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SUSTAINABLE GOVERNANCE OF URBAN LEISURE BASED ON CONSERVATION AT LANGSA CITY FOREST PARK, ACEH

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ABSTRACT

Urban forests play an important role in maintaining ecological quality while providing recreational and social benefits for urban communities. However, the increasing utilization of urban forests as leisure destinations raises concerns regarding the long-term sustainability of their ecological functions. This study examines how governance mechanisms support the coexistence of conservation and urban leisure in Langsa City Forest Park, Aceh, Indonesia. A mixed-methods approach with a sequential explanatory design was employed, combining visitor surveys, stakeholder interviews, field observations, and document analysis. Quantitative findings indicate that visitors strongly perceive the recreational, educational, and social functions of the area, while ecological functions remain positively valued. Qualitative findings reveal that the sustainability of ecological functions is supported by three interrelated governance dimensions: institutional centrality, adaptive policy mechanisms, and multi-actor collaboration. The Environmental Agency maintains a central role in conservation management, while the 2022 Detailed Spatial Plan (RTRD) provides regulatory protection for ecologically sensitive areas. Furthermore, collaboration among government agencies, site operators, conservation institutions, and local communities strengthens monitoring, evaluation, and adaptive management processes. The findings demonstrate that urban leisure development does not necessarily conflict with ecological conservation when supported by adaptive governance arrangements. This study contributes to the growing discussion on conservation-based urban leisure by providing empirical evidence from an emerging urban forest destination in Indonesia.

KEYWORDS: Urban leisure, Urban Forest Park; adaptive governance, conservation-based tourism.

1. INTRODUCTION

The presence of city forest parks is an important part of urban green open space systems, serving to maintain ecological balance while also meeting the social needs of the community [1], [2]. Over time, city forest parks no longer just function as conservation areas, but have also developed into urban leisure spaces that provide recreational, educational, and nature-based social interaction activities [3], [4]. This concept positions city forest parks as multifunctional public spaces that integrate ecological,

social, and economic functions in one area [10]. However, the increase in recreational activities and space use has the potential to put pressure on the ecological functions of an area if it is not balanced with management that can maintain the balance between conservation interests and tourism use [4], [5]. Therefore, managing urban forest parks requires an adaptive management approach so that the ecological functions of the area are maintained amid the growing recreational needs of urban communities [11].

Various studies have discussed the ecological and social benefits of urban forest parks, but research on how management maintains the sustainability of ecological functions as the area develops into an urban leisure space is still relatively limited [4], [5], [10]. Langsa City Forest Park in Aceh Province is an interesting case because it serves as a habitat for flora and fauna while also developing as a main natural recreation space for the people of Langsa City [6], [7]. This situation shows the need to maintain a balance between conservation functions and sustainable use of areas. Based on this background, this study aims to analyze the role of governance in maintaining the ecological functions of Langsa City Forest Park amid its development as an urban leisure space based on conservation [8], [9], [11].

2. GOVERNING CONSERVATION BASED URBAN LEISURE

2.1 Urban Leisure in Conservation Based Urban Forest

Urban forests have evolved beyond their traditional role as ecological infrastructure and are increasingly recognized as important urban leisure spaces. In contemporary cities, urban forests provide opportunities for recreation, environmental education, physical activity, and social interaction while simultaneously maintaining ecological functions such as biodiversity conservation, carbon sequestration, and microclimate regulation [8], [10]. This multifunctional character positions urban forests as strategic urban assets capable of supporting both environmental sustainability and community well-being.

The concept of urban leisure emphasizes the use of urban green spaces as settings for nature-based recreational experiences that improve quality of life without compromising environmental integrity [1], [6], [8]. Unlike conventional tourism destinations that prioritize visitor attraction and economic performance, conservation-based urban leisure seeks to maintain ecological values as the primary foundation of recreational activities. Consequently, visitor experiences are expected to develop within the ecological carrying capacity of the area rather than through extensive physical modification of the landscape [2], [4], [11].

Recent studies indicate that the growing demand for urban leisure creates both opportunities and challenges for urban forest management [5], [8], [9]. On one hand, recreational activities strengthen public appreciation toward environmental conservation and increase social benefits derived from urban green spaces. On the other hand, increasing visitor intensity, infrastructure demands, and economic activities may generate pressures on ecological systems if not properly managed [10]. Therefore, the

sustainability of conservation-based urban leisure depends not only on the quality of natural resources but also on the ability of governance systems to balance conservation objectives with public use.

