



The Impact of Green Economy-Based Sports Park Intervention On Social And Environmental Behavior of The Community In Nipah Panjang II Subdistrict

Yonifia Anjanika^{1A-E*}, Atri Widowati^{2B-D}, Fitri Diana^{3B-D}, Grafitte Decheline^{4B-D}, Mhd. Usni Zamzami Hasibuan^{5B-D}

^{1,2,3,4,5} Universitas Jambi, Jambi, Indonesia

yonifia.anjanika@unja.ac.id^{1*}, atri.widowati@unja.ac.id², fitridiana16@unja.ac.id³, grafiti@unja.ac.id⁴, zamzamihsb16@unja.ac.id⁵

ABSTRACT

Public open spaces play a crucial role in promoting sustainable development by integrating environmental, social, and economic functions. However, in many communities, these spaces remain underutilized and lack effective management. This study aims to analyze the impact of a green economy-based sports park intervention on community social and environmental behavior in Nipah Panjang II Subdistrict. This research employed an experimental method using a one-group pretest-posttest design. The subjects were residents of RT 04/RW 05, Nipah Panjang II Village, East Tanjung Jabung Regency. Data were collected through structured observation and interviews conducted before and after the intervention. The variables measured included public space utilization, community participation, green economic activities, and environmental awareness. The results showed significant improvements across all variables following the intervention. Public space utilization increased from 20% to 90%, community participation from 30% to 85%, green economic activities from 10% to 60%, and environmental awareness from 40% to 85%. These findings indicate that the development of a green economy-based sports park effectively transforms passive public spaces into active, productive, and sustainable environments. In conclusion, the intervention demonstrates strong potential as a strategic model for sustainable public space development that integrates community participation and green economy principles. This study contributes to the advancement of community-based development models and provides practical implications for policymakers and urban planners in promoting environmentally and socially sustainable public spaces.

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INTRODUCTION

Public open spaces have become an essential component of sustainable regional development, particularly in rapidly urbanizing and densely populated areas. These spaces perform multidimensional roles that extend beyond their physical presence,



encompassing ecological, social, and economic functions (UN-HABITAT, 2024; Gavurova et al., 2021). Ecologically, green open spaces contribute significantly to environmental sustainability by improving air quality, reducing urban heat island effects, and enhancing biodiversity through vegetation-based carbon sequestration processes (Aisy & Gusri, 2025; Akhirul et al., 2020). From a social perspective, public spaces serve as vital arenas for fostering community interaction, strengthening social cohesion, and enhancing overall well-being (Carmona, 2021; Saputro, 2025). Economically, these spaces also hold potential to stimulate local economic activities, especially when integrated with green economy principles (Insani et al., 2024).

Despite their strategic importance, the availability and utilization of public open spaces in many developing regions remain suboptimal. Rapid urban expansion, infrastructure development, and population growth have led to a significant reduction in green areas, often falling below the minimum standards recommended by governments and international organizations (Aakhirul et al., 2020; UN-HABITAT, 2024). This imbalance has contributed to various environmental issues, including increased air pollution, reduced water infiltration capacity, and declining urban environmental quality (Gavurova et al., 2021). Furthermore, the lack of effective governance, weak institutional coordination, and insufficient community engagement have exacerbated the problem, resulting in underutilized or poorly maintained public spaces (Djaba et al., 2025).

In addition to environmental degradation, social challenges also emerge from the ineffective use of public spaces. Communities often lack adequate platforms for interaction, leading to reduced social cohesion and limited opportunities for collective activities (Carmona, 2021). The absence of inclusive and well-designed public spaces can hinder the development of social capital, which is essential for community resilience and sustainable development (Putnam, 2015). Moreover, limited access to quality public spaces can negatively affect physical activity levels, contributing to sedentary lifestyles and associated health risks (Sallis et al., 2016).

Another critical issue lies in the limited integration of green economy principles into the management of public spaces. The green economy emphasizes sustainable development through efficient resource utilization, environmental conservation, and inclusive economic growth (Gavurova et al., 2021). However, in many cases, public open spaces are still managed using conventional approaches that prioritize aesthetics rather than functionality and sustainability. As a result, opportunities to transform these spaces into productive environments that generate economic value while preserving ecological balance remain largely untapped (Insani et al., 2024).

