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Saving Mangrove Forest Extinction in Urban Areas: Will Government Interventions Help?

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ABSTRACT

The local government failure (city government level) to operationalize policies and accelerate the public interest in mangrove restoration into concrete activities contributes to the inability to save mangrove forests from extinction. As a result, a solution related to intervention is required as policy implementation design and sustainability, namely how the city government can translate and operationalize various national and provincial level policies in appropriate local (city) policies, build networking among stakeholders, and build the participation of non-government actors, including the community. The study employed a qualitative approach and an interviewing technique with nine informants from government and non-government organizations involved in policy implementation performance and sustainability. Data collection was carried out by in-depth interviews and analyzed through interactive methods. This study concluded that future implementation designs must incorporate policies into spatial plans for regional development and gradually institutionalize them, beginning with the establishment of authorities, the arrangement of hierarchies, agreed-upon limits, and procedures. At the management level, it is necessary to strengthen the relationship between stakeholders. This can help mitigate the conflict and foster collaboration. Sustaining the implementation performance in the future will require the involvement and participation of non-government stakeholders, including the community, and the adoption of best practices at the local community level. Both will be shared lessons between the government and the community and the key to the sustainability of policy implementation.

1. INTRODUCTION

The mangrove forest is a unique ecosystem as a connection between land and ocean ecosystems [1]. Indonesia has mangrove ecosystems strewn along the coast, with abundantly natural mangrove biological resources both area and richness. However, the mangrove degradation rate in Indonesia is the highest globally at 40% each year [2].

According to the World Atlas of Mangroves, the global mangrove area is 16.53 million hectares, with ASEAN accounting for 33.5 percent or 5.54 million hectares [3]. Meanwhile, Indonesia's mangrove area is 3.49 million hectares, accounting for 19 percent of the world's total and 63 percent of ASEAN, with Indonesian mangroves suffering damage and extinction in diverse locations. The data from the study in Indonesia shows that the extent of Indonesia's mangroves decreased by 3.75 million hectares in 2010, with 2.17 million hectares in forest areas and 1.58 million hectares outside the region. It covered 3.49 million hectares in 2015, with 2.17 million hectares in forest regions and 1.32 million hectares outside the zone. 1.67 million hectares of mangroves are still in good condition, whereas 1.82 million hectares are in critical condition, out of a total of 3.49 million hectares. Within five years, 260,859,32 hectares of mangrove had been degraded. Finally, in 2020, the mapping revealed a total mangrove area of 3,311,207.45 million hectares, with non-critical mangrove conditions accounting for 2,673,583.14 Ha (80.74%) and critical mangroves accounting for 637,624.31 Ha (19.26%) [4].

Papua (1,497,724 ha), Kalimantan (735,887 ha), Sumatra (666,439 ha), Bali and Nusa Tenggara (34,835 ha), Maluku (221,560 ha), Sulawesi (118,891 ha), and Java (35,911 ha) are the provinces with the most remaining mangroves in Indonesia. Meanwhile, the remaining urban mangrove forests are concentrated in six regions: Jakarta (North Jakarta), Central Java (Karimun Jawa/Jepara), Yogyakarta (Kulonprogo), East Java (Banyuwangi), North Kalimantan (Tarakan), and Lampung (Bandar Lampung City) [5]. According to studies conducted in several regions of Indonesia, several factors contributed to the extinction of mangrove forests, including: the conversion of mangrove forest functions, the massive opening of ponds, potential loss of stored carbon, increased abrasion rates, illegal logging, and waste pollution, and weak synergy between sectors, and public awareness [6, 7].

The case studies of urban mangroves revealed damages to mangrove ecosystems and degradation of the coastal environment in a conversion of mangrove forests for the development of cities and coastal communities, expansion of

ponds, plantations, and agricultural land, and unregulated logging [8]. Several studies on Indonesian beaches found that seawater pollution enhanced mangrove degradation, particularly from ship oil spill, plastic debris wrapped around mangrove trunks [9].

Saving the urban mangrove forest extinction offers numerous benefits. Mangroves can tolerate abrasion from seawater, salt-laden storms and winds, and pollution (poisons) in coastal waterways (Physical benefits) [10]. Mangroves provide a habitat for marine life and a food source for existing species (biological benefits) [11]. Mangroves supply wood, and therapeutic substances provide economic benefits [12]. Mangroves defend the land from rising sea levels, high winds, and large waves caused by climate change. Stores carbon at a rate of 800-1200 tons per hectare (4-5 times that of mainland forests), with 80 percent of the carbon being stored in the soil. Because the breakdown of aquatic plant litter does not release carbon into the air, emissions from mangrove forests are lower than those from terrestrial forests [13]. Based on the previous study, mangrove forests are becoming increasingly important in environmental protection as a sustainable community through the mangrove ecosystem ecotourism, mangrove education, recreation, and protection of precious natural resources [6].