In this context, conservation-based urban forests require governance approaches capable of maintaining ecological functions while accommodating the recreational needs of urban communities. The challenge is no longer whether urban forests should serve recreational purposes, but how these functions can coexist without undermining the environmental values that justify the existence of the urban forest itself [10], [11].

2.2 Adaptive Governance for Ecological Sustainability

The sustainability of conservation-based urban leisure depends not only on ecological quality but also on the governance mechanisms that regulate interactions between environmental protection and human activities [11], [12]. As urban forests increasingly accommodate recreational, educational, and social functions, management systems are required to respond to changing environmental conditions and community needs without compromising ecological integrity. This condition highlights the importance of adaptive governance, which emphasizes flexibility, learning, and institutional responsiveness in managing complex socio-ecological systems [14], [15].

Adaptive governance recognizes that urban green spaces are dynamic environments where ecological conservation and public utilization continuously interact [10]. Rather than treating conservation and recreation as separate objectives, adaptive governance seeks to integrate both functions through coordinated policies, management practices, and stakeholder involvement [9], [15]. Such an approach allows urban forest managers to adjust strategies according to environmental pressures, visitor demands, and changing urban development contexts while maintaining long-term sustainability goals [8], [5].

The effectiveness of adaptive governance is strongly influenced by collaboration among multiple actors, including government institutions, site managers, local communities, and other stakeholders. Community participation plays an important role in strengthening environmental stewardship, increasing social legitimacy, and supporting sustainable management practices [12], [13]. At the same time, governance structures must ensure that conservation objectives remain central to decision-making processes, particularly when recreational and economic interests become increasingly prominent.

Recent studies on urban and peri-urban forests demonstrate that visitors increasingly value ecosystem services such as biodiversity protection, environmental quality, and opportunities for nature-based recreation [4], [16]. These findings suggest that the sustainability of urban leisure spaces relies on governance arrangements capable of maintaining ecological functions while delivering meaningful recreational experiences. Consequently, adaptive governance becomes a critical mechanism for balancing conservation priorities and public use within multifunctional urban forest landscapes [8], [9].

3. RESEARCH METHODOLOGY

This study employed a mixed-methods approach using a sequential explanatory design to examine governance practices in Taman Hutan Kota Langsa, Aceh, Sumatera, Indonesia (**Figure 1**). The design integrates quantitative and qualitative data to provide a comprehensive understanding of how governance supports the ecological sustainability of conservation-based urban leisure spaces [17], [20]. Quantitative findings were used to identify general patterns of visitor perceptions, while qualitative data were utilized to explain and contextualize these patterns through stakeholder perspectives [11].



Figure 1: Research Location

Quantitative data were collected through a structured questionnaire administered to 100 visitors of Taman Hutan Kota Langsa. The survey focused on visitor perceptions regarding the ecological, social, and economic functions of the urban forest. The data were analyzed using descriptive statistics, including frequency distributions, percentages, and mean scores by index, to identify dominant trends and general perceptions toward the functions of the area.

Qualitative data were obtained through semi-structured interviews with key stakeholders, including government representatives, site managers, and community actors involved in the management of the urban forest. Field observations and document reviews were also conducted to strengthen data triangulation and provide contextual understanding of governance practices within the study area [4], [18].

The qualitative data were analyzed using thematic analysis. Emerging themes were identified and interpreted to explain governance mechanisms that support the coexistence of ecological conservation and urban leisure activities [12]. The integration of quantitative and qualitative findings enabled a more comprehensive interpretation of governance dynamics and ecological sustainability within the urban forest landscape [19].

4. RESULTS & DISCUSION

4.1 Synthesis of Perception on the Functions of Langsa City Forest Park

The data obtained from the perception mapping shows that visitors give positive ratings to various functions of Langsa City Forest Park. The results of the park function index mapping (Table 1) illustrate the dynamics of area utilization, reflecting the diverse ways visitors appreciate and interact with the park's functions. However, there are differences in the level of appreciation between functions, showing an interesting trend in how the area is used. The function with the highest score is urban nature tourism, followed by environmental education, social cohesion, and community participation. Meanwhile, the ecological function as a city environment buffer receives a relatively lower score compared to the other functions.

