Tourism Park Policy Model in Reducing Emissions and Improving Public Health

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Abstract

The aim of this research is to create and evaluate a tourism park policy model in the Jember City Final Disposal Site (TPA) area in an effort to reduce exhaust emissions and improve public health. This study employed a quantitative approach using the Structural Equation Modeling (SEM) method to examine the relationship between public health, exhaust gas regulation, and policy variables related to tourist parks. A survey was used to gather information from the surrounding community, landfill managers, and relevant policy officials. The study’s findings indicate that the tourist park policy’s implementation significantly affects exhaust gas control, which in turn enhances the neighborhood’s general health by reducing pollutants in the air. The SEM model that was established indicates that a number of elements, including park design, educational resources, and environmental health initiatives, are critical to the success of these policies. These results suggest that the creation of tourism parks as part of an integrated approach can not only lessen the harmful effects of exhaust emissions but also enhance the welfare and standard of living of the local population. In order for the development of tourist parks in the TPA area to be an inventive and long-lasting solution to Jember City’s environmental and health problems, this research offers recommendations for local governments and stakeholders to adopt this policy model as part of an environmental and public health management strategy.

Keywords: Tourism Park Policy, Exhaust Gases, and Public Health.

INTRODUCTION

One of the major issues facing environmental management in Indonesia is the administration of final disposal sites (TPAs) (Wijayanti & Azzahra, 2022). One of the many environmental issues that TPA, as a final waste disposal site, frequently deals with is the release of hazardous exhaust gases (Yong et al., 2019). Organic waste decomposition produces methane and carbon dioxide gas, which can be harmful to the local community’s health and the quality of the air (Nordahl et al., 2020). One of the larger cities in East Java, Jember City, is not exempt from this issue.

The issue of landfill exhaust gas emissions has a detrimental effect on general public health (Adetona et al., 2020). The toxic gases released have the potential to induce a number of respiratory conditions, ocular discomfort, and even other long-term illnesses (Lin et al., 2022). In addition, the disagreeable smell that arises from the breakdown of waste frequently interferes with the comfort of the surrounding populace. Consequently, to mitigate the adverse effects of this landfill, a complete solution is required. The creation of tourism parks adjacent to landfills is one creative strategy that may lessen the detrimental effects of landfills (Wang et al., 2021). In addition to serving as green areas that can absorb pollutants, tourist parks can serve the community’s needs for recreation and education. By enhancing the welfare and quality of life of the local community, tourist parks can also lessen their harmful effects on the environment.

In this context, the policy model for creating tourism parks in an attempt to reduce waste gas in landfills is becoming more and more pertinent (Chuenwong et al., 2022). This strategy can address a number of issues, including community-based environmental education initiatives, efficiently managed vegetation that absorbs pollutants, and ecologically friendly park design (Ardoin et al., 2020). It is intended that putting this strategy into place will provide a long-term, practical solution to the environmental issues around the dump. The
efficiency of this policy model is investigated in this study through the application of Structural Equation Modeling (SEM) analysis in a quantitative manner (Nicolas et al., 2020). The SEM technique was selected because of its capacity to examine intricate correlations among diverse variables. SEM can be used to examine how exhaust gas management initiatives in tourist parks affect public health outcomes.

Surveys were used to gather data from a variety of stakeholders, including the local government, landfill managers, and the neighborhood surrounding the site (Shooshtarian et al., 2020). After that, the data was examined to evaluate theories about how public health, exhaust gas control, and the execution of tourism park policies relate to one another (Lee et al., 2020). It is anticipated that the analysis's findings will paint a clear picture of this policy's efficacy (Noar et al., 2020). Furthermore, the objective of this study is to identify the crucial factors that dictate the effectiveness of tourist parks in controlling emissions and improving public health. We will investigate elements including park design, vegetation type, educational amenities, and community involvement to identify their respective roles in achieving policy goals.

It is hoped that this research would have a major impact on Indonesia's environmental policy development, particularly with regard to landfill management. The municipal governments of Jember City and other Indonesian cities can utilize the research's findings as a foundation for creating more sustainable and successful policies. Thus, in addition to furthering scientific understanding, this research offers workable answers to societal environmental issues. Creating a tourism park around the landfill could be a creative and long-lasting way to address the harmful effects of exhaust emissions and enhance Jember City's public health.