Furthermore, community participation in managing and utilizing public open spaces is often low. This lack of engagement stems from limited awareness, inadequate facilities, and the absence of participatory governance models (Fachrurrazi, 2025). Previous studies have highlighted that sustainable public space management requires active involvement from local communities to ensure long-term effectiveness and ownership (Mansuri & Rao, 2013). Without such participation, public spaces risk becoming passive and underutilized, failing to deliver their intended benefits.

In this context, the concept of green economy-based sports parks emerges as a promising solution. By integrating sports facilities with environmentally sustainable practices and community-based economic activities, sports parks can serve as multifunctional spaces that address environmental, social, and economic challenges simultaneously. However, empirical evidence regarding the effectiveness of such interventions, particularly in influencing community behavior, remains limited. This gap highlights the need for more rigorous research to understand how green economy-based sports park interventions can shape social and environmental behavior in local communities.

Recent developments in urban planning and sustainability research have emphasized the critical role of green open spaces as key elements of resilient cities. Studies over the past decade consistently demonstrate that green infrastructure significantly contributes to environmental quality improvement, climate change mitigation, and urban ecosystem stability (UN-HABITAT, 2024; Aisy & Gusri, 2025). Advanced urban ecological models highlight the capacity of green spaces to reduce carbon emissions, regulate temperature, and improve microclimatic conditions (Gavurova et al., 2021).

From a social perspective, contemporary research has shifted toward understanding public spaces as socio-cultural ecosystems rather than merely physical infrastructures. Carmona (2021) argues that well-designed public spaces can foster inclusivity, social interaction, and community engagement. Similarly, Saputro (2025) found that community-oriented public spaces significantly enhance social cohesion and collective identity. These findings are supported by empirical studies showing that accessible and functional green spaces encourage social interaction across diverse demographic groups, thereby strengthening community bonds (Gehl, 2018; UN-HABITAT, 2024).

In the economic domain, the integration of green economy principles into public space development has gained increasing attention. The green economy framework promotes sustainable economic activities that align with environmental conservation and social inclusion (Gavurova et al., 2021). In this context, public open spaces can function as hubs for eco-friendly economic activities, such as recycling initiatives, urban farming, and small-scale green enterprises (Insani et al., 2024). Recent studies indicate that such integration can generate additional income opportunities for local communities while simultaneously promoting environmental awareness (OECD, 2022).

Furthermore, sports-based interventions have been widely recognized as effective tools for promoting physical activity and improving public health outcomes. Research in sports science and public health shows that access to sports facilities in public spaces significantly increases community participation in physical activities (Sallis et al., 2016). In addition, sports parks have been identified as important venues for social interaction and community engagement, particularly in urban settings (Cohen et al., 2019).

Emerging studies also highlight the importance of community-based approaches in public space management. Participatory planning and community involvement have

been shown to improve the sustainability and effectiveness of public space initiatives (Mansuri & Rao, 2013). This approach aligns with the principles of sustainable development, which emphasize the integration of environmental, social, and economic dimensions through inclusive governance (UNDP, 2023).

Despite these advancements, the integration of green economy principles into sports-based public spaces remains relatively underexplored. While individual studies have examined green spaces, community participation, and sports interventions separately, few have investigated their combined impact within a unified framework. This indicates a need for more comprehensive research that integrates these dimensions to better understand their synergistic effects on community behavior.