Table 1: Perceptions of the Functions of Langsa City Forest Park

Functions	Indicators Functions	Mean scores by index
Environment	Environmental Biodiversity Conservation	78,6
Environment	Urban Buffer Ecosystem	74,2
Social	Education & Environmental Awarenes	82,2
Social	Social Cohesion	81
Social	Community Participation	80,8
Economy	Urban Nature	83,6
Economy	Environment – Based Creative Economy	79,4

The findings above show that the presence of THK Langsa is currently felt by visitors more through direct experiences that are recreational and social in nature rather than through its indirect ecological functions. The area is perceived as a comfortable space for tourism, relaxation, social interaction, and gaining environmental experiences, so the ecological function exists as an element that supports the quality of those experiences. Urban forest parks not only function as urban ecological buffers but also as social spaces that support recreational activities, community interaction, and the improvement of

urban quality of life [1].

Although it was basically developed as part of a pure conservation area, visitor perception results show that the function of THK Langsa today is more often understood through recreational and social activities. This phenomenon indicates that the area's function has evolved beyond just an ecological space, becoming a space that also supports various social and recreational activities for urban communities.

This phenomenon, found based on quantitative mapping results, aligns with the concept of multifunctional urban green spaces, where urban green open spaces not only serve ecological functions but also develop as spaces for recreation, social interaction, and learning for the community [3]. From this perspective, ecological and social functions are not positioned as two separate functions but rather complement each other in supporting the quality of life of urban communities.

The quantitative findings align with the concept of multifunctional urban green spaces, in which urban forests are expected to provide ecological services while simultaneously supporting recreational, educational, and social functions for urban communities [10]. Within this perspective, ecological and social functions are not viewed as competing objectives but as complementary dimensions that collectively contribute to urban well-being and environmental sustainability [8].

The mapping results indicate that urban nature tourism, environmental education, social cohesion, and community participation are among the strongest functions perceived by visitors. These findings suggest that Langsa City Forest Park has evolved beyond its traditional role as an urban green space and is increasingly experienced as a setting for recreation, social interaction, and environmental learning. In this regard, the park demonstrates key characteristics of a conservation-based urban leisure space that is closely embedded within the daily lives of local residents [9].

However, the emergence of these multifunctional roles cannot be understood solely through visitor perceptions. The ability of Langsa City Forest Park to simultaneously accommodate ecological conservation and urban leisure activities reflects broader governance processes that shape the management and development of the area. Consequently, understanding how institutional arrangements and policy frameworks influence the direction of urban forest management becomes essential. The following section therefore examines the role of institutional centrality and adaptive policy mechanisms in maintaining the ecological sustainability of Langsa City Forest Park while supporting its development as a conservation-based urban leisure space.

4.2 The Interests of Central Institutions and Flexible Policies in Protecting Ecological Functions.

The sustainability of the ecological functions of Langsa City Forest Park (CFP) is not only determined by the presence of vegetation, facilities, or tourism activities within the area, but also by the governance structure that guides its management. Research shows that the management of the area is still centered on the Langsa City Environmental Agency as the main actor responsible for conservation aspects, area

maintenance, and strategic decision-making. This central position plays an important role in maintaining consistency in the direction of area management so that ecological functions remain the top priority amid the growing urban recreation and nature tourism activities.

In the context of urban conservation areas, institutional centrality is needed to ensure that tourism development doesn't displace the area's basic function as green open space and an ecological habitat [9], [15]. Research findings show that various management decisions in the area, including the development of tourist facilities, vegetation maintenance, and regulation of visitor activities, remain within a conservation framework controlled by the managing institution. This shows that the urban leisure activities growing in THK Langsa don't happen freely but are instead within limitations set through area governance mechanisms.

Furthermore, the study found that the presence of the 2022 Langsa City Detailed Spatial Plan (DSP) serves as a policy tool that strengthens the protection of the ecological functions of the area. The DSP lays out space allocation that distinguishes core conservation zones and public use areas through the regulation of Green Open Space sub-zones. This arrangement can be understood as a form of adaptive policy designed to accommodate the development of tourism functions without reducing protection for areas with high ecological value. Thus, spatial planning policies not only function as administrative tools but also as mechanisms for long-term ecological protection (**Figure 2**).



Figure 2: Detailed Spatial Plan of Langsa City 2022-2030

This finding shows that THK Langsa's success in maintaining its ecological functions amidst growing urban leisure activities didn't happen naturally, but was shaped through a combination of institutional centrality and adaptive policies that can balance conservation and land use. From a sustainable governance perspective, this situation demonstrates how institutional and policy tools can serve as the

main foundation in guiding the transformation of conservation areas into conservation-based urban leisure spaces. The presence of Langsa City's DSP, especially in regulating the City Forest zone, is an important instrument that ensures the land use in the area remains protected from conversion pressures. By clearly mapping out spaces and providing integrated usage guidance, the DSP helps keep urban jungle (based on conservation areas) areas ecologically functional and able to adjust to the changes in city development down the road.