Since 2007, the national government has supported mangrove restoration in conservation, preservation, and sustainable use for the community's welfare. This commitment can be seen from various legal regulations for mangrove restoration efforts, namely: Law no. 27 of 2007 concerning Management of Coastal Areas and Small Islands, which is the Rehabilitation of coastal areas and small islands, Presidential Regulation Number 73 of 2012 concerning National Strategy for Mangrove Ecosystem Management and Regulation of the Coordinating Minister for Economic Affairs Number 4 of 2017 concerning Policies, Strategies, National Mangrove Ecosystem Management Program and Performance Indicators. Based on these regulations, all local governments in Indonesia develop strategies and implement accelerated mangrove ecosystem rehabilitation based on various values, including ecological, socioeconomic, institutional, and regulatory values, and with the participation of all stakeholders, including operational government, the private sector, non-governmental organizations, and universities.

The Karang City mangrove forest is located in Bandar Lampung City and is managed by the Bandar Lampung City Government. Lampung is the provincial capital and is located on the Sumatran archipelago. This area is located on the shore of Lampung Bay and the sole remaining mangrove environment in Sumatra Island, Indonesia. Moreover, the mangrove forest is surrounded by dense metropolitan centers, industrial sectors, and ports. The land area is 19,722 ha (197.22 km^2), divided into 20 sub-districts and 126 urban communities, and 1,166,066 people. Karang City serves as a gateway to Pasaran Island and serves as a port area. The problem of coastal garbage, ship oil spills, and the transfer of functions to construct facilities and infrastructure for harbor and the residential regions jeopardizes the mangroves' existence. Another problem is power competition over provincial and municipal government bureaucracies. Mangroves are located under the city administration authority, but several primary responsibilities remain with the provincial government.

The Bandar Lampung City Government intervened to prevent the mangrove extinction in Karang City by implementing two major policies, namely the development of urban exploration as green open space (RTH) and tourism development. Both strategies are part of a comprehensive national strategy for mangrove restoration. The value system and public interest associated with mangrove restoration must be operationalized at the operational level through an effective implementation design (street-level bureaucracy).

The implementation design examines how the city government's two interventions outlined above meet the mangrove restoration goals and result in performance [14]. The ability of the city government to translate and operationalize various policies set by the central and provincial governments into various forms: appropriate local policies, authority framework for hierarchical bureaus and cross-sectoral government agencies, and capacity to build networks between actors (stakeholders) are all factors that influence success [15, 16]. The implementation sustainability design competence is linked to the policy implementation's environmental factors, including the government's capacity to engage the community and essential stakeholders [17, 18].

The following are the problem formulations highlighted: 1. Factors affecting the policy implementation's performance in saving mangroves at the municipal government level; 2. Factors affecting the implementation sustainability performance to accomplish the policy objectives of saving mangroves.

2. LITERATURE REVIEW

2.1 Public policy implementation performance

Adherents of the political administration dichotomy, which assumes that developing policy is the easiest stage to undertake, have implicitly believed that policy implementation is the most challenging situation [19, 20]. This implementation has sparked concerns in all quarters. Failure to implement does not solely result in financial losses for the government, target groups, and the general public. Failure, on the other hand, implies a loss of opportunity (loss of opportunity), which reflects the reality of budget restrictions (budget constraint); hence every policy option involves a trade-off that includes a dilemma that must be decided due to limitations [21, 22].

Understanding the policy implementation is closely related to the concept of governance, is a widely used idiom, and is frequently used to explain policy implementation. Networking and decentralization, a venue where a plurality of actors congregate to create policy choices and implement, and multi-organizational linkages between key actors participating in policy implementation are all characteristics of implementation in the governance idea. The final point is about the public value system, what is acceptable, what is more legitimate, what is more creative, what is more responsive, and what is even better. Furthermore, policy implementation is a process of accomplishing public goals carried out by actors: plurality of organizations with more flexible vertical and horizontal relationships, all motivated by public values such as legitimacy, responsiveness, and inventiveness. This implementation is done in the spirit of equality and strong networking to attain accountable public goals [14, 15]. Implementation can be examined through the levels of institutional theory (institutionalism) and network theory from a structuralist perspective. First, on the