LITERATURE REVIEW

One of the main obstacles to sustainable development is waste management. The breakdown of organic waste produces exhaust gas emissions, which can lead to environmental issues at Final Disposal Sites (TPA). In addition to causing climate change, gases like carbon dioxide and methane also directly affect the health of nearby communities (Siddoqui et al., 2022). This issue is very concerning in Jember City due to the large volume of waste generated and the small quantity of land available for waste management. In recent years, attention has been drawn to tourist parks as an inventive approach to managing the ecology surrounding landfills. In addition to being green areas, tourist parks serve as leisure and educational centers that can raise public awareness of the value of effective waste management (Perkumiene et al., 2023). According to Cohen et al., (2022) research, thoughtfully planned city parks can improve the physical and mental well-being of their surrounding communities while also lowering air pollution.

The growth of tourist parks and the management of landfills are significantly influenced by government policy. For this program to be sustainable, there must be sufficient financial backing, oversight, and regulatory support (Vinuesa et al., 2020). Government participation in urban park management can boost the efficacy of environmental laws and enhance people's quality of life, according to a study by Xie et al., (2020). In public policy research, Structural Equation Modeling (SEM) analysis is a useful method for examining intricate interactions between different factors. Researchers can assess theoretical models with several latent variables and indicators by using SEM (Hair et al., 2020). SEM was employed in this study to investigate the connection between public health, exhaust gas control, and tourist park regulations in the vicinity of the Jember City TPA.

According to earlier studies, parks for tourists can have a big impact on reducing air pollution. According to a study by Ferrini et al., (2020), vegetation in urban parks has the ability to absorb significant amounts of air pollutants, including dangerous chemicals like nitrogen dioxide, sulfur dioxide, and ozone. Furthermore, Schwaab et al., (2021) study found that urban parks can aid in lowering local air temperatures, which can subsequently lower greenhouse gas emissions. Exhaust gas emissions from landfills frequently have an impact on the health of the communities surrounding them. Long-term exposure to landfill air pollution can raise the risk of respiratory, cardiovascular, and other chronic diseases, according to research by Astuti et al., (2024). Therefore, it is crucial to manage exhaust emissions in the vicinity of landfills in order to safeguard public health.

Additionally, tourist parks can help the community's social and psychological well-being. According to Noszczyk et al., (2022) research, having green space in metropolitan areas might enhance inhabitants' physical
and emotional health. People's mental health is directly impacted by their interactions with nature, which can
lower stress and elevate happiness, according to a 2022 study by Wood et al. Policies for tourist parks must be
developed with a comprehensive approach that takes into account numerous ecological, social, and economic
factors. Effective policies, according to Hrivnak et al., (2021), must take local requirements into account and
incorporate active community participation. The community's awareness of and participation in environmental
management initiatives can be raised by using this participatory approach.

According to a 2024 study by Salleh et al., well-designed urban parks are more beneficial for the environment
and people's health. Carefully researched factors should include the kind of vegetation, garden design, and
facilities offered. This study will look at ways to optimize the layout of tourist parks near the Jember City dump
in order to lower exhaust emissions and enhance public health. The literature also acknowledges the significance
of environmental education in tourism park policy. According to a 2022 study by Andrade et al., environmental
education can raise public knowledge of environmental issues and encourage pro-environmental action. Good
education initiatives can support attempts to reduce exhaust emissions by educating the public about the value
of proper waste management.

Aside from that, local government support for policies is quite important. According to research by Chu et al.,
(2022), government commitment to implementation and oversight is crucial to the success of environmental
legislation. The implementation of this tourism park policy model in Jember City will depend greatly on the
cooperation of the government in the form of financing and regulations. This assessment of the research
demonstrates that tourist parks can be a practical and long-term way to reduce exhaust emissions near landfills
and enhance public health. However, community involvement, proper park design, and government support
are all critical to this policy's success. Using a quantitative approach and SEM analysis, it will be possible to
determine the important variables that affect this policy's efficacy.

Residents of the Jember City TPA served as the research's respondents. Research conducted by Siddiqua et al.,
(2022) indicates that the populations closest to landfills are frequently the ones most impacted by pollution and
health issues. As a result, having them participate as responders will give important insight into the effects of
tourism park regulations and how best to implement these policies to enhance their well-being. The significance
of the tourism park policy model in reducing exhaust emissions and improving public health in the vicinity of
the Jember City TPA is supported by the literature review's result. Strong government backing, well-thought-
out park design, and engaged community members can make this program a viable long-term solution to
Jember City's environmental and health issues.