4.3 Urban Leisure Within Conservation Boundaries

Research results show that Langsa City Forest Park (CFP) has developed into an urban leisure space that not only serves as a conservation area but also as a place for recreation, environmental education, and social interaction for the community. Quantitative findings show that the functions of urban nature tourism, environmental education, social cohesion, and community participation are the aspects most strongly felt by visitors. This condition shows that the existence of CFP Langsa is no longer seen simply as an urban green space, but as part of the daily activities of the community, providing nature-based recreational experiences within the urban environment.

The development of urban leisure functions is supported by the presence of various recreational and educational facilities that allow people to interact directly with the natural environment. Activities like walking, family recreation, wildlife observation, environmental education, and various community activities are ways of using the space that strengthen the area's social function (**Figure 3**). Nature-based recreation experiences in city forest areas not only provide psychological and social benefits for visitors but also increase public appreciation for the ecological values of the area [10], [16].



Figure 3: Various recreational and educational development

Nevertheless, research results show that the development of recreational activities in CFP Langsa has not been accompanied by a change in the area's management orientation. Conservation functions still remain the main foundation in various policies and management practices. This can be seen from the spatial arrangements in the area, restrictions on activities in certain zones, as well as efforts to maintain vegetation cover and wildlife habitats, which are still a priority for managers. In other words, recreation functions are developing as part of the area's utilization without displacing the ecological functions that have been inherent to the area since its initial establishment (**Figure 4**).



Figure 4: The sustainability of city forest area

These findings show that urban leisure in THK Langsa develops through an approach of coexistence rather than substitution, meaning that recreational functions grow alongside conservation functions without replacing the ecological role of the area. In the context of a city forest park, this condition becomes an important indicator that nature-based recreational spaces can develop sustainably if supported by management that can maintain a balance between community needs and environmental protection. In this way, CFP Langsa shows characteristics of conservation-based urban leisure, making recreational experiences a means to strengthen people's connection with the urban natural environment.

4.4 Multi-Actor Governance and Ecological Sustainability

The ecological sustainability of Langsa City Forest Park is not maintained solely through the authority of a single institution, but through the interaction of multiple actors performing complementary governance functions. The findings indicate that environmental protection, biodiversity monitoring, destination evaluation, and visitor management are carried out through a network involving the Environmental Agency (DLH), PT Pekola as the site operator, the Natural Resources Conservation Agency (BKSDA), the Tourism Office, and local communities. This arrangement demonstrates that

conservation-based urban leisure requires governance structures that extend beyond conventional site management and incorporate collaborative mechanisms for ecological stewardship.

The Environmental Agency plays a central role in safeguarding ecological functions through environmental monitoring, carrying-capacity assessment, vegetation evaluation, and visitor activity control. At the same time, PT Pekola conducts daily operational supervision, including maintenance of green spaces, waste management, animal care, and visitor services. The involvement of BKSDA further strengthens ecological oversight through periodic monitoring of wildlife welfare and vegetation conditions. These complementary responsibilities illustrate how ecological sustainability is maintained through institutional interdependence rather than isolated management actions (**Figure 5**).