institutional level. Implementation is focused on the levels of the value system and is tied to the institutional level. This dimension includes a value system, official or informal norms with a high level of institutionalization: how the hierarchy is organized, the extent to which borders are agreed upon, procedures, and the regime's collective values. Administrative law and other types of legal regulation, ideas relating to the operation of the bureaucracy on a large scale, political-economic theory, and theory of political control over the bureaucracy are all included in this paradigm. Institutional theory, rent-seeking theory, bureaucratic control theory, and the theory of government goals and philosophy are all included in this element. Second, on organizational and managerial implementation. Typically, it is associated with hierarchical bureaucracies, departments, commissions, government agencies, and organizations that work with the government. The role of implementation is to accelerate public interests in an inter-institutional network. At this level, the agendas: administrative freedom and independence, performance measurement in the public service process, become essential issues. Significant theories to explain this phenomenon include principal-agent theory, transaction cost analysis theory, collective action theory, and network theory. Third, implementation at the technical level. This is how the first and second approaches values and public interests must be operationalized in real-world actions. At this point, technology, notably information technology, becomes important. In this setting, issues of professionalism, technical competency norms, responsibility, and performance are critical. Theories relevant to this theme include measures of efficiency, technical management of organizational culture, leadership, accountability mechanisms, and measurements. As a result, governance at this level is primarily concerned with the actual implementation of government policies (public policy at the street level). The research focuses on how public ideals and interests are operationalized in real actions in the form of meaningful interventions at the technological level [15, 16].

2.2 Environment and sustainability of policy implementation performance

The implementation of a policy or program does not take place in a vacuum; it occurs in a context that includes geographical, social, economic, and political factors [23]. Although political factors were initially considered less important as the impact of the political-administrative paradigm, which views only how policy management is managed, it is stated that political bargaining is an implementation reality that cannot be avoided when the implementation process occurs. in the public sphere, which contains heterogeneity of interests [24]. A policy environment aspect that influences implementation effectiveness is the interaction of actors, both government and non-government circles, which creates political dynamics that vary from one stage to the next, non-governmental actors in the shape of society, community institutions. There have been studies on environmental interactions, including public involvement in this situation. The possibility of strong implementation performance is put forth when a policy is executed with the support of non-government stakeholders; this condition will result in co-operation and conformity; otherwise, the lack of support will result in counteraction and detachment [25, 26].

Implementation studies are also impacted by democratic values, which are then adopted in policy implementation. An illustration of how policy formulation and implementation is carried out democratically, the greater the potential for success is due to: The community has a better understanding of the program's objectives while providing input, understanding the benefits of the program, as well as being able to identify the obstacles, the community can better identify the program implementation mechanism so that will be followed by involvement in exercising control. Community involvement is not just the needs and demands of democracy, but a higher meaning is a learning media with the government and the community, the key to sustainable development [27].

3. METHOD

This study was conducted for three months from September to December 2020. The research location is in the Coastal Village of Karang City, Teluk Betung Timur District, Bandar Lampung, which can be seen more detail in Figure 1. This study employed a qualitative approach and in-depth interviews. The design method was qualitative; informants were purposively selected; inductive data analysis and information extraction were used until iterative data analysis was completed. Iteration is accomplished by sorting, selecting, and categorizing field data, which is then used to study instances interpreted ideographically [28, 29]. The terms occurred during the policy implementation process, factors that influence implementation performance, and factors that affect the sustainability of implementation performance.

In-depth interviews with government and non-government players were done. The following documents were reviewed, namely: Law 26 of 2007 on National Spatial Planning, Lampung Province Regional Regulation No. 1 of 2018 on Spatial and Regional Planning (RTRW) and the Location of Green Open Spaces (RTH) in the City of Bandar Lampung, Local Government Law 23 of 2014 on Regional Autonomy, and Bandar Lampung City Regional Regulation No. 10 of 2011 on Spatial and Regional Planning (RTRW). Informants in this study consisted of Ministry of Marine Affairs and Fisheries National, Department of Maritime Affairs and Fisheries of Lampung Province, Forestry Service of Lampung Province, Department of Marine and Fisheries of Bandar Lampung City, Department of Housing and Settlement of Bandar Lampung City, Tourism Office of Bandar Lampung City, key community figures Karang City, non governmental organization (Walhi, Mitra Bentala, and Tangan), and universities.

The data analysis technique used was qualitative analysis. The stages start from processing, preparing data to be analyzed, rereading all data, analyzing in more detail by coding the data, describing settings, people, categories, and themes to be analyzed, linking themes or descriptions in a series of stories. Then description and theme were done and then presented in a qualitative narrative/report and concluded [30].