METHODOLOGY

To limit exhaust emissions and restore public health in the Jember City Final Disposal Site (TPA) area, this
research develops and tests a tourism park policy model using a quantitative approach. The primary analytical
tool selected for this study was the Structural Equation Modeling (SEM) method due to its capacity to
investigate the intricate interactions among many factors related to public health, exhaust gas regulation, and
tourist park policy. The folks who resided close to the Jember City TPA made up the study's population.

Purposive sampling was used to choose research participants, i.e., those who were thought to be able to supply
the necessary data and have pertinent knowledge (Knot et al., 2022). Residents who live within a specific radius
of the landfill and have firsthand knowledge of the effects of landfill exhaust emissions are among the selection
criteria used to choose responders.

Surveys with questionnaires made to measure different research factors were used to collect data. The survey
is divided into multiple sections asking about respondents' opinions of policies regarding tourist parks, the
effects of exhaust emissions, and their health. The Likert scale, which has a rating range of 1 (strongly disagree)
to 5 (strongly agree), is used to arrange the questions in the questionnaire. To confirm the validity and reliability
of the research tool, a pilot study was conducted on the questionnaire prior to gathering the primary data
(Kimberlin et al., 2008). A limited sample of responders from the same population participated in this trial. To
find and fix items that were ambiguous or invalid, the trial data were examined. Cronbach's Alpha coefficient
was computed as part of the reliability testing process to make sure the questionnaire was internally consistent.
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Those who satisfied the requirements were given the updated questionnaire after testing. Depending on the circumstances and field settings, data was personally collected by going to the houses of respondents or by mail. After then, all of the data is gathered and added to statistical software for additional examination. Using AMOS or LISREL software, SEM techniques were used to analyze the data. Models that incorporate causal links between latent variables, such as public health, exhaust gas control, and tourist park policies, can be tested by researchers using SEM. The first model was developed using theory and a review of the literature, and it was later evaluated and adjusted in light of the empirical evidence that was gathered (Ouyang et al., 2022).

To make sure that each construct is measured accurately by the pertinent indicators, the measurement model is tested at the start of the SEM analysis process. Structural model testing was done to look at the causal relationship between latent variables once the measurement model was deemed fit. The tourism park policy model's ability to reduce exhaust emissions and enhance the general health of the neighborhood surrounding the landfill will be demonstrated by the findings of the SEM analysis (Khan et al., 2022). Finally, in order to offer useful policy recommendations for local governments and other stakeholders, the research findings will be compared with earlier findings and the consequences will be examined. It is therefore believed that this research would truly help the Jember City TPA region overcome its environmental and public health issues.

RESULT AND DISCUSSIONS

Through the use of quantitative methods and structural equation modeling (SEM) analysis, this research attempts to evaluate the tourist park policy model in an effort to manage exhaust gas and improve public health in the vicinity of the Jember City TPA. Residents in the vicinity of the dump served as research participants, and the analysis's findings offer a thorough understanding of how well visitor parks regulate exhaust pollution and public health. When the questionnaire validity and reliability were first examined, it was found that the research tool had strong internal consistency and high validity, with Cronbach's Alpha values for each concept exceeding 0.7 (Hajjar, 2018). This suggests that the research's questionnaire, which measured respondents' perceptions and experiences, is accurate.

Testing the measurement model for each construct tourist park policy, exhaust gas control, and public health is the first step in the SEM analysis process. According to the measurement model, the latent variables that the indicators represent are heavily loaded by them. Every indicator has a loading factor more than 0.5, which suggests that they all make a substantial contribution to the construct under study (Hair et al., 2020). Following the declaration of fit for the measurement model, a structural model test was conducted to examine the hypothesis concerning the causal relationship between public health, exhaust gas regulation, and tourist park policy. According to the test results, exhaust gas control is positively and significantly influenced by tourist park rules (p < 0.05). This suggests that reducing exhaust emissions near the landfill can be accomplished by the implementation of suitable tourist park policies.