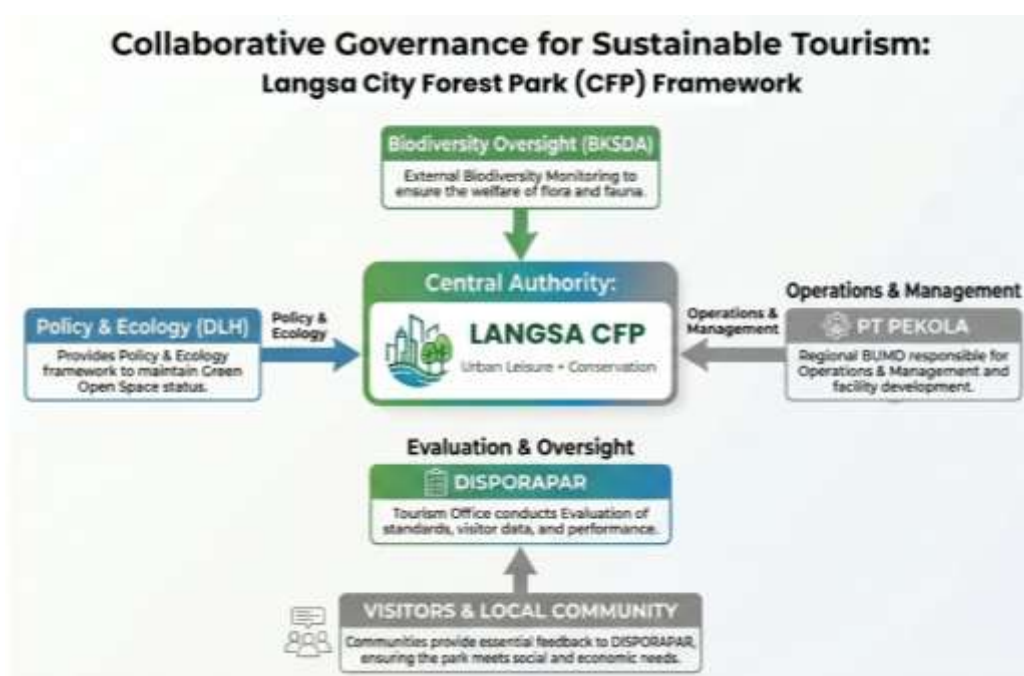


Figure 5: Collaborative Framework of CFP Langsa

The findings also reveal that monitoring and evaluation processes have evolved beyond administrative reporting and routine supervision. Environmental assessments increasingly focus on ecological resilience, biodiversity conservation, environmental cleanliness, and the impacts of tourism activities on ecosystem conditions. Such practices reflect the characteristics of adaptive governance, where management responses are continuously adjusted according to emerging environmental pressures and operational challenges [13], [15].

An equally important finding concerns the role of visitor perceptions as a form of governance feedback. Positive evaluations regarding landscape quality, environmental experiences, and recreational value reinforce the social legitimacy of the area. At the same time, public criticism regarding cleanliness, facility maintenance, and environmental quality provides valuable information for management

improvement. In this regard, monitoring is not restricted to ecological indicators alone but also incorporates social feedback as part of an adaptive governance process [11], [12].

Despite these achievements, several challenges remain evident. Increasing visitor pressure, waste management issues, funding limitations, and the need to balance recreational activities with conservation objectives continue to pose governance challenges. The findings suggest that ecological sustainability depends not only on conservation policies and institutional authority but also on the capacity of governance actors to collectively respond to changing environmental and social conditions.

Overall, the governance of Langsa City Forest Park demonstrates an emerging model of multi-actor ecological stewardship in which conservation objectives are maintained through continuous coordination, monitoring, and adaptive responses. This collaborative governance arrangement enables the park to function simultaneously as a conservation area and an urban leisure destination without fundamentally compromising its ecological role.

5. CONCLUSION

This study demonstrates that Langsa City Forest Park has evolved beyond its traditional role as an urban green space and increasingly functions as a conservation-based urban leisure destination. Quantitative findings indicate that visitors strongly perceive the recreational, educational, and social functions of the area, while ecological functions continue to provide the environmental foundation that supports these activities. These perceptions were further corroborated by qualitative findings, which reveal that conservation remains the primary orientation of area management despite the increasing intensity of public use. Together, the findings confirm that urban forests can simultaneously serve conservation and leisure purposes when managed within an integrated governance framework.

The study further reveals that the sustainability of ecological functions is strongly influenced by institutional centrality and adaptive policy mechanisms. The Environmental Agency of Langsa City remains the primary actor responsible for maintaining conservation objectives, while the 2022 Detailed Spatial Plan (RTRD) provides a regulatory framework that protects ecologically sensitive areas from future land-use pressures. These governance arrangements enable recreational development to occur without fundamentally compromising the ecological integrity of the urban forest.

In addition, the findings highlight the importance of multi-actor governance involving government agencies, site operators, conservation institutions, and local communities. Through continuous monitoring, evaluation, coordination, and feedback mechanisms, these actors collectively contribute to maintaining ecological sustainability while supporting public use of the area. The integration of quantitative visitor perceptions and qualitative stakeholder perspectives provides a more comprehensive understanding of how conservation and urban leisure can coexist within a single urban forest landscape. The case of Langsa City Forest Park demonstrates that urban leisure development does not necessarily conflict with ecological conservation when supported by adaptive policies, institutional commitment, and collaborative governance arrangements. This study contributes to the

growing discussion on conservation-based urban leisure by providing empirical evidence from an emerging city context in Indonesia.

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