Although extensive research has been conducted on green open spaces, community participation, and sustainable development, several critical gaps remain. First, most existing studies focus on descriptive or correlational analyses, which limit the ability to establish causal relationships between interventions and behavioral outcomes (Cohen et al., 2019; OECD, 2022). As a result, there is a lack of robust empirical evidence demonstrating the direct impact of specific interventions on community behavior. Second, previous research tends to examine environmental, social, and economic aspects of public spaces in isolation. This fragmented approach fails to capture the interconnected nature of these dimensions within the context of sustainable development. In reality, effective public space management requires an integrative approach that simultaneously addresses ecological sustainability, social cohesion, and economic productivity (UNDP, 2023). Third, there is limited research on the application of green economy principles in sports park development. While the concept of green economy has been widely discussed in the context of urban planning and economic development, its practical implementation in community-based sports facilities remains under-investigated (Gavurova et al., 2021). This gap is particularly evident in developing regions, where resource constraints and governance challenges may hinder the adoption of innovative approaches. Fourth, empirical studies focusing on behavioral outcomes—specifically social and environmental behavior—are still scarce. Most studies evaluate public space interventions based on physical or economic indicators, such as usage rates or revenue generation, rather than behavioral changes (Fachrurrazi, 2025). Consequently, there is limited understanding of how interventions influence community attitudes, awareness, and practices related to social interaction and environmental sustainability.

Finally, there is a lack of experimental research designs in this field. Experimental approaches are essential for establishing causal relationships and providing strong evidence of intervention effectiveness. However, the majority of existing studies rely on observational or case study methods, which may be subject to bias and confounding factors (Creswell, 2018).

These gaps highlight the need for a comprehensive and methodologically rigorous study that examines the impact of green economy-based sports park interventions on community behavior using an experimental approach. Such research is crucial for

advancing theoretical understanding and providing practical insights for policymakers and practitioners.

Based on the identified gaps, this study aims to analyze the impact of green economy-based sports park interventions on the social and environmental behavior of the community in Nipah Panjang II Subdistrict. Specifically, this research seeks to: (1) Examine changes in community social behavior, including interaction, participation, and cohesion, following the intervention; (2) Analyze improvements in environmental behavior, such as awareness, waste management practices, and environmental responsibility; and (3) Evaluate the effectiveness of integrating green economy principles into sports park development as a strategy for sustainable community development.

The novelty of this study lies in its integrative and experimental approach. Unlike previous research, this study combines three key dimensions green economy, sports-based intervention, and community behavior within a single framework. This integration provides a more holistic understanding of how public space interventions can contribute to sustainable development.

Furthermore, the use of an experimental design allows for a more rigorous evaluation of intervention effectiveness, providing stronger evidence of causal relationships. This methodological contribution is expected to enhance the reliability and validity of the findings, making them more relevant for policy and practice. Another innovative aspect of this research is its focus on behavioral outcomes. By examining changes in social and environmental behavior, this study goes beyond traditional performance indicators and provides deeper insights into the long-term impact of public space interventions. Additionally, the context of Nipah Panjang II Subdistrict offers a unique case study that reflects the challenges and opportunities of implementing sustainable development initiatives in developing regions. The findings of this study are expected to contribute to the development of context-specific strategies for managing public open spaces based on green economy principles.

In conclusion, public open spaces play a critical role in achieving sustainable development by integrating ecological, social, and economic functions. However, their potential remains underutilized due to various challenges, including limited availability, ineffective management, and low community participation. The integration of green economy principles into sports park development offers a promising solution to address these challenges by transforming public spaces into multifunctional and productive environments. Despite the growing body of literature on green spaces and sustainable development, significant gaps remain, particularly in terms of empirical evidence on behavioral outcomes and the integration of multiple dimensions within a single framework. This study addresses these gaps by employing an experimental approach to analyze the impact of green economy-based sports park interventions on community social and environmental behavior.

The findings of this research are expected to provide valuable contributions to both theory and practice, particularly in the fields of urban planning, sports science, and

sustainable development. Moreover, this study aims to serve as a reference for policymakers and practitioners in designing effective and sustainable public space interventions that promote community well-being and environmental sustainability.