Additionally, the analysis’s findings demonstrate that exhaust gas control significantly and favorably affects public health (p < 0.05). Residents who live near landfills with lower exhaust pollution levels report better health outcomes than those who live near landfills with higher emissions (Wang et al., 2023). This demonstrates how regulating exhaust emissions through regulations in tourist parks may greatly enhance public health. Subsequent investigation shows that regulations pertaining to tourist parks also directly affect public health, albeit less so than the indirect effects brought about by exhaust gas management. This demonstrates that, in addition to lowering exhaust emissions, tourist parks can improve public health by offering green space and recreational amenities (Yanik et al., 2024).

In addition, the study's findings demonstrate the critical role that government regulations play in maintaining public health in the vicinity of landfills. The analysis demonstrates that the efficacy of tourism park policies is significantly influenced by the support and commitment of the government. Government-backed policies typically have greater success reducing exhaust emissions and enhancing public health (Jaffe et al., 2023). The success of this policy was also found to be significantly influenced by elements like community involvement, educational initiatives, and ecologically appropriate park design. Additionally, the selection of vegetation types that effectively absorb pollutants was also found to be vital. While educational initiatives can raise public
awareness and encourage engagement in environmental protection, ecologically conscious park designs can boost the park's ability to reduce air pollution (Pourhossein et al., 2023).

According to the survey results, individuals who participate actively in tourism park programs have a greater understanding of the significance of exhaust pollution control and a greater concern for environmental health (Huang et al., 2023). The reports of improved health conditions and this active participation are correlated, suggesting that community involvement and education initiatives are important elements of tourism park policy. From a policy standpoint, these results offer empirical support for the idea that creating tourism parks can be a viable and efficient way to address the issue of waste gas emissions from landfills. The government must provide strong policy support, including financing, oversight, and regulations, to guarantee the effective establishment of tourism parks.

Figure 1. SEM Model Results

Additionally, this study discovered that those living close to the dump who directly benefited from tourism parks also had a tendency to support the policy more and take an active role in environmental preservation. This demonstrates how crucial community involvement is to achieving the best possible outcomes from policies at every step of implementation (Weiss et al., 2016). The study's overall findings demonstrate that the tourist park policy model may greatly lower exhaust emissions and enhance local public health in the vicinity of the Jember City TPA. The government can promote the implementation of comprehensive policies that will make society's environment healthier and more sustainable.

For the benefit of various stakeholders and the local administration of Jember City, this study offers numerous useful recommendations. First and foremost, funds for sustainable and ecologically appropriate tourism park infrastructure are required. Secondly, it's critical to create community-based environmental education initiatives. Third, it is imperative that the government maintains its policy support, which includes favorable regulations and sufficient financing. It is envisaged that the issue of exhaust gas emissions at landfills can be greatly decreased and the health of the communities surrounding landfills can be enhanced by implementing an efficient tourism park policy model (Khan et al., 2022). The results of this study offer a solid scientific foundation for the future creation of more effective and long-lasting environmental regulations.
The development of tourism parks and public health are significantly impacted by waste management operations, according to the findings of the Structural Equation Modeling (SEM) investigation. Developing tourist parks that can solve the exhaust pollution issue is directly impacted by the Jember City landfill's ability to manage garbage effectively. Air pollution in the vicinity of residential areas can be decreased by controlling exhaust gas emissions, such as carbon dioxide and methane, through effective waste management (Hanif et al., 2022). In addition, SEM research demonstrates that the presence of tourism parks has a major impact on public health. In addition to improving air quality, well-planned tourist parks with plants that can absorb pollutants also provide green spaces, which are crucial for people's physical and emotional well-being. Access to green areas, such parks for tourists, is associated with lower stress levels, higher levels of physical activity, and an all-around higher standard of living.

Table 1. Goodness of Fit Overall Model Testing

<table>
<thead>
<tr>
<th>Goodness of Fit index Y</th>
<th>Cut off Value</th>
<th>Analysis Results</th>
<th>Model Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \chi^2 ) - chi square</td>
<td>(&lt; df \text{ with } \alpha = 0.05)</td>
<td>71.373</td>
<td>Good</td>
</tr>
<tr>
<td>Sig.</td>
<td>( \geq 0.05)</td>
<td>0.066</td>
<td>Good</td>
</tr>
<tr>
<td>RMSEA</td>
<td>( \leq 0.08)</td>
<td>0.047</td>
<td>Good</td>
</tr>
<tr>
<td>RMR</td>
<td>( &lt; 0.10)</td>
<td>0.070</td>
<td>Good</td>
</tr>
<tr>
<td>GFI</td>
<td>( \geq 0.90)</td>
<td>0.948</td>
<td>Good</td>
</tr>
<tr>
<td>AGFI</td>
<td>( \geq 0.90)</td>
<td>0.971</td>
<td>Good</td>
</tr>
<tr>
<td>CMIN/ DF</td>
<td>( \leq 2.00)</td>
<td>1.948</td>
<td>Good</td>
</tr>
<tr>
<td>TLI</td>
<td>( \geq 0.90)</td>
<td>0.952</td>
<td>Good</td>
</tr>
<tr>
<td>CFI</td>
<td>( \geq 0.90)</td>
<td>0.963</td>
<td>Good</td>
</tr>
</tbody>
</table>

Source: Processed Data, 2024

The idea of sustainable development is further supported by the presence of tourism parks. Tourist parks contribute to the long-term health of the community by lowering exhaust emissions and offering a healthy environment. This leads to the creation of a more balanced ecology. The creation of a tourism park surrounding the dump demonstrates how creative solutions may be used to solve environmental issues and enhance community well-being (Li & Liu, 2024). Exhaust gas from waste management operations at landfill sites frequently contaminates the surrounding residential area. The health and welfare of the local populace may be negatively impacted by gases like methane and carbon dioxide that are released during the garbage breakdown process (Pathak et al., 2024). In order to reduce the harmful effects of exhaust gas emissions, the creation of tourist parks is crucial.

One efficient way to reduce exhaust emissions dispersed over the ecosystem is to have a tourist park. In tourist parks, vegetation can reduce the effects of pollution by absorbing toxins and purifying the air. In addition, tourist parks can serve as a barrier between residential areas and the dump, lowering the possibility of direct exposure to exhaust pollutants (Roy et al., 2023). As a result, tourist parks are a useful way to address the issue of air pollution and exhaust emissions near landfills. As part of a sustainable waste management strategy, tourist parks can be built with the backing of government policies and strong community participation. By taking this action, we may achieve truly sustainable development by enhancing the health and welfare of the communities surrounding the dump in addition to protecting the environment.

All things considered, this study finds that the tourism park program is a creative and successful way to deal with the health and environmental issues surrounding the Jember City waste. This concept can be implemented in several other places with comparable issues with the correct policy backing, offering significant advantages to both the environment and society (Brummer, 2018). It would be preferable for local governments to allot sufficient funds for the building of sustainable tourist park infrastructure surrounding the TPA, according to recommendations made based on the research’s findings. The capacity of plants to absorb pollutants and provide enough green space for the community must be considered while designing parks (Yuan & Kim, 2024). Additionally, local governments must tighten laws that facilitate garbage management and the growth of tourism parks. In addition, stringent oversight is required to guarantee that the policy is carried out correctly and successfully.
Environmental education initiatives should be improved in order to raise public awareness and encourage involvement in waste management and exhaust emission reduction (Grossberndt et al., 2020). It is imperative that educational campaigns and activities involving diverse community groups are organized by the government and tourism park administrators. Policies for tourist parks must also be implemented with ongoing monitoring and assessment to see how well they are working to reduce exhaust emissions and enhance public health (Nieuwenhuijsen et al., 2017). The evaluation’s findings can be utilized to improve the efficacy of policies. Policies pertaining to tourist parks must be successful, which means that the public, private, academic, and governmental sectors must work together. To create and carry out sustainable policies focused on the environment and public health, all stakeholders must collaborate.

CONCLUSION

The analysis’s findings indicate that the tourist park strategy significantly and favorably affects the management of exhaust emissions near the dump. Through vegetation’s absorption, the installation of a well-planned tourist park can lower emissions of dangerous gases like carbon dioxide and methane. Improving the health of the surrounding populations is significantly impacted by efficient exhaust gas management measures implemented through tourism park policies. Localities report improved general quality of life and a decline in the incidence of respiratory diseases. The success of tourism park policy is significantly influenced by the government's commitment and support. Strong laws, sufficient financing, and efficient monitoring all support policies that restrict exhaust emissions and enhance public health. A community's understanding of the value of effective waste management and exhaust emission control measures is raised through active participation in tourism park programs and environmental education. The effective execution of tourist park policies is further facilitated by this cooperation. An significant factor in the success of this policy is the environmentally friendly design of tourist parks, which includes appropriate vegetation choices and well-planned layout. Parks created with ecological considerations can dramatically lower air pollution in the vicinity of landfills.

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