. He served as an interviewer. Ms. Ani Anjarwati is second author. She is on duty in the field (observation, distributing questionnaires, documentation). Ms. Suparti is third author. She as a report data Compiler.

Finding

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Conflicts of Interest

The authors declare no conflict of interest.

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