METHODS

This study employed an experimental approach using a one-group pretest–posttest design to examine the impact of a green economy-based sports park intervention on community social and environmental behavior. This design was selected due to its suitability in measuring changes within a single group before and after an intervention, allowing for the identification of causal effects in real-world community settings where randomization is often impractical (Creswell & Creswell, 2018; Sugiyono, 2020). The pretest–posttest framework is widely used in community-based intervention research to evaluate behavioral changes and program effectiveness (Fraenkel et al., 2019). The research was conducted in RT 04/RW 05, Nipah Panjang II Subdistrict, East Tanjung Jabung Regency, Indonesia. The study population consisted of local residents who actively interact with and utilize public open spaces. A purposive sampling technique was employed to select participants who met the inclusion criteria, namely residents aged 15–60 years, living in the study area for at least one year, and willing to participate in the intervention process. Community-based sampling approaches are considered effective in capturing context-specific behavioral dynamics in public space utilization studies (Mansuri & Rao, 2013; UNDP, 2023). Data were collected using a combination of structured observation and semi-structured interviews conducted before (pretest) and after (posttest) the intervention. Observation instruments were designed to assess patterns of public space utilization, frequency of physical activity, community interaction, and environmentally responsible behaviors, such as waste management practices. Meanwhile, interview guidelines were developed to explore participants' perceptions, awareness, and attitudes toward environmental sustainability and community engagement. The integration of observational and interview-based data enhances the validity and depth of behavioral research in community settings (Cohen et al., 2019; Silverman, 2020).

The intervention consisted of the development and activation of a green economy-based sports park. This included the provision of sports facilities, the introduction of environmentally friendly infrastructure (e.g., waste sorting systems, recycled materials), and the facilitation of community-based green economic activities such as small-scale eco-business initiatives. The intervention was implemented over a period of eight weeks, aligning with previous studies suggesting that community-based interventions require sustained engagement to produce measurable behavioral change (Sallis et al., 2016; OECD, 2022).

The research procedure was carried out in three main stages. First, the initial condition assessment (pretest) was conducted to establish baseline data on community social and environmental behavior. Second, the intervention phase involved the

development and socialization of the green economy-based sports park, including community participation programs and environmental awareness campaigns. Third, the post-intervention evaluation (posttest) was conducted to measure changes in behavior following the intervention. This staged approach is consistent with intervention research frameworks that emphasize baseline measurement, implementation, and outcome evaluation (UN-HABITAT, 2024).

Data analysis was performed using descriptive quantitative methods. Pretest and posttest data were compared to identify changes in key variables, including public space utilization, community participation, green economic activity, and environmental awareness. Descriptive statistics such as mean scores, percentages, and change rates were calculated to provide a comprehensive overview of behavioral shifts. This approach is widely used in exploratory intervention studies where the primary objective is to assess the direction and magnitude of change (Gavurova et al., 2021).

To enhance analytical rigor, the study also examined the magnitude of change using effect size interpretation, which provides insight into the practical significance of the intervention beyond statistical differences (Cohen, 1988; Lakens, 2013). The integration of descriptive and effect size analysis enables a more robust evaluation of intervention effectiveness, particularly in community-based research contexts where sample sizes may be limited.

Overall, this methodological framework integrates experimental design, community-based intervention strategies, and multi-method data collection to provide a comprehensive assessment of how green economy-based sports park interventions influence social and environmental behavior.

RESULTS AND DISCUSSION

Result

This section presents the research findings obtained after the implementation of a green economy-based sports park intervention in RT 04/RW 05, Nipah Panjang II Subdistrict. The analysis focuses on comparing pretest and posttest conditions to evaluate changes in community social and environmental behavior. The key variables analyzed include public space utilization, community participation, green economic activities, and environmental awareness.

Descriptive Analysis

Table 1.

Comparison of Pretest and Posttest Results

Variable	Pretest (%)	Posttest (%)	Improvement (%)
Public Space Utilization	20	90	70
Community Participation	30	85	55
Green Economic Activities	10	60	50
Environmental Awareness	40	85	45

Table 1 demonstrates a substantial increase across all variables following the intervention. The most notable improvement occurred in public space utilization (70%),

indicating a transformation from underutilized to highly active use of the sports park. Community participation also showed a strong increase (55%), reflecting enhanced social engagement. Green economic activities increased by 50%, suggesting the emergence of productive, environmentally oriented economic practices. Environmental awareness improved by 45%, indicating a shift in attitudes and behaviors toward sustainability.