4. RESULTS AND DISCUSSION

4.1 Mangrove conditions in the research area

Karang City Village is one of the villages in Bandar Lampung's Teluk Betung Timur District, with a 35-hectare land area and a shoreline (coastal area). Bandar Lampung City, the capital of Lampung Province, is located on the coast of

Lampung Bay and has experienced rapid population expansion and development. With a population of 1,000,000 (million), Bandar Lampung City has a land area of 19,722 ha (197.22 km^2), divided into 20 sub-districts and 126 urban villages.

In 1990, the Bandar Lampung City coast had a mangrove ecology that almost completely encompassed the entire coastline (an area of 59.35 ha). Mangroves in Bandar Lampung City have degraded as a result of increased population and development, leaving only a few hectares in Karang City, namely: in 2012, the mangrove area of Karang City was 4,007 ha, in 2015 it was 3,589 ha, in 2017 it was 4,668 ha, and in 2019 it was 5,478 ha (Figure 2). Karang City has a population of 10,186 people, with 2,642 households as family heads. Fishermen, construction workers, and entrepreneurs/traders provide the majority of the people's income. The income level of each family head is at a low-income level. This level has an impact on securing low-paying occupations and affects settlement patterns. As a port area, Karang City serves as a crossing point to Pasaran Island. The problem of waste and the construction of facilities and infrastructure for the port area and towns also threaten the existence of mangroves, because they are built on a mud substrate where mangrove habitats are located (Figure 3 and Figure 4).

Figure 1. Research location

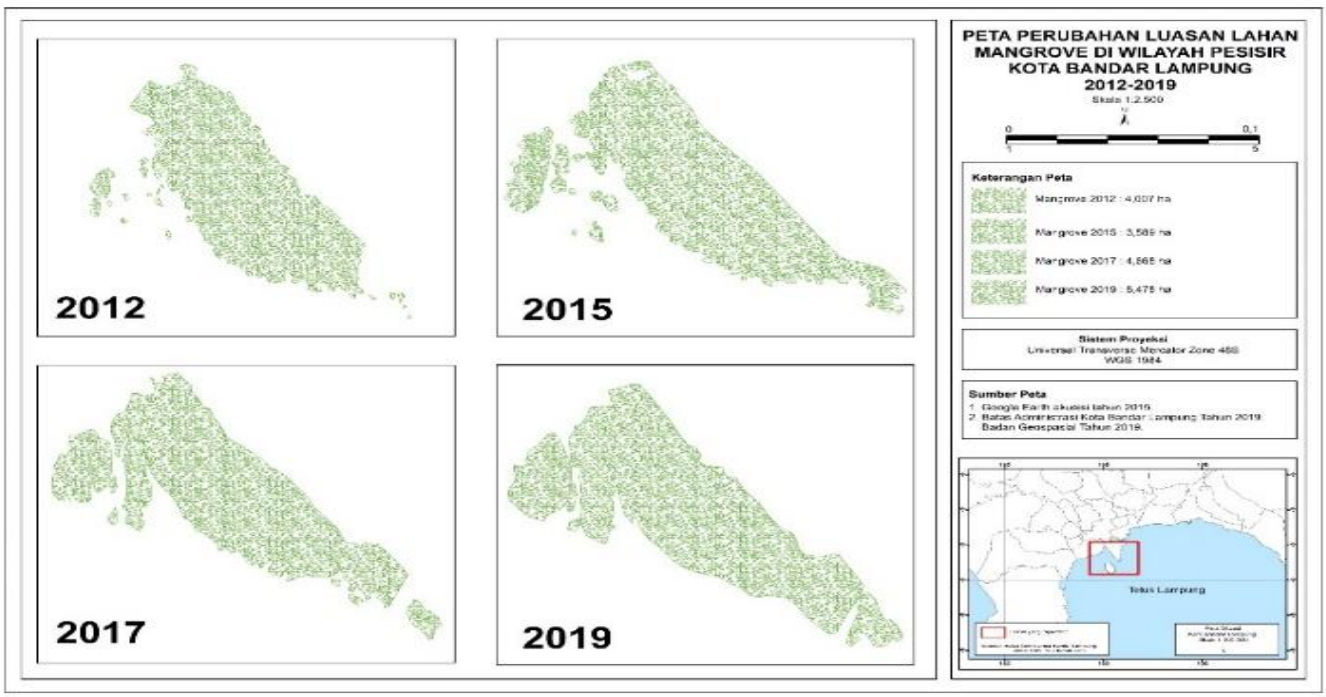

Figure 2. Time series of mangrove area range in 2012-2019

Figure 3. Mangrove logging for bridges between regions

Figure 4. Waste problem at mangrove sites

In 1993, one of the NGOs, Walhi (Indonesian Forum for the Environment), attempted to plant mangroves, but the efforts were unsuccessful. Because of the loss in mangrove area caused by mangrove logging due to the construction of roads and bridges to support the growth of the Karang City area, notably Pasaran Island as a port center, planting has been expanded again since 2015. Walhi's participation was followed by several non-governmental organizations, including Akar Foundation, Tangan and Mahusa Foundation, describing the potential and participation of stakeholders in saving Karang City's mangrove forests.

4.2 Factors affecting the performance of policy implementation to save mangrove forests in Karang City

This section discusses the factors affecting the performance of two mangrove forest conservation policies, namely the development of green open spaces (RTH) and tourism. We did a document search and questioned members of the public, community leaders, NGOs, universities, and the government about the city administration of Bandar Lampung's performance in executing real policies and programs. In general, we discovered that the initial issue with maintaining urban mangrove forests was the translation of national and provincial legislation into organizational and managerial regulations and authorities. In general, we found the following factors.

4.2.1 Capacity to translate and implement high-level government policies

We conducted interviews with key players and a literature review. The government is making several efforts to safeguard mangrove forests and has done so previously. The implementation's success is contingent upon the City Government of Bandar Lampung's capacity to effectively translate and operationalize numerous national and provincial government policies in the form of policies to conserve the mangroves of Karang City.

According to the table above, the national spatial planning policy established mangrove forests as protected forest areas and a critical component of creating green open space in green belt sections, coastal borders, urban forests, and nature tourism. Each area achieves 30% of its total land area as green open space. Transferring responsibilities to the municipal administration becomes an integral part of Spatial and Regional Planning (RTRW).

Some of the operations that the city government must carry out are: precisely determining the mangrove forest of Karang City as a protected forest area, making mangrove forest part of green open space in the green belt, coastal border, urban forest, and nature tourism categories, setting the achievement of green open space by 30%. However, the publication of municipal government policies as stated in Bandar Lampung City Regional Regulation Number 10 of 2011, which is valid until now, demonstrates that the city government is not focused and has not yet operationalized them. At the operational implementer level, there was an interpretation and understanding that the mangroves of Karang City were not part of the green open space but could only be developed as a tourism attraction. Several findings, which are also listed in Table 1, corroborate the following:

First, the jurisdiction over the mangrove forest management unit does not belong to the city administration; instead, it is retained by the provincial government through the Marine and Coastal Service and the Forestry Service. This results in regulatory dualism, an imbalance of authority between the provincial and municipal levels of government, resulting in a conflict of interest that effectively ignores the public interest in saving the Karang City mangroves.

Second, the division of an area that intersects with the mainland, as happened in Karang City, is not defined in detail and depth, including the affirmation of the organization that is primarily responsible for tourism development.

Table 1. The city government's policy operations

National and Provincial Level Policies	Operationalization of City Government Policies	Analysis
1. Law 26 of 2007 about Spatial Planning Nationally 2. Regulation of the Minister of Public Works Number 05 of 2008 on Green Open Spaces in Urban Areas 3. Regional Regulation of Lampung Province No. 1 of 2018 about Spatial and Regional Planning (RTRW) and Location of Green Open Spaces (RTH) for Bandar Lampung City 4. Local Government Law number 23 of 2014	Bandar Lampung City Regional Regulation Number 10 of 2011 about RTRW. The government prepares a mangrove spatial plan for 2011-2030 into other protected areas, coastal border areas, and green open spaces (RTH).	▪ Mangrove forests are not classified as protected forest areas. ▪ Mangrove Forest is not yet included in the Green Open Space (RTH). ▪ Mangrove Policy as Green Open Space and Tourism Development has been excluded from Regional Planning (RTRW). ▪ Significant to the province government's management of urban mangrove forests (Forestry Service); ▪ Modifications in the preparation of the government bureau that compiles the RTRW changes

Third, the authority to determine RTH in the RTRW document has been initially a planning unit, the Regional Development Planning Agency, which evolved into the Bandar Lampung City Housing and Settlement Service.

Fourth, developing a program to conserve mangrove forests through green open space and tourism policies is without funding from the regional budget and without being cross-sectoral.

4.2.2 Capability to build relationships (networking) between institutions and stakeholders

The implementation's effectiveness depends on the Bandar Lampung City Government's capacity to connect actors/stakeholders. Implementation of the policy will be coordinated with national departments, government bureaus at the provincial and municipal levels, and organizations and community groups involved in mangrove conservation. The two policy objectives cannot be accomplished in isolation; they require a cross-sectoral framework.

Based on Table 2, the following picture emerges: first, networking between actors does not yet imply collaboration and synergy; mangrove rescue programs continue to operate independently and separately; second, some community support in the form of protecting mangrove forests from conversion, which is reflected in the expansion of tourism development programs and education provided by NGOs; third, the campaign to plant a million mangroves annually led by numerous NGOs is not being mirrored by the government; fourth, the mangrove program as one of the green open spaces has not yet been determined by the Bandar Lampung City Housing and Settlement Service.

Table 2. Mangrove management stakeholder networking

Sector/Actor	Formulation Role	Implementation Role	Interest	Operational Action	Results and Analysis
Ministry of Maritime Affairs and National Fisheries	Carry out the preparation of guidelines for the use of mangrove forests	Carry out monitoring related to mangrove forest management	Making decisions regarding how the location is to be used as a mangrove forest	Encouraging the construction of mangrove forest facilities (Budgeting)	Haven't touched the mangrove forest of Karang City
Lampung Province Maritime Affairs and Fisheries Service	Conducting policy formulation for mangrove forests in Lampung Province	Monitoring, coordinating work, work activities related to mangrove forest management in Lampung Province	Making policies related to the allocation of funds and the location of mangrove forests in Lampung Province	Planting mangroves	Limited mangrove planting
Lampung Provincial Forestry Service	Make proposals regarding the location of mangrove forests in Lampung Province	Coordinate work with DKP Lampung Province	Carry out rehabilitation related to mangrove forest damage in Lampung Province	Mangrove planting in several locations designated as mangrove forests in Lampung Province	Limited mangrove planting
Department of Marine Affairs and Fisheries of Bandar Lampung City	Planning the development of mangrove forests as tourism in Bandar Lampung City	Coordinating work with relevant agencies for mangrove objects as ecotourism and Edutourism	Establishing mangrove management activities as ecotourism and Edutourism in Bandar Lampung City	Make a work plan for ecotourism and Edutourism in the mangrove forest of Bandar Lampung City	Partially compile a tourism development program that integrates with the port development program
Bandar Lampung City Housing and Settlement Service	Arrange locations in Bandar Lampung City which are included in the mangrove forest according to the RTRW	Establishing the mangrove forest area as a Green Open Space in Bandar Lampung City	Sufficient and mapped the location of mangrove forests in Bandar Lampung City	Carry out construction and repair of facilities, facilities, and infrastructure	Haven't integrated Mangrove as RTH in RTRW
Bandar Lampung City Tourism Office	Prepare a tourism development plan for Karang City	Create a tracking route, compile a tourist book, develop a market island as a port	Increase income and the creative economy	Establish cooperation	Travelling track and connecting bridge
Communities Around Mangroves	Propose a plan	Establishing a management team at the location of the Karang City mangrove forest	Increased income	Maintain the location so that the existence of mangroves is not converted into settlements, ports, and other activities.	Part of the implementation of the tourism program through the Tourism Awareness group
NGO	Contribute to make proposals related to policies for determining the expansion of mangrove forests	Carry out activities related to saving mangroves in collaboration with the government	Providing information to the surrounding community regarding the importance of the existence of mangrove forests	Contribute to conducting counseling and planting mangrove forests in Karang City	Mangrove planting movement

In general, the description of the factors affecting implementation performance shows that hierarchical bureaus and government agencies, both primary and cross-sectoral, are involved in managing the mangroves of Karang City; they have not been set out in detail operational policies. However, several city government interventions have been seen to save mangrove forests. Several city government bureaus/operational departments have provided aid for tourism programs and green open space expansion. The Department of Tourism, in partnership with the Department of Marine and Coastal Affairs, the Department of Public Works, Karang City community groups, and various non-governmental organizations, provides support for the development of tourism initiatives. Some of the programs/activities carried out include:

First, as part of an edutourism development strategy, create a tracking trail design for mangroves and produce a planning book for mangrove tourism attractions in Karang City. This was done in collaboration with NGOs and the community, but its implementation is still hampered by provincial government permission;

Second, the city government also took the initiative to develop a market island, which is located on the edge of a mangrove forest, by establishing it as a port and developing ecotourism (salted fish production base). The purpose of supporting the construction of a connecting road (bridge) between the mangrove forests of Karang City and Pasaran Island is to successfully expand Pasar Island ecotourism, which will be followed by ecotourism and a plan to establish mangrove green open spaces.

Meanwhile, support for the development of mangroves as an expansion of green open space in Karang City remains constrained by two aspects: the legal status/regulation of a Bandar Lampung City that has not yet designated mangroves as green open space and has not included them in spatial planning and urban area development (RTRW). Furthermore, the implementing government bureau has yet to be constituted, making management of the mangrove green open space region impossible. The Department of Housing and Human Settlements believes that the legal position of achieving this goal is still unclear; hence the existence of a legal framework is necessary. The primary management unit does not have any policy support until budgeting.

4.3 Sustainability aspects of performance implementation of the mangrove rescue policy in Karang City

Sustaining the implementation capability is related to environmental factors affecting policy implementation, including the support and participation of non-governmental actors, including the community. This has relevance to the city government's capacity. An illustration of how policy implementation is carried out democratically, the greater the potential for success is due to: the community has a better understanding of the program's objectives while providing input, understanding the benefits of the program, as well as being able to identify the obstacles, the community can better identify the program implementation mechanism so that will be followed by involvement in exercising control. Community involvement is not just the needs and demands of democracy, but a higher meaning is a learning media with the government and the community, the key to sustainable development.

Table 3 below depicts how the general public perceives Karang City's mangrove forest.

Based on Table 3, the community recognizes the economic, ecological and social importance of mangrove forest. Due to lack of dissemination and education, community has questions about the benefits of mangrove forests, does not comprehend them as protected places, and is unfamiliar with mangrove policies such as green open space and tourism. On the other hand, best practices result from the involvement and participation of significant community members and the help of NGOs, the commercial sector, and universities in the form of citizens' agreements/declarations to conserve the Karang City mangroves. Several of the agreements call for forming a community group dedicated to the conservation of mangrove forests, chaired by significant community leaders. Community groups conduct a variety of Initiatives, including the following:

Table 3. Community perception to mangrove forest in Karang City

No	Aspect	Community Perception
1	Mangrove forest environmental conditions	The mangrove forest's environmental conditions are poor, water sanitation is poor, and a large amount of waste is lodged in the mangrove roots, making the area appear nasty. Even though they are aware that the mangrove forest's environmental conditions are poor, some individuals favor the cleanliness of mangrove replanting and monitoring.
2	The existence of mangrove forests	People tend to have doubts about the increase in mangrove areas and whether the mangrove forest is a protected area. People think port activities are more important; hence, mangrove habitat land should be widened for road widening so that ships can lean more. This condition occurs because most people have a livelihood as fishermen.
3	Economic benefits	The community's reaction to the economic benefits reveals that people are skeptical of mangrove forests' potential as tourist attractions and ponds. Furthermore, the community is doubt that the mangrove forest may be used for crabs, shrimp, and medicinal leaves or fruit. Only a few sections of the society are aware of mangrove forests and use them to meet their daily food needs for crabs, mussels, shrimp, and other species. Because fisherman makes up the majority of the population, the mangrove forest is hardly used.
4	Ecological benefits	Mangrove forests have ecological functions such as being able to protect people's homes from natural disasters, being a place to live for marine life and being able to break waves and wind from the sea to the mainland. The factor that influences this knowledge is because the community does feel the existence of these functions from the mangrove forest. However, people tend to have doubts about the ecological functions of mangroves as seawater filters, flood control, abrasion, and seawater intrusion barriers. This doubt is because knowledge is still minimal, and people do not feel the existence of these functions.
5	Social benefits	The community observes the absence of social activities formed from the existence of mangrove forests and the absence of traditional beliefs or traditions to maintain the preservation
6	Negative impact of mangrove forest	The community acknowledges that mangrove habitat area has been logged to develop settlements. Mangrove forests are said to obstruct activities since fishermen do the majority of the job, making it difficult for ships to land at the port during the harvest season.

First, they develop and enforce social rules prohibiting the felling of mangrove trees, the disposal of rubbish, the cleaning of mangrove forests, and the monitoring of land conversion by irresponsible parties;

Second, in collaboration with the private sector, procure motorbikes for waste transportation from ports and the high seas;

Third, collaborated with NGOs, planting mangroves and adding vegetation are expected to increase the sustainability of mangrove ecosystems, contribute to increased biodiversity in the form of animals, and improve the visitor comfort as tourism development;

Fourth, socialization, communication, and education through the involvement of significant community actors as a form of support for incorporating social agreements into formal regulations.

4.4 Discussions

The importance of policy implementation performance in operationalizing public values and interests connected to protecting scarce urban mangroves increasingly encourages policies tailored to facilitate successful implementation. Various government programs have already been launched to help saving mangrove forests as green open space and tourism. Several researchers have investigated and evaluated these policies in rescuing mangroves from extinction, however this research largely focuses on policy descriptions [31, 32].

The existence of decentralized system that applies in Indonesia, has allowed the municipal government to propose policies without straying from the national policy plan. Local policies have a direct impact on mangrove conservation, so lessons learned from Thailand's political ecology, institutional arrangements, and local government power dynamics should be applied to the formulation of policies that are sensitive to local issues and facilitate their implementation and successful achievement [33].

Although the government appears to have failed to instill these principles and public interests, the potential to save mangroves through the establishment of green open spaces in Bandar Lampung City is considerable. In a stable institution, the local administration failed to speed it up in statutory and informal regulations. In several places in Indonesia, learning how to institutionalize environmental assessment in policies directs the government to focus on regulating how to organize the hierarchy, the extent to which the boundaries are agreed upon, what procedures are in place, and what collective values the government has adopted [34]. According to studies, Ecuador and countries in the Tropical East Pacific (TEP) have lost over 40% of their mangrove cover in the last 40 years, and the reason for this destruction is that the benefits of mangroves have not been assessed in a way that policymakers, markets, and communities can understand [35].

Another problem created by the government is related to tourism development, especially ecotourism and Edutourism. Although the government has tried to intervene by developing a border area policy into a port area and ecotourism, it will expectedly impact the development of mangrove tourism as Edutourism. It seems that the government has not managed to integrate it. The road facilities built in the mangrove forest area are expected to be a link and integration for the development of ecotourism and Edutourism but are considered by the community and economic actors as a barrier to port development. According to our findings, many people are unaware of the policies and regulations governing mangrove tourism, believe that mangroves have been around for a long time, and believe that their ecological function is limited to protecting people's homes from natural disasters, providing a home for marine life, and breaking waves and wind from the sea. The situation reveals systemic educational, information dissemination, and policy socialization issues that must be addressed by knowledge-sharing programs and public awareness campaigns in partnership with the media, community activists, universities, and local governments [36, 37].

Various efforts to save mangroves as a tourism destination, on the other hand, are still being carried out, including collaborative mangrove planting movements with several relevant government bureaus and NGOs, building networking with NGOs and the community, and establishing tourism institutions at the community level. The Movement's results may be observed in the growing area of mangroves over time, certain people committing and starting to work to keep mangroves from being transformed into communities, the expansion of ports, and the reduction of garbage around mangroves. Our findings imply that players (pluralist organizations) with more flexible relationships at the vertical and horizontal levels, motivated by public values such as legitimacy, responsiveness, and inventiveness, are more effective at developing mangroves as a tourism. It is carried out in a spirit of equality and strong networking to realize the objective of accountable mangrove conservation [38].

5. CONCLUSIONS

In conclusion, the government intervened to save urban mangrove forests by implementing two significant policies: growing urban mangrove forests as part of green open space (RTH) and developing mangroves as a tourism. The intervention's success is determined by two factors affecting policy implementation performance: 1) the city government's ability to translate and operationalize national and provincial policies into local policies, proper management of mangrove authorities; and 2) the government's ability to foster networking among actors/stakeholders, given that efforts to save mangrove forests cannot be undertaken independently, but require a cross-sectoral framework and actors.

Both factors contribute to implementation performances. Through the implementation of mangrove development policies as green open spaces, interventions have not helped save the substantive extinction of mangrove forests. Several of the impediments include the following: 1) It is still limited to analyze the interpretation and comprehension of mangrove forest types and classifications in the section on green open space, 2) Conflicts of jurisdiction between government bureaus/agents, both provincial and municipal administrations, 3) It is not incorporated into the regional spatial plan's grand design, 4) Partial programs with minimal funding. Intervention through policy implementation of mangrove development as tourism is more adequate by several collaborative programs between the tourism office and the government, between NGOs and the private sector. The outcomes include the development of a tracking route to mangroves as an edutourism development plan, the compilation of a planning book for mangrove tourism destinations in Karang City, the development of a market island adjacent to the location of a mangrove forest as a port

center area, and the development of ecotourism (salted fish production base), and support for bridge construction connecting the mangrove forests of Karang City and Pasaran Island.

The sustainability aspect of policy implementation performance is defined by how the implementation environment fosters the participation of non-government actors, including the community. Several of the best practices from the local community are strategic aspects, serving as a conduit for learning between the government and the community, which is a key for sustainable policy implementation and development.

The following efforts should be taken to optimize the participation of non-government actors, especially the community in the future: 1) socialization and education innovation engaging key community figures; 2) community building; 3) room for best practices to flourish and evolve; 4) space for collaborations to save mangroves; and 5) formalization of informal social agreements.

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