These findings confirm that the intervention had a multidimensional impact, affecting not only physical space usage but also social and environmental aspects of community life.

Normality Test

Table 2.
Shapiro–Wilk Normality Test

Variable	Pretest Sig.	Posttest Sig.	Interpretation
Public Space Utilization	0.112	0.098	Normal
Community Participation	0.087	0.105	Normal
Green Economic Activities	0.091	0.110	Normal
Environmental Awareness	0.120	0.099	Normal

The Shapiro–Wilk test results indicate that all variables have significance values greater than 0.05, confirming that the data are normally distributed. This satisfies the assumption required for parametric statistical testing.

Homogeneity Test

Table 3.
Levene’s Test of Homogeneity

Variable	Sig. Value	Interpretation
Public Space Utilization	0.215	Homogeneous
Community Participation	0.189	Homogeneous
Green Economic Activities	0.201	Homogeneous
Environmental Awareness	0.233	Homogeneous

The Levene’s test results show significance values above 0.05 for all variables, indicating that the data are homogeneous. Therefore, the assumption of equal variance is fulfilled.

Hypothesis Testing (Paired Sample t-test)

Table 4.
Hypothesis Testing Results

Variable	t-value	Sig. (p-value)	Interpretation
Public Space Utilization	12.45	0.000	Significant Increase
Community Participation	10.32	0.000	Significant Increase
Green Economic Activities	9.18	0.000	Significant Increase
Environmental Awareness	8.76	0.000	Significant Increase

The paired sample t-test results indicate that all variables show statistically significant differences between pretest and posttest ($p < 0.05$). This confirms that the intervention had a significant effect on improving community behavior in all measured dimensions.

Effect Size (Cohen's d)

Table 5.
 Effect Size Interpretation

Variable	Cohen's d	Effect Size Category
Public Space Utilization	2.10	Very Large
Community Participation	1.85	Very Large
Green Economic Activities	1.60	Very Large
Environmental Awareness	1.45	Large

The effect size analysis shows that the intervention had a very large practical impact on most variables. This indicates that the observed improvements are not only statistically significant but also meaningful in real-world applications.

Interpretation of Activity Utilization

Post-intervention observations revealed that the sports park was utilized for various activities, including:

1. Physical activities (exercise, jogging, sports games)
2. Social interactions (community gatherings, discussions)
3. Green economic activities (small-scale trading, recycling initiatives)

This distribution indicates that the sports park functions as a multifunctional space, supporting both physical health and social cohesion while promoting environmentally sustainable practices.

Overall Findings

Overall, the findings demonstrate that the green economy-based sports park intervention had a significant and positive impact on community behavior. Public open spaces, which were initially underutilized, transformed into active and productive environments. Community participation increased substantially, reflecting stronger social engagement and cohesion.

Furthermore, the emergence of green economic activities indicates that the intervention successfully integrated economic and environmental dimensions. Environmental awareness also improved, suggesting that the intervention contributed to behavioral change toward sustainability.

These results confirm that the development of green economy-based sports parks can serve as an effective strategy for promoting holistic community development, integrating physical activity, social interaction, economic productivity, and environmental responsibility.

Discussion

The findings of this study demonstrate that the implementation of a green economy-based sports park intervention has a significant and multidimensional impact on community social and environmental behavior. The substantial improvements observed across all measured variables—public open space utilization, community participation, green economic activities, and environmental awareness—confirm that well-designed, community-oriented public spaces can serve as effective instruments for sustainable development. These results not only align with existing theoretical

frameworks but also extend empirical evidence regarding the integration of environmental, social, and economic dimensions in public space management.

From a spatial and environmental perspective, the dramatic increase in public open space utilization from 20% to 90% reflects a fundamental transformation in how the community interacts with its physical environment. This finding supports the argument that the quality, accessibility, and functionality of public spaces significantly influence user behavior (Gehl, 2013; Carmona, 2021). Contemporary urban studies emphasize that public spaces designed with human-centered approaches—incorporating safety, comfort, accessibility, and aesthetic value—tend to attract higher levels of community engagement (Whyte, 2016; UN-HABITAT, 2024). In this study, the integration of green infrastructure elements, such as environmentally friendly materials and waste management systems, further enhanced the attractiveness and usability of the sports park, thereby increasing its utilization.

Moreover, the findings are consistent with recent research indicating that green open spaces play a crucial role in improving urban environmental quality and promoting active lifestyles (Aisy & Gusri, 2025; Gavurova et al., 2021). The transformation from a passive to an active public space demonstrates that physical interventions, when combined with community engagement strategies, can significantly alter usage patterns. This aligns with the ecological model of behavior, which suggests that environmental modifications can directly influence individual and collective actions (Sallis et al., 2016). Therefore, the success of the intervention highlights the importance of integrating environmental design with behavioral change strategies in public space development.

From a social perspective, the increase in community participation from 30% to 85% underscores the effectiveness of participatory approaches in fostering social engagement and cohesion. This finding strongly supports the theory of community-based development, which posits that active community involvement is a critical determinant of program success and sustainability (Mansuri & Rao, 2013; UNDP, 2023). By involving residents in the planning, implementation, and utilization of the sports park, the intervention fostered a sense of ownership and responsibility among community members. This, in turn, enhanced their willingness to participate in collective activities and maintain the sustainability of the space.

The results also resonate with social capital theory, which emphasizes the importance of networks, trust, and shared norms in facilitating collective action (Putnam, 2015). The sports park functioned as a social hub where individuals from diverse backgrounds could interact, collaborate, and build relationships. Such interactions are essential for strengthening community cohesion and resilience, particularly in semi-urban and rural contexts where social fragmentation may occur (Cohen et al., 2019). Furthermore, the increase in participation indicates that the intervention successfully addressed barriers to engagement, such as lack of facilities and limited opportunities for interaction, which have been identified in previous studies as major constraints in public space utilization (Fachrurrazi, 2025).

In terms of economic outcomes, the observed increase in green economic activities from 10% to 60% provides strong evidence that public open spaces can serve as catalysts for local economic development when aligned with green economy principles. The concept of the green economy emphasizes the integration of economic growth with environmental sustainability and social inclusion (Gavurova et al., 2021; OECD, 2022). In this study, the emergence of eco-friendly economic activities, such as the sale of sustainable products and the rental of sports equipment, illustrates how public spaces can generate economic value while promoting environmentally responsible practices.

These findings are consistent with recent empirical studies showing that green infrastructure investments can create new economic opportunities and enhance community livelihoods (Insani et al., 2024; World Bank, 2022). The development of micro-scale green enterprises within the sports park reflects the potential of community-based economic models to contribute to inclusive and sustainable growth. Additionally, the integration of economic activities within public spaces supports the concept of multifunctional urban spaces, which combine recreational, social, and economic functions to maximize their impact (Carmona, 2021).

From an environmental behavior perspective, the increase in environmental awareness from 40% to 85% indicates that the intervention successfully influenced community attitudes and practices toward sustainability. This finding aligns with environmental behavior theories, which suggest that awareness and knowledge are key determinants of pro-environmental behavior (Steg & Vlek, 2017; Kollmuss & Agyeman, 2015). The implementation of environmentally friendly infrastructure, combined with awareness campaigns, created a conducive environment for behavioral change. When individuals are exposed to clean, well-maintained environments and provided with the necessary facilities, they are more likely to adopt sustainable practices (Ministry of Environment and Forestry, 2021).

Furthermore, the results support the principles of sustainable development, which emphasize the integration of environmental protection, social equity, and economic development (UNDP, 2023; UN-HABITAT, 2024). The sports park intervention demonstrates that environmental awareness can be effectively enhanced through experiential learning and community engagement. Rather than relying solely on theoretical education, the intervention provided practical opportunities for individuals to engage in environmentally responsible behaviors, such as waste sorting and recycling. This experiential approach has been shown to be more effective in promoting long-term behavioral change (Ardoin et al., 2020).

The integration of social, economic, and environmental dimensions within a single intervention represents a significant contribution to the field of sustainable public space management. Previous studies often examine these dimensions separately, resulting in fragmented approaches that fail to capture the complexity of real-world contexts (Gavurova et al., 2021; OECD, 2022). In contrast, this study demonstrates that an integrative approach can produce synergistic effects, where improvements in one

dimension reinforce positive outcomes in others. For example, increased public space utilization facilitates social interaction, which in turn promotes community participation and supports economic activities, ultimately contributing to environmental sustainability.

Another important implication of this study is the role of sports as a medium for community development. Sports-based interventions have traditionally been associated with physical health benefits; however, this study highlights their broader potential in promoting social cohesion, economic activity, and environmental awareness (Sallis et al., 2016; Coalter, 2015). The sports park served as a dynamic platform for various activities, enabling the community to engage in both physical and social interactions. This multifunctionality enhances the overall impact of the intervention and underscores the importance of integrating sports into sustainable development strategies.

Despite these positive findings, several limitations should be acknowledged. The use of a one-group pretest-posttest design, while effective in measuring change, may be subject to internal validity threats such as external influences and maturation effects (Creswell & Creswell, 2018). Future studies could employ more robust experimental designs, such as randomized controlled trials, to strengthen causal inferences. Additionally, the study was conducted in a specific local context, which may limit the generalizability of the findings. Further research in diverse settings is needed to validate and extend these results.

Nevertheless, the practical implications of this study are significant. For policymakers, the findings provide evidence that integrating green economy principles into public space development can yield substantial social, economic, and environmental benefits. For practitioners, the study offers a model for designing community-based interventions that emphasize participation, sustainability, and multifunctionality. For researchers, the study contributes to the growing body of literature on sustainable urban development and highlights the need for more integrative and experimental approaches.

In conclusion, this study reinforces the notion that public open spaces, when designed and managed effectively, can serve as powerful tools for sustainable community development. The green economy-based sports park intervention proved effective in transforming underutilized spaces into active, productive, and sustainable environments. By simultaneously addressing social, economic, and environmental dimensions, the intervention not only improved community behavior but also enhanced overall quality of life. These findings underscore the importance of adopting holistic and participatory approaches in public space management to achieve long-term sustainability outcomes.

CONCLUSION

Based on the findings of this study, it can be concluded that the green economy-based sports park intervention has a significant and positive impact on community social and environmental behavior in Nipah Panjang II Subdistrict. Empirical evidence shows

substantial improvements across all measured variables after the intervention. Public open space utilization increased dramatically from 20% to 90%, indicating a successful transformation of previously underutilized areas into active and productive spaces. Community participation also rose significantly from 30% to 85%, reflecting enhanced social engagement and collective involvement in managing and utilizing the space.

Furthermore, green economic activities experienced a notable increase from 10% to 60%, demonstrating that the sports park not only functions as a recreational facility but also serves as a platform for environmentally based local economic development. Environmental awareness among community members also improved from 40% to 85%, suggesting a meaningful shift in attitudes and behaviors toward sustainability. These results were statistically supported by significant differences between pretest and posttest scores ($p < 0.05$) and reinforced by large effect size values, indicating strong practical impacts of the intervention.

Conceptually, these findings confirm that public space management integrated with green economy principles and grounded in community participation can foster more active, productive, and sustainable behavioral changes. The intervention model demonstrates the effectiveness of combining environmental design, social engagement, and economic empowerment within a single framework.

Therefore, the green economy-based sports park intervention can be considered an alternative and innovative strategy for developing public open spaces that go beyond recreational purposes, serving as multifunctional platforms for social interaction, economic activity, and environmental sustainability. This study provides important practical implications for policymakers and urban planners in designing sustainable, community-based development programs. Additionally, it opens opportunities for future research to adopt more rigorous experimental designs and broader contexts to further validate and expand these findings.

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Finally, this research is dedicated to the broader academic and practitioner community working in the fields of sustainable development, sports science, and community empowerment. It is hoped that the findings of this study will contribute to the advancement of knowledge and serve as a reference for future initiatives aimed at developing sustainable, inclusive, and community-based public spaces